



Environment Testing
America

ANALYTICAL REPORT

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Laboratory Job ID: 600-204023-1
Client Project/Site: Chevron-Cooper Jal Groundwaters 2020

For:
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Authorized for release by:
5/12/2020 3:04:06 PM

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

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Client: ARCADIS U.S., Inc.
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Laboratory Job ID: 600-204023-1

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Method Summary

Client: ARCADIS U.S., Inc.

Job ID: 600-204023-1

Project/Site: Chevron-Cooper Jal Groundwaters 2020

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL HOU
2540 C-1997	Total Dissolved Solids (Dried at 180 °C)	SM	TAL HOU

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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

Laboratory References:

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
600-204023-1	RW-1-W-200420	Water	04/20/20 11:00	04/21/20 10:08	
600-204023-2	MW-5A-W-200420	Water	04/20/20 11:17	04/21/20 10:08	
600-204023-3	MW-5-W-200420	Water	04/20/20 11:24	04/21/20 10:08	
600-204023-4	MW-6R-W-200420	Water	04/20/20 11:33	04/21/20 10:08	
600-204023-5	DUP-1-W-200420	Water	04/20/20 00:00	04/21/20 10:08	
600-204023-6	MW-2A-W-200420	Water	04/20/20 11:51	04/21/20 10:08	
600-204023-7	MW-2-W-200420	Water	04/20/20 11:56	04/21/20 10:08	
600-204023-8	MW-1-W-200420	Water	04/20/20 12:10	04/21/20 10:08	
600-204023-9	MW-3-W-200420	Water	04/20/20 12:22	04/21/20 10:08	
600-204023-10	MW-12-W-200420	Water	04/20/20 12:37	04/21/20 10:08	

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Client Sample ID: RW-1-W-200420

Lab Sample ID: 600-204023-1

Date Collected: 04/20/20 11:00

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9640		200	26.7	mg/L			05/08/20 18:16	500
Fluoride	30.1	U	100	30.1	mg/L			05/08/20 18:16	500
Sulfate	1630		250	47.9	mg/L			05/08/20 18:16	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12700		200	200	mg/L			04/24/20 08:37	1

Client Sample ID: MW-5A-W-200420

Lab Sample ID: 600-204023-2

Date Collected: 04/20/20 11:17

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	120		4.00	0.534	mg/L			05/08/20 18:36	10
Fluoride	1.38	J	2.00	0.601	mg/L			05/08/20 18:36	10
Sulfate	65.9		5.00	0.957	mg/L			05/08/20 18:36	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	571		10.0	10.0	mg/L			04/24/20 09:53	1

Client Sample ID: MW-5-W-200420

Lab Sample ID: 600-204023-3

Date Collected: 04/20/20 11:24

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1870		100	13.4	mg/L			05/08/20 18:57	250
Fluoride	15.0	U	50.0	15.0	mg/L			05/08/20 18:57	250
Sulfate	601		125	23.9	mg/L			05/08/20 18:57	250

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	4150		40.0	40.0	mg/L			04/24/20 09:53	1

Client Sample ID: MW-6R-W-200420

Lab Sample ID: 600-204023-4

Date Collected: 04/20/20 11:33

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	77.4		4.00	0.534	mg/L			05/08/20 19:17	10
Fluoride	1.93	J	2.00	0.601	mg/L			05/08/20 19:17	10
Sulfate	88.3		5.00	0.957	mg/L			05/08/20 19:17	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	506		10.0	10.0	mg/L			04/24/20 09:53	1

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Client Sample ID: DUP-1-W-200420

Lab Sample ID: 600-204023-5

Date Collected: 04/20/20 00:00

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	69.6		4.00	0.534	mg/L			05/08/20 20:18	10
Fluoride	1.61	J	2.00	0.601	mg/L			05/08/20 20:18	10
Sulfate	144		5.00	0.957	mg/L			05/08/20 20:18	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	502		10.0	10.0	mg/L			04/24/20 09:53	1

Client Sample ID: MW-2A-W-200420

Lab Sample ID: 600-204023-6

Date Collected: 04/20/20 11:51

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	126		4.00	0.534	mg/L			05/08/20 20:39	10
Fluoride	1.62	J	2.00	0.601	mg/L			05/08/20 20:39	10
Sulfate	90.7		5.00	0.957	mg/L			05/08/20 20:39	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	526		10.0	10.0	mg/L			04/24/20 09:53	1

Client Sample ID: MW-2-W-200420

Lab Sample ID: 600-204023-7

Date Collected: 04/20/20 11:56

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	263		8.00	1.07	mg/L			05/08/20 20:59	20
Fluoride	1.20	U	4.00	1.20	mg/L			05/08/20 20:59	20
Sulfate	77.3		10.0	1.91	mg/L			05/08/20 20:59	20

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	624		20.0	20.0	mg/L			04/24/20 09:53	1

Client Sample ID: MW-1-W-200420

Lab Sample ID: 600-204023-8

Date Collected: 04/20/20 12:10

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	317		10.0	1.34	mg/L			05/08/20 21:19	25
Fluoride	4.50	J	5.00	1.50	mg/L			05/08/20 21:19	25
Sulfate	73.7		12.5	2.39	mg/L			05/08/20 21:19	25

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	826		20.0	20.0	mg/L			04/24/20 09:53	1

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Client Sample ID: MW-3-W-200420

Lab Sample ID: 600-204023-9

Date Collected: 04/20/20 12:22

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	68.5	F2 F1	4.00	0.534	mg/L			05/08/20 21:40	10
Fluoride	1.71	J F1	2.00	0.601	mg/L			05/08/20 21:40	10
Sulfate	107		5.00	0.957	mg/L			05/08/20 21:40	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	435		10.0	10.0	mg/L			04/24/20 09:53	1

Client Sample ID: MW-12-W-200420

Lab Sample ID: 600-204023-10

Date Collected: 04/20/20 12:37

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	245		10.0	1.34	mg/L			05/08/20 22:41	25
Fluoride	1.50	U	5.00	1.50	mg/L			05/08/20 22:41	25
Sulfate	92.3		12.5	2.39	mg/L			05/08/20 22:41	25

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	902		20.0	20.0	mg/L			04/24/20 09:53	1

Definitions/Glossary

Client: ARCADIS U.S., Inc.

Job ID: 600-204023-1

Project/Site: Chevron-Cooper Jal Groundwaters 2020

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-294111/11
 Matrix: Water
 Analysis Batch: 294111

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

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	0.0534	U	0.400	0.0534	mg/L			05/08/20 16:13	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/08/20 16:13	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/08/20 16:13	1

Lab Sample ID: LCS 600-294111/12
 Matrix: Water
 Analysis Batch: 294111

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	7.50	7.338		mg/L		98	90 - 110
Sulfate	20.0	20.36		mg/L		102	90 - 110

Lab Sample ID: 600-204023-9 MS
 Matrix: Water
 Analysis Batch: 294111

Client Sample ID: MW-3-W-200420
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	1.71	J F1	20.0	39.84	F1	mg/L		191	80 - 120
Sulfate	107		100	190.5		mg/L		83	80 - 120

Lab Sample ID: 600-204023-9 MSD
 Matrix: Water
 Analysis Batch: 294111

Client Sample ID: MW-3-W-200420
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	1.71	J F1	20.0	36.64	F1	mg/L		175	80 - 120	8	20
Sulfate	107		100	194.0		mg/L		87	80 - 120	2	20

Method: 2540 C-1997 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 600-293202/1
 Matrix: Water
 Analysis Batch: 293202

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

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			04/24/20 08:37	1

Lab Sample ID: LCS 600-293202/2
 Matrix: Water
 Analysis Batch: 293202

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Method: 2540 C-1997 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: MB 600-293216/1
 Matrix: Water
 Analysis Batch: 293216

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			04/24/20 09:53	1

Lab Sample ID: LCS 600-293216/2
 Matrix: Water
 Analysis Batch: 293216

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	1800	1745		mg/L		97	90 - 110

Lab Sample ID: 600-204023-2 DU
 Matrix: Water
 Analysis Batch: 293216

Client Sample ID: MW-5A-W-200420
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	571		578.0		mg/L		1	10

Unadjusted Detection Limits

Client: ARCADIS U.S., Inc.

Job ID: 600-204023-1

Project/Site: Chevron-Cooper Jal Groundwaters 2020

Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units
Chloride	0.400	0.0534	mg/L
Fluoride	0.200	0.0601	mg/L
Sulfate	0.500	0.0957	mg/L

General Chemistry

Analyte	MQL	MDL	Units
Total Dissolved Solids	10.0	10.0	mg/L

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QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

HPLC/IC

Analysis Batch: 294111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204023-1	RW-1-W-200420	Total/NA	Water	300.0	
600-204023-2	MW-5A-W-200420	Total/NA	Water	300.0	
600-204023-3	MW-5-W-200420	Total/NA	Water	300.0	
600-204023-4	MW-6R-W-200420	Total/NA	Water	300.0	
600-204023-5	DUP-1-W-200420	Total/NA	Water	300.0	
600-204023-6	MW-2A-W-200420	Total/NA	Water	300.0	
600-204023-7	MW-2-W-200420	Total/NA	Water	300.0	
600-204023-8	MW-1-W-200420	Total/NA	Water	300.0	
600-204023-9	MW-3-W-200420	Total/NA	Water	300.0	
600-204023-10	MW-12-W-200420	Total/NA	Water	300.0	
MB 600-294111/11	Method Blank	Total/NA	Water	300.0	
LCS 600-294111/12	Lab Control Sample	Total/NA	Water	300.0	
600-204023-9 MS	MW-3-W-200420	Total/NA	Water	300.0	
600-204023-9 MSD	MW-3-W-200420	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 293202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204023-1	RW-1-W-200420	Total/NA	Water	2540 C-1997	
MB 600-293202/1	Method Blank	Total/NA	Water	2540 C-1997	
LCS 600-293202/2	Lab Control Sample	Total/NA	Water	2540 C-1997	

Analysis Batch: 293216

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204023-2	MW-5A-W-200420	Total/NA	Water	2540 C-1997	
600-204023-3	MW-5-W-200420	Total/NA	Water	2540 C-1997	
600-204023-4	MW-6R-W-200420	Total/NA	Water	2540 C-1997	
600-204023-5	DUP-1-W-200420	Total/NA	Water	2540 C-1997	
600-204023-6	MW-2A-W-200420	Total/NA	Water	2540 C-1997	
600-204023-7	MW-2-W-200420	Total/NA	Water	2540 C-1997	
600-204023-8	MW-1-W-200420	Total/NA	Water	2540 C-1997	
600-204023-9	MW-3-W-200420	Total/NA	Water	2540 C-1997	
600-204023-10	MW-12-W-200420	Total/NA	Water	2540 C-1997	
MB 600-293216/1	Method Blank	Total/NA	Water	2540 C-1997	
LCS 600-293216/2	Lab Control Sample	Total/NA	Water	2540 C-1997	
600-204023-2 DU	MW-5A-W-200420	Total/NA	Water	2540 C-1997	

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Client Sample ID: RW-1-W-200420

Lab Sample ID: 600-204023-1

Date Collected: 04/20/20 11:00

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500	294111	05/08/20 18:16	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-5A-W-200420

Lab Sample ID: 600-204023-2

Date Collected: 04/20/20 11:17

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294111	05/08/20 18:36	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Client Sample ID: MW-5-W-200420

Lab Sample ID: 600-204023-3

Date Collected: 04/20/20 11:24

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		250	294111	05/08/20 18:57	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Client Sample ID: MW-6R-W-200420

Lab Sample ID: 600-204023-4

Date Collected: 04/20/20 11:33

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294111	05/08/20 19:17	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Client Sample ID: DUP-1-W-200420

Lab Sample ID: 600-204023-5

Date Collected: 04/20/20 00:00

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294111	05/08/20 20:18	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Client Sample ID: MW-2A-W-200420

Lab Sample ID: 600-204023-6

Date Collected: 04/20/20 11:51

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294111	05/08/20 20:39	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Eurofins TestAmerica, Houston

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Client Sample ID: MW-2-W-200420

Lab Sample ID: 600-204023-7

Date Collected: 04/20/20 11:56

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20	294111	05/08/20 20:59	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Client Sample ID: MW-1-W-200420

Lab Sample ID: 600-204023-8

Date Collected: 04/20/20 12:10

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25	294111	05/08/20 21:19	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Client Sample ID: MW-3-W-200420

Lab Sample ID: 600-204023-9

Date Collected: 04/20/20 12:22

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294111	05/08/20 21:40	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Client Sample ID: MW-12-W-200420

Lab Sample ID: 600-204023-10

Date Collected: 04/20/20 12:37

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25	294111	05/08/20 22:41	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293216	04/24/20 09:53	TNL	TAL HOU

Laboratory References:

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204023-1

Laboratory: Eurofins TestAmerica, Houston

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704223-19-25	10-31-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540 C-1997		Water	Total Dissolved Solids
300.0		Water	Chloride
300.0		Water	Fluoride
300.0		Water	Sulfate

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Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record



Client Information		Sampler: Justin Steinmann		Lab PM: Kudchadkar, Sachin G		Carrier Tracking No(s):		COC No: 600-75469-20396 3	
Client Contact: Ryan Nanny		Phone: 619 8518792		E-Mail: sachin.kudchadkar@testamericainc.com		Page: 1 of 1		Job #:	
Company: ARCADIS U.S., Inc.		Address: 1004 North Big Spring Suite 121		City: Midland		State, Zip: TX, 79701		PO #: 30006540.0003B	
Phone: 432-684-5400(Tel) 432-687-5401(Fax)		Email: Ryan.Nanny@Arcadis-us.com		Project #: 60012.118		SSOV#: 		Due Date Requested: 	
Project Name: Chevron-Cooper Jal Groundwaters 2020		Site: New Mexico		TAT Requested (days): standard		Field Filtered Sample (Yes or No): X		Analysis Requested	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=wast/oli, AT=Tissue, AA=)	
RW-1-W-200420		4/20/20		1100		G		Water	
MW-SA-W-200420		4/20/20		1117		G		Water	
MW-S-W-200420		4/20/20		1124		G		Water	
MW-GR-W-200420		4/20/20		1133		G		Water	
Dup-1-W-200420		4/20/20		---		G		Water	
MW-2A-W-200480		4/20/20		1151		G		Water	
MW-2-W-200420		4/20/20		1156		G		Water	
MW-1-W-200420		4/20/20		1210		G		Water	
MW-3-W-200420		4/20/20		1222		G		Water	
MW-12-W-200420		4/20/20		1257		G		Water	
2x									
Possible Hazard Identification		<input checked="" type="checkbox"/> Non-Hazard		<input type="checkbox"/> Flammable		<input type="checkbox"/> Skin Irritant		<input type="checkbox"/> Radiological	
Deliverable Requested: I, II, III, IV, Other (specify)		Poisson B		Unknown					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:		Special Instructions/QC Requirements:	
Relinquished by: Justin		Date/Time: 4/20/20 1600		Company: Arcadis		Received by: [Signature]		Date/Time: 4/21/20 1008	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		Return To Client <input type="checkbox"/>		Disposal By Lab <input type="checkbox"/>	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Archive For		Months		Total Number of Containers		Special Instructions/Note:	



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Ver: 01/16/2019

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Eurofins TestAmerica Houston

Loc: 600
204023



Environment Testing
TestAmerica

Sample Receipt Checklist

20 APR 21 10:09

JOB NUMBER: _____ **Date/Time Received:** _____
UNPACKED BY: FF **CLIENT:** Arcadis
CARRIER/DRIVER: Fedex

Custody Seal Present: YES NO **Number of Coolers Received:** 1

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
<u>3923</u>	<u>Y / N</u>	<u>Y / N</u>	<u>0.5</u>	<u>678</u>	<u>-0.1</u>	<u>0.4</u>
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				

CF = correction factor

Samples received on ice? YES NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED: NO YES

Base samples are >pH 12: YES NO Acid preserved are <pH 2: YES NO

TX1005 samples frozen upon receipt: YES **DATE & TIME PUT IN FREEZER:** _____

pH paper Lot # _____ VOA headspace acceptable (5-6mm): YES NO NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt? YES NO

COMMENTS:

_____ 4/21/20

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 600-204023-1

Login Number: 204023

List Source: Eurofins TestAmerica, Houston

List Number: 1

Creator: Rubio, Yuri

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
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	0.4
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	Check done at department level as required.

Analytical Report 675168

for

ARCADIS

Project Manager: Ryan Nanny

Chevron-Cooper Jal Groundwater 2020

60012118

10.21.2020

Collected By: Client



**4147 Greenbriar Dr.
Stafford, TX 77477**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.21.2020

Project Manager: **Ryan Nanny**

ARCADIS

1004 N. Big Spring St.

Midland, TX 79701

Reference: Eurofins Xenco, LLC Report No(s): **675168**

Chevron-Cooper Jal Groundwater 2020

Project Address:

Ryan Nanny:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 675168. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 675168 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

John Builes
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 675168

ARCADIS, Midland, TX

Chevron-Cooper Jal Groundwater 2020

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-9-W-201012	W	10.12.2020 13:55		675168-001
MW-7-W-201012	W	10.12.2020 14:10		675168-002
MW-10-W-201012	W	10.12.2020 14:20		675168-003
MW-4-W-201012	W	10.12.2020 14:26		675168-004
RW-1-W-201012	W	10.12.2020 14:30		675168-005
MW-5-W-201012	W	10.12.2020 14:40		675168-006
MW-2-W-201012	W	10.12.2020 14:50		675168-007
MW-1-W-201012	W	10.12.2020 15:05		675168-008
RW-2R-W-201012	W	10.12.2020 15:15		675168-009
RW-2-W-201012	W	10.12.2020 15:20		675168-010
MW-12-W-201012	W	10.12.2020 15:40		675168-011
DUP-1-W-201012	W	10.12.2020 00:00		675168-012



CASE NARRATIVE

Client Name: ARCADIS

Project Name: Chevron-Cooper Jal Groundwater 2020

Project ID: 60012118
Work Order Number(s): 675168

Report Date: 10.21.2020
Date Received: 10.14.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **MW-9-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-001 Date Collected: 10.12.2020 13:55
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	945	5.00	0.738	mg/L	10.15.2020 18:07		10

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	1860	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **MW-7-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-002 Date Collected: 10.12.2020 14:10
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4560	5.00	0.738	mg/L	10.15.2020 18:18		10

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	8090	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **MW-10-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-003 Date Collected: 10.12.2020 14:20
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	338	5.00	0.738	mg/L	10.15.2020 18:29		10

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	986	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **MW-4-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-004 Date Collected: 10.12.2020 14:26
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14200	25.0	3.69	mg/L	10.15.2020 18:40		50

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	25600	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **RW-1-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-005 Date Collected: 10.12.2020 14:30
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8470	10.0	1.48	mg/L	10.15.2020 18:51		20

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	14900	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **MW-5-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-006 Date Collected: 10.12.2020 14:40
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1460	5.00	0.738	mg/L	10.15.2020 19:02		10

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	2960	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **MW-2-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-007 Date Collected: 10.12.2020 14:50
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	221	0.500	0.0738	mg/L	10.15.2020 19:13		1

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	675	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **MW-1-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-008 Date Collected: 10.12.2020 15:05
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	285	0.500	0.0738	mg/L	10.15.2020 19:46		1

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	799	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **RW-2R-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-009 Date Collected: 10.12.2020 15:15
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7860	10.0	1.48	mg/L	10.15.2020 19:57		20

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	13800	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **RW-2-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-010 Date Collected: 10.12.2020 15:20
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3070	5.00	0.738	mg/L	10.15.2020 20:08		10

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	5140	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **MW-12-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-011 Date Collected: 10.12.2020 15:40
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	254	0.500	0.0738	mg/L	10.15.2020 20:19		1

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	732	5.00	5.00	mg/L	10.19.2020 13:00		1



Certificate of Analytical Results 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: **DUP-1-W-201012** Matrix: Water Date Received: 10.14.2020 15:42
 Lab Sample Id: 675168-012 Date Collected: 10.12.2020 00:00
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: JYM
 Analyst: JYM Date Prep: 10.15.2020 12:44 % Moisture:
 Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2990	5.00	0.738	mg/L	10.15.2020 20:30		10

Analytical Method: TDS by SM2540C
 Tech: YAV
 Analyst: YAV % Moisture:
 Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	5460	5.00	5.00	mg/L	10.19.2020 13:00		1



Blank Summary 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: 3140071-1-BLK

Matrix: WATER

Lab Sample Id: 3140071-1-BLK

Analytical Method: TDS by SM2540C

Prep Method:

Tech: YAV

Analyst: YAV

Date Prep:

Seq Number: 3140071

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	<5.00	5.00		mg/L	10.19.2020 13:00	U	1



Blank Summary 675168

ARCADIS, Midland, TX Chevron-Cooper Jal Groundwater 2020

Sample Id: 7713305-1-BLK

Matrix: WATER

Lab Sample Id: 7713305-1-BLK

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 10.15.2020 12:44

Seq Number: 3139798

Parameter	Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<0.0738	0.500		mg/L	10.15.2020 13:50	U	1



ARCADIS
Chevron-Cooper Jal Groundwater 2020

Analytical Method: Chloride by EPA 300

Seq Number: 3139798

MB Sample Id: 7713305-1-BLK

Matrix: Water

LCS Sample Id: 7713305-1-BKS

Prep Method: E300P

Date Prep: 10.15.2020

LCSD Sample Id: 7713305-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.0738	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	10.15.2020 14:01	

Analytical Method: Chloride by EPA 300

Seq Number: 3139798

Parent Sample Id: 675209-001

Matrix: Water

MS Sample Id: 675209-001 S

Prep Method: E300P

Date Prep: 10.15.2020

MSD Sample Id: 675209-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5.86	10.0	15.6	97	15.6	97	90-110	0	20	mg/L	10.15.2020 14:35	

Analytical Method: TDS by SM2540C

Seq Number: 3140071

MB Sample Id: 3140071-1-BLK

Matrix: Water

LCS Sample Id: 3140071-1-BKS

LCSD Sample Id: 3140071-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	1010	101	1010	101	80-120	0	10	mg/L	10.19.2020 13:00	

Analytical Method: TDS by SM2540C

Seq Number: 3140071

Parent Sample Id: 675168-001

Matrix: Water

MD Sample Id: 675168-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	1860	1870	1	10	mg/L	10.19.2020 13:00	

Analytical Method: TDS by SM2540C

Seq Number: 3140071

Parent Sample Id: 675168-011

Matrix: Water

MD Sample Id: 675168-011 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	732	732	0	10	mg/L	10.19.2020 13:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Chain of Custody Record

675168

Client Information		Sampler: J. Steinmann		Lab PM: Kudchadkar, Sachin G		Carrier Tracking No(s):		COC No: 600-79424-21425.1	
Client Contact: Ryan Nanny		Phone: 619 851 819a		E-Mail: Sachin.Kudchadkar@Eurofinset.com				Page: 1 of 2	
Company: ARCADIS U.S., Inc.								Job #:	
Address: 1004 North Big Spring Suite 121		Due Date Requested:		Analysis Requested				Preservation Codes:	
City: Midland		TAT Requested (days): Std						A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NH4SO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDAA Other:	
State, Zip: TX, 79701		PO #: 30006540.0003B						M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Phone: 432-684-5400(Tel) 432-687-5401(Fax)		WO #: 60012118						Total Number of containers	
Email: ryan.nanny@arcadis.com		Project #: 60012118						Special Instructions/Note:	
Project Name: Chevron-Cooper Jal Groundwaters 2020		SSOW#: Cooper Jal							
Site: Cooper Jal									
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Organic, Inorganic)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C, Calcd, TDS	300- Chloride	
MW-9-W-201012	10/12/20	1355	G	Water					
MW-7-W-201012		1410		Water					
MW-10-W-201012		1420		Water					
MW-4-W-201012		1426		Water					
RW-1-W-201012		1430		Water					
MW-5-W-201012		1440		Water					
MW-2-W-201012		1450		Water					
MW-1-W-201012		1505		Water					
RW-2R-W-201012		1515		Water					
RW-2-W-201012		1520		Water					
MW-12-W-201012		1540		Water					
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input 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 Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/QC Requirements:									
Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____									
Relinquished by: _____ Date/Time: 10/13/20 1700 Company: Acadis									
Relinquished by: _____ Date/Time: 10/14/20 1500 Company: EPA									
Relinquished by: _____ Date/Time: 10-14-20 1542 Company: Xenoco									
Custody Seals Intact: _____ Custody Seal No.: _____ Δ Yes Δ No									
Received by: _____ Date/Time: 10/14/20 1038 Company: EPA									
Received by: _____ Date/Time: 10-14-20 1500 Company: Xenoco									
Received by: _____ Date/Time: _____ Company: _____									
Temp: S.1 IR ID: HOU-203 C/F: +0.1 Corrected Temp: S.2									

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record



675168

Client Information Client Contact: Ryan Nanny Company: ARCADIS U.S., Inc. Address: 1004 North Big Spring Suite 121 City: Midland State, Zip: TX, 79701 Phone: 432-684-5400 (Tel) 432-687-5401 (Fax) Email: ryan.nanny@arcadis.com Project #: Chevron-Cooper Jal Groundwaters 2020 Site: Cooper Jal		Lab PM: Kuchhadkar, Sachin G E-Mail: Sachin.Kuchhadkar@Eurofinset.com Carrier Tracking No(s): Lab No: 600-79424-21425.1 Page: 2 of 2 Job #:	
Due Date Requested: _____ TAT Requested (days): Std	PO #: 30006540.0003B WO #: _____	Sample Date: 10/12/20 Sample Time: _____ Sample Type (C=comp, G=grab): G	Matrix (W=water, S=solid, O=wastefl, BT=TISSUE, A=AIR): Water
Sample Identification: Dup-1-W-20012 qs 10/12/20		Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/> Yes Perform MS/MSD (Yes or No): <input checked="" type="checkbox"/> Yes 2540C, Calcd, TDS: 11 300- Chloride: 11	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA V - MCAA W - pH 4-5 Z - other (specify)
Special Instructions/Note: _____		Total Number of containers: 1	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input 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 Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements:			
Relinquished by: _____ Relinquished by: _____ Relinquished by: _____		Date: 10/13/20 1700 Date: 10/19/20 1500 Date: 10.14.20 1542	
Relinquished by: _____ Relinquished by: _____		Date: 10/14/20 1038 Date: 10.14.20 1500 Date: _____	
Custody Seal No.: _____ <input type="checkbox"/> Yes <input type="checkbox"/> No		Temp: 5.1 IR ID: HOU-203 C/F: +0.1 Corrected Temp: 5.2	

Custody Seal

DATE 10/13/20

SIGNATURE *[Signature]*

1412973

eurofins Environment Testing
TestAmerica



ANALYTICAL REPORT

July 16, 2021

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

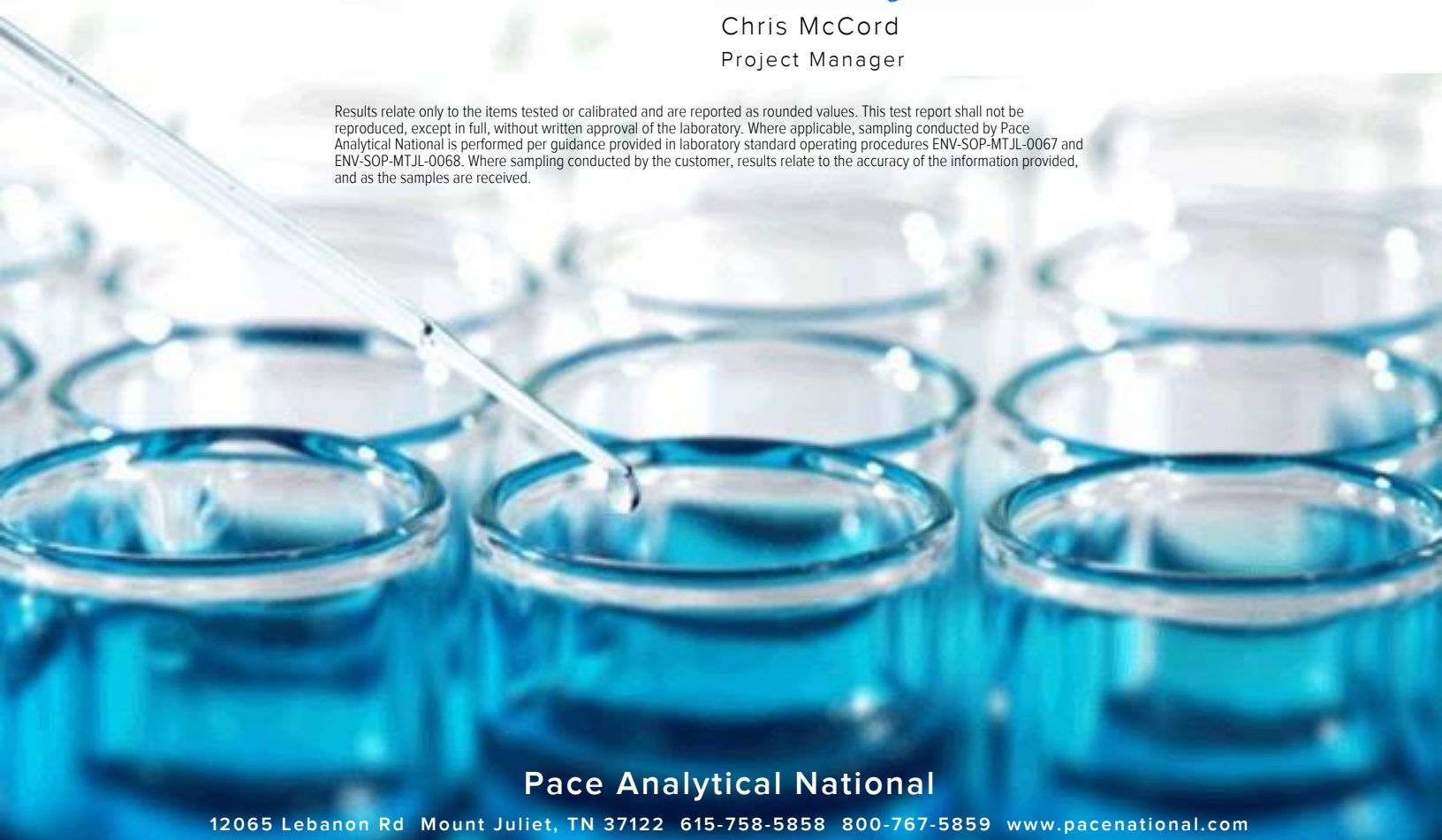
ARCADIS US - New Mexico

Sample Delivery Group: L1371632
 Samples Received: 06/26/2021
 Project Number: 30089405.0002A
 Description: POD 2 - UEM4822 Cooper Jal
 Site: COOPER JAL
 Report To: Russell Grant
 10205 Westheimer Rd.
 #800
 Houston, TX 77042

Entire Report Reviewed By:

Chris McCord
Project Manager

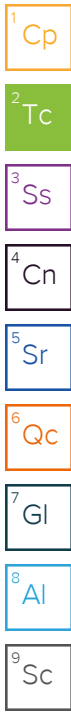
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

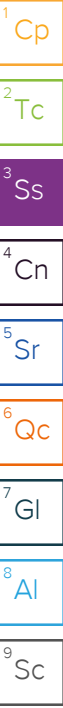
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MW-1-W-20210625 L1371632-01 GW

Collected by Daniel McGee
Collected date/time 06/25/21 08:55
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	20	07/13/21 13:14	07/13/21 13:14	ELN	Mt. Juliet, TN



MW-2-W-20210625 L1371632-02 GW

Collected by Daniel McGee
Collected date/time 06/25/21 09:17
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	5	07/13/21 13:33	07/13/21 13:33	ELN	Mt. Juliet, TN

MW-2A-W-20210625 L1371632-03 GW

Collected by Daniel McGee
Collected date/time 06/25/21 09:25
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699170	1	07/02/21 15:33	07/02/21 16:57	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	5	07/13/21 13:42	07/13/21 13:42	ELN	Mt. Juliet, TN

MW-3-W-20210625 L1371632-04 GW

Collected by Daniel McGee
Collected date/time 06/25/21 13:10
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699170	1	07/02/21 15:33	07/02/21 16:57	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	1	07/13/21 13:52	07/13/21 13:52	ELN	Mt. Juliet, TN

MW-4-W-20210625 L1371632-05 GW

Collected by Daniel McGee
Collected date/time 06/25/21 10:30
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	1000	07/13/21 14:20	07/13/21 14:20	ELN	Mt. Juliet, TN

MW-4A-W-20210625 L1371632-06 GW

Collected by Daniel McGee
Collected date/time 06/25/21 10:40
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	10	07/13/21 14:49	07/13/21 14:49	ELN	Mt. Juliet, TN

MW-5-W-20210625 L1371632-07 GW

Collected by Daniel McGee
Collected date/time 06/25/21 10:05
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	20	07/13/21 14:58	07/13/21 14:58	ELN	Mt. Juliet, TN

MW-5A-W-20210625 L1371632-08 GW

Collected by Daniel McGee
Collected date/time 06/25/21 10:10
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	5	07/13/21 15:08	07/13/21 15:08	ELN	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

MW-6R-W-20210625 L1371632-09 GW

Collected by Daniel McGee
Collected date/time 06/25/21 09:50
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	1	07/13/21 15:17	07/13/21 15:17	ELN	Mt. Juliet, TN

4 Cn

5 Sr

6 Qc

MW-7-W-20210625 L1371632-10 GW

Collected by Daniel McGee
Collected date/time 06/25/21 12:15
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	100	07/13/21 15:36	07/13/21 15:36	ELN	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

MW-8-W-20210625 L1371632-11 GW

Collected by Daniel McGee
Collected date/time 06/25/21 12:53
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704231	1	07/13/21 15:46	07/13/21 15:46	ELN	Mt. Juliet, TN

MW-9-W-20210625 L1371632-12 GW

Collected by Daniel McGee
Collected date/time 06/25/21 12:30
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704424	10	07/13/21 22:55	07/13/21 22:55	ELN	Mt. Juliet, TN

MW-9A-W-20210625 L1371632-13 GW

Collected by Daniel McGee
Collected date/time 06/25/21 12:35
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704424	10	07/13/21 23:08	07/13/21 23:08	ELN	Mt. Juliet, TN

MW-10-W-20210625 L1371632-14 GW

Collected by Daniel McGee
Collected date/time 06/25/21 11:45
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704424	10	07/13/21 23:21	07/13/21 23:21	ELN	Mt. Juliet, TN

MW-11-W-20210625 L1371632-15 GW

Collected by Daniel McGee
Collected date/time 06/25/21 12:45
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704437	1	07/13/21 23:38	07/13/21 23:38	ELN	Mt. Juliet, TN



MW-12-W-20210625 L1371632-16 GW

Collected by Daniel McGee
Collected date/time 06/25/21 13:05
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704437	10	07/14/21 00:12	07/14/21 00:12	ELN	Mt. Juliet, TN



MW-14-W-20210625 L1371632-17 GW

Collected by Daniel McGee
Collected date/time 06/25/21 11:55
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704437	1	07/14/21 00:23	07/14/21 00:23	ELN	Mt. Juliet, TN



RW-1-W-20210625 L1371632-18 GW

Collected by Daniel McGee
Collected date/time 06/25/21 10:50
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704437	100	07/14/21 00:35	07/14/21 00:35	ELN	Mt. Juliet, TN

RW-2-W-20210625 L1371632-19 GW

Collected by Daniel McGee
Collected date/time 06/25/21 11:20
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704437	100	07/14/21 00:46	07/14/21 00:46	ELN	Mt. Juliet, TN

RW-2R-W-20210625 L1371632-20 GW

Collected by Daniel McGee
Collected date/time 06/25/21 11:15
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704437	100	07/14/21 01:21	07/14/21 01:21	ELN	Mt. Juliet, TN

DUP-01-W-20210625 L1371632-21 GW

Collected by Daniel McGee
Collected date/time 06/25/21 00:00
Received date/time 06/26/21 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1699177	1	07/02/21 21:16	07/02/21 22:46	VRP	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1704437	100	07/14/21 01:32	07/14/21 01:32	ELN	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Collected date/time: 06/25/21 08:55

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2030		20.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	938		7.58	20.0	20	07/13/2021 13:14	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 09:17

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	685		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	205		1.90	5.00	5	07/13/2021 13:33	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 09:25

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	510		10.0	1	07/02/2021 16:57	WG1699170

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	96.3		1.90	5.00	5	07/13/2021 13:42	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 13:10

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	424		10.0	1	07/02/2021 16:57	WG1699170

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	42.2		0.379	1.00	1	07/13/2021 13:52	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 10:30

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	28400		1000	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	13600		379	1000	1000	07/13/2021 14:20	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 10:40

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1030		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	409		3.79	10.0	10	07/13/2021 14:49	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 10:05

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2590		20.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1330		7.58	20.0	20	07/13/2021 14:58	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 10:10

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	529		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	140		1.90	5.00	5	07/13/2021 15:08	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 09:50

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	487		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	71.7		0.379	1.00	1	07/13/2021 15:17	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 12:15

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	298		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	4140		37.9	100	100	07/13/2021 15:36	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 12:53

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	391		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	28.9		0.379	1.00	1	07/13/2021 15:46	WG1704231

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 12:30

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1970		20.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	952		3.79	10.0	10	07/13/2021 22:55	WG1704424

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 12:35

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	857		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	307		3.79	10.0	10	07/13/2021 23:08	WG1704424

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 11:45

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1010		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	392		3.79	10.0	10	07/13/2021 23:21	WG1704424

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 12:45

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	431		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	37.3		0.379	1.00	1	07/13/2021 23:38	WG1704437

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 13:05

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	984		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	461		3.79	10.0	10	07/14/2021 00:12	WG1704437

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 11:55

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	429		10.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	42.3		0.379	1.00	1	07/14/2021 00:23	WG1704437

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 10:50

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	13500		100	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	7370		37.9	100	100	07/14/2021 00:35	WG1704437

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 06/25/21 11:20

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2270		20.0	1	07/02/2021 22:46	WG1699177

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1150		37.9	100	100	07/14/2021 00:46	WG1704437

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 06/25/21 11:15

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	12400		100	1	07/02/2021 22:46	WG1699177

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	7250		37.9	100	100	07/14/2021 01:21	WG1704437

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 06/25/21 00:00

L1371632

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	3340		20.0	1	07/02/2021 22:46	WG1699177

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1690		37.9	100	100	07/14/2021 01:32	WG1704437

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

[L1371632-03.04](#)

Method Blank (MB)

(MB) R3675760-1 07/02/21 16:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1371632-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1371632-03 07/02/21 16:57 • (DUP) R3675760-3 07/02/21 16:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	510	512	1	0.391		5

L1371945-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1371945-01 07/02/21 16:57 • (DUP) R3675760-4 07/02/21 16:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1040	1080	1	3.95		5

Laboratory Control Sample (LCS)

(LCS) R3675760-2 07/02/21 16:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8820	100	77.4-123	

Gravimetric Analysis by Method 2540 C-2011

[L1371632-01,02,05,06,07,08,09,10,11,12,13,14,15,16,17,18,19,20,21](#)

Method Blank (MB)

(MB) R3677109-1 07/02/21 22:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1371632-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1371632-01 07/02/21 22:46 • (DUP) R3677109-3 07/02/21 22:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2030	2060	1	1.27		5

L1371632-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1371632-21 07/02/21 22:46 • (DUP) R3677109-4 07/02/21 22:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	3340	3360	1	0.478		5

Laboratory Control Sample (LCS)

(LCS) R3677109-2 07/02/21 22:46

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8870	101	77.4-123	

Wet Chemistry by Method 300.0

L1371632-01,02,03,04,05,06,07,08,09,10,11

Method Blank (MB)

(MB) R3678779-1 07/13/21 11:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.379	1.00

1 Cp

2 Tc

3 Ss

L1371632-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1371632-01 07/13/21 13:14 • (DUP) R3678779-3 07/13/21 13:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	938	965	20	2.86		20

4 Cn

5 Sr

L1371632-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1371632-11 07/13/21 15:46 • (DUP) R3678779-7 07/13/21 15:55

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	28.9	29.2	1	0.917		20

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3678779-2 07/13/21 11:40

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40.0	39.7	99.3	90.0-110	

L1371632-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1371632-04 07/13/21 13:52 • (MS) R3678779-4 07/13/21 14:01 • (MSD) R3678779-5 07/13/21 14:11

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50.0	42.2	89.6	90.4	94.8	96.6	1	80.0-120			0.955	20

L1371632-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1371632-09 07/13/21 15:17 • (MS) R3678779-6 07/13/21 15:27

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	71.7	119	93.9	1	80.0-120	E

Wet Chemistry by Method 300.0

[L1371632-12,13,14](#)

Method Blank (MB)

(MB) R3679182-1 07/13/21 10:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.379	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1371605-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1371605-02 07/13/21 17:45 • (DUP) R3679182-3 07/13/21 17:58

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	16.6	15.6	1	6.28		20

L1371605-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1371605-11 07/13/21 20:46 • (DUP) R3679182-6 07/13/21 20:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	14.0	13.9	1	0.488		20

Laboratory Control Sample (LCS)

(LCS) R3679182-2 07/13/21 10:16

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40.0	42.9	107	90.0-110	

L1371605-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1371605-03 07/13/21 18:11 • (MS) R3679182-4 07/13/21 18:24 • (MSD) R3679182-5 07/13/21 18:36

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50.0	16.3	65.3	66.2	97.8	99.8	1	80.0-120			1.51	20

L1371605-12 Original Sample (OS) • Matrix Spike (MS)

(OS) L1371605-12 07/13/21 21:12 • (MS) R3679182-7 07/13/21 21:24

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	13.7	69.8	112	1	80.0-120	

Wet Chemistry by Method 300.0

[L1371632-15,16,17,18,19,20,21](#)

Method Blank (MB)

(MB) R3679159-1 07/13/21 22:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.379	1.00

¹Cp

²Tc

³Ss

L1371632-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1371632-15 07/13/21 23:38 • (DUP) R3679159-3 07/13/21 23:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	37.3	37.2	1	0.0698		20

⁴Cn

⁵Sr

L1372023-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1372023-03 07/14/21 02:30 • (DUP) R3679159-5 07/14/21 02:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	U	U	5	0.000		20

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R3679159-2 07/13/21 22:44

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40.0	42.5	106	90.0-110	

⁹Sc

L1371632-15 Original Sample (OS) • Matrix Spike (MS)

(OS) L1371632-15 07/13/21 23:38 • (MS) R3679159-4 07/14/21 00:01

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	37.3	86.4	98.3	1	80.0-120	

L1372589-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1372589-01 07/14/21 03:39 • (MS) R3679159-6 07/14/21 03:50 • (MSD) R3679159-7 07/14/21 04:02

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50.0	93.9	140	140	92.9	92.3	1	80.0-120	E	E	0.199	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

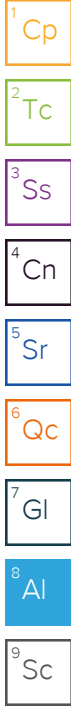
- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier Description

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
---	---

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122


Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		




¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address: ARCADIS US - New Mexico 10205 Westheimer Rd. #800 Houston, TX 77042		Billing Information: Accounts Payable 401 East Main Street Suite 400 El Paso, TX 79901		Pres Chk		Analysis / Container / Preservative										Chain of Custody Page <u>1</u> of <u>3</u>	
Report to: Russell Grant		Email To: lydia.velezgonzalez@arcadis.com;russell.grant@														 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf	
Project Description: POD 2 - UEM4822 Cooper Jal		City/State Collected:		Please Circle: PT MT CT ET												SDG # <u>L1371632</u>	
Phone: 916-786-5246		Client Project # 30089405.0002A		Lab Project # CHEVARCNM-COOPERJAL												T H006	
Collected by (print): <i>Daniel Mcbee</i>		Site/Facility ID # COOPER JAL		P.O. #												Acctnum: CHEVARCNM	
Collected by (signature): <i>[Signature]</i>		Rush? (Lab MUST Be Notified) ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day		Quote #												Template: T189659	
Immediately Packed on Ice N ___ Y <u>X</u>				Date Results Needed												Prelogin: P855412	
																PM: 526 - Chris McCord	
																PB:	
																Shipped Via:	
																Remarks	
																Sample # (lab only)	
MW-1-W-202106 <u>26</u>		Grab		GW		062521 0855 12		X X						1500ml HDPE No Pres		-01	
MW-2-W-202106 <u>25</u>				GW		062521 0917 12		X X								02	
MW-2A-W-202106 <u>25</u>				GW		062521 0925 12		X X								03	
MW-3-W-202106 <u>25</u>				GW		062521 1310 12		X X								04	
MW-4-W-202106 <u>25</u>				GW		062521 1030 12		X X								05	
MW-4A-W-202106 <u>25</u>				GW		062521 1040 12		X X								06	
MW-5-W-202106 <u>25</u>				GW		062521 1005 12		X X								07	
MW-5A-W-202106 <u>25</u>				GW		062521 1010 12		X X								08	
MW-6R-W-202106 <u>25</u>				GW		062521 0950 12		X X								09	
MW-7-W-202106 <u>25</u>		Grab		GW		062521 1215 12		X X								10	
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks: <i>Lab provided 1500ml in place of 125ml HDPE - No Pres for chloride my 500ml and 1250ml HDPE - No Pres for TDS Lab will Run Chloride + TDS from 1500ml HDPE - No Pres</i>		pH _____ Temp _____ Flow _____ Other _____												Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Samples returned via: ___ UPS ___ FedEx ___ Courier		Tracking #															
Relinquished by: (Signature) <i>[Signature]</i>		Date: 062521		Time: 11:00		Received by: (Signature) <i>[Signature]</i>		Trip Blank Received: Yes / No HCL / MeOH TBR		Temp: <u>14.2</u> °C Bottles Received: <u>2</u>		If preservation required by Login: Date/Time					
Relinquished by: (Signature) <i>[Signature]</i>		Date: 6-25-21		Time: 16:30		Received by: (Signature) <i>[Signature]</i>		Temp: <u>21</u> °C Bottles Received: <u>2</u>		Date: 6/26/21		Time: 1000		Hold:		Condition: NCF / <input checked="" type="checkbox"/> OK	

Company Name/Address: ARCADIS US - New Mexico 10205 Westheimer Rd. #800 Houston, TX 77042		Billing Information: Accounts Payable 401 East Main Street Suite 400 El Paso, TX 79901		Pres Chk		Analysis / Container / Preservative										Chain of Custody Page <u>2</u> of <u>3</u>		
Report to: Russell Grant		Email To: lydia.velezgonzalez@arcadis.com;russell.grant@														 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubs/pas-standard-terms.pdf		
Project Description: POD 2 - UEM4822 Cooper Jal		City/State Collected:		Please Circle: PT MT CT ET												SDG # <u>L1371630</u>		
Phone: 916-786-5246		Client Project # 30089405.0002A		Lab Project # CHEVARCNM-COOPERJAL		CHLORIDE (300.0) 125mlHDPE-NOPres- TDS 250mlHDPE-NOPres-										Table #		
Collected by (print): <i>Daniel Mcbee</i>		Site/Facility ID # COOPER JAL		P.O. #												Acctnum: CHEVARCNM		
Collected by (signature): <i>[Signature]</i>		Rush? (Lab MUST Be Notified) ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day		Quote #												Template: T189659		
Immediately Packed on Ice N ___ Y <u>X</u>		Date Results Needed		No. of Cntrs												Prelogin: P855412		
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time											Remarks	Sample # (lab only)
MW-8-W-202106 <u>25</u>		Grab	GW		062521	1253	12	X	X								1500 ml HDPE-NO Pres	- 11
MW-9-W-202106 <u>25</u>			GW		062521	1230	12	X	X									12
MW-9A-W-202106 <u>25</u>			GW		062521	1235	12	X	X									13
MW-10-W-202106 <u>25</u>			GW		062521	1145	12	X	X									14
MW-11-W-202106 <u>25</u>			GW		062521	1245	12	X	X									15
MW-12-W-202106 <u>25</u>			GW		062521	1305	12	X	X									16
MW-14-W-202106 <u>25</u>			GW		062521	1155	12	X	X									17
RW-1-W-202106 <u>25</u>			GW		062521	1050	12	X	X									18
RW-2-W-202106 <u>25</u>			GW		062521	1120	12	X	X									19
RW-2R-W-202106 <u>25</u>		Grab	GW		062521	1115	12	X	X									20
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks: Lab provided 1500 ml in place of 125ml HDPE - No Pres for chloride and 1250 ml HDPE - No Pres for TDS Lab will run chloride + TDS from 1500 ml HDPE - No Pres										pH _____ Temp _____ Flow _____ Other _____		Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> NP <input type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N				
Relinquished by: (Signature) <i>[Signature]</i>		Date: 062521	Time: 16:00	Received by: (Signature) <i>[Signature]</i>		Trip Blank Received: Yes / No HCL / MeOH TBR												
Relinquished by: (Signature) <i>[Signature]</i>		Date: 6-25-21	Time: 16:30	Received by: (Signature) <i>[Signature]</i>		Temp: <u>21.1-21.9</u> °C Bottles Received: " "		If preservation required by Login: Date/Time										
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>		Date: " " Time: " "		Hold: Condition: NCF / OK										



ANALYTICAL REPORT

December 20, 2021

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

ARCADIS US - New Mexico

Sample Delivery Group: L1439602
 Samples Received: 12/08/2021
 Project Number: 30089405.0002B
 Description: POD 2 - UEM4822 Cooper Jal
 Site: COOPER JAL
 Report To: Russell Grant
 10205 Westheimer Rd.
 #800
 Houston, TX 77042

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical Services, LLC -Dallas

400 W. Bethany Drive Suite 190 Allen, TX 75013 972-727-1123 800-767-5859 www.pacenational.com

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 MW-5-W-20211206 L1439602-07 9

 MW-7-W-20211207 L1439602-10 10

 MW-9-W-20211207 L1439602-12 11

 MW-10-W-20211207 L1439602-14 12

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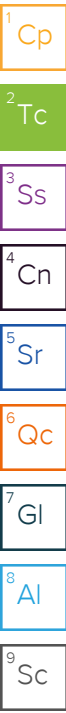
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Gl: Glossary of Terms 20

Al: Accreditations & Locations 21

Sc: Sample Chain of Custody 22



MW-1-W-20211206 L1439602-01 GW

Collected by Daniel McGee
Collected date/time 12/06/21 15:40
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	200	12/17/21 05:31	12/17/21 05:31	JAP	Allen, TX



MW-2-W-20211206 L1439602-02 GW

Collected by Daniel McGee
Collected date/time 12/06/21 16:00
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	50	12/17/21 05:49	12/17/21 05:49	JAP	Allen, TX



MW-4-W-20211206 L1439602-05 GW

Collected by Daniel McGee
Collected date/time 12/06/21 16:35
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	1000	12/17/21 08:50	12/17/21 08:50	JAP	Allen, TX



MW-5-W-20211206 L1439602-07 GW

Collected by Daniel McGee
Collected date/time 12/06/21 16:20
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	200	12/17/21 09:07	12/17/21 09:07	JAP	Allen, TX

MW-7-W-20211207 L1439602-10 GW

Collected by Daniel McGee
Collected date/time 12/07/21 10:30
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	1000	12/17/21 09:25	12/17/21 09:25	JAP	Allen, TX

MW-9-W-20211207 L1439602-12 GW

Collected by Daniel McGee
Collected date/time 12/07/21 11:05
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	200	12/17/21 09:43	12/17/21 09:43	JAP	Allen, TX

MW-10-W-20211207 L1439602-14 GW

Collected by Daniel McGee
Collected date/time 12/07/21 10:15
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	100	12/17/21 10:00	12/17/21 10:00	JAP	Allen, TX

MW-12-W-20211206 L1439602-16 GW

Collected by Daniel McGee
Collected date/time 12/06/21 15:15
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	100	12/17/21 10:18	12/17/21 10:18	JAP	Allen, TX



RW-1-W-20211206 L1439602-18 GW

Collected by Daniel McGee
Collected date/time 12/06/21 16:45
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	1000	12/17/21 14:10	12/17/21 14:10	JAP	Allen, TX



RW-2-W-20211207 L1439602-19 GW

Collected by Daniel McGee
Collected date/time 12/07/21 09:55
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	100	12/17/21 10:54	12/17/21 10:54	JAP	Allen, TX



RW-2R-W-20211207 L1439602-20 GW

Collected by Daniel McGee
Collected date/time 12/07/21 09:40
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	2000	12/17/21 14:28	12/17/21 14:28	JAP	Allen, TX

DUP-01-W-20211207 L1439602-22 GW

Collected by Daniel McGee
Collected date/time 12/07/21 00:00
Received date/time 12/08/21 12:11

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG1786653	1	12/09/21 09:52	12/09/21 12:10	QQT	Allen, TX
Wet Chemistry by Method 300.0	WG1790409	100	12/17/21 12:23	12/17/21 12:23	JAP	Allen, TX

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Collected date/time: 12/06/21 15:40

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1800		71.5	1	12/09/2021 12:10	WG1786653

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	656		10.8	160	200	12/17/2021 05:31	WG1790409

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 12/06/21 16:00

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	675		33.3	1	12/09/2021 12:10	WG1786653

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	183		2.70	40.0	50	12/17/2021 05:49	WG1790409

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 12/06/21 16:35

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	24000		71.5	1	12/09/2021 12:10	WG1786653

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	8700		54.1	800	1000	12/17/2021 08:50	WG1790409

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

MMW-5-W-20211200
Collected date/time: 12/06/21 16:20

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	2630		71.5	1	12/09/2021 12:10	WG1786653

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1190		10.8	160	200	12/17/2021 09:07	WG1790409

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 12/07/21 10:30

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	8540		33.3	1	12/09/2021 12:10	WG1786653

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3780		54.1	800	1000	12/17/2021 09:25	WG1790409

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 12/07/21 11:05

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1960		71.5	1	12/09/2021 12:10	WG1786653

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	856		10.8	160	200	12/17/2021 09:43	WG1790409

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 12/07/21 10:15

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1020		33.3	1	12/09/2021 12:10	WG1786653

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	339		5.41	80.0	100	12/17/2021 10:00	WG1790409

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 12/06/21 15:15

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1130		33.3	1	12/09/2021 12:10	WG1786653

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	361		5.41	80.0	100	12/17/2021 10:18	WG1790409

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 12/06/21 16:45

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	9490		33.3	1	12/09/2021 12:10	WG1786653

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	7440		54.1	800	1000	12/17/2021 14:10	WG1790409

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 12/07/21 09:55

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1040		55.5	1	12/09/2021 12:10	WG1786653

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	582		5.41	80.0	100	12/17/2021 10:54	WG1790409

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 12/07/21 09:40

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	6330		33.3	1	12/09/2021 12:10	WG1786653

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	7400		108	1600	2000	12/17/2021 14:28	WG1790409

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 12/07/21 00:00

L1439602

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1250		55.5	1	12/09/2021 12:10	WG1786653

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	567		5.41	80.0	100	12/17/2021 12:23	WG1790409

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540C

[L1439602-01,02,05,07,10,12,14,16,18,19,20,22](#)

Method Blank (MB)

(MB) R3739318-1 12/09/21 12:10

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Total Dissolved Solids	U		25.0	25.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1439313-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1439313-01 12/09/21 12:10 • (DUP) R3739318-3 12/09/21 12:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Total Dissolved Solids	796	796	1	0.000		5

L1439313-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1439313-05 12/09/21 12:10 • (DUP) R3739318-4 12/09/21 12:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Total Dissolved Solids	1920	2000	1	4.08		5

Laboratory Control Sample (LCS)

(LCS) R3739318-2 12/09/21 12:10

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Total Dissolved Solids	250	261	104	85.0-115	

Wet Chemistry by Method 300.0

[L1439602-01,02,05,07,10,12,14,16,18,19,20,22](#)

Method Blank (MB)

(MB) R3742527-1 12/17/21 04:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.0541	0.800

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3742527-2 12/17/21 05:14

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	5.00	4.79	95.8	90.0-110	

4 Cn

5 Sr

6 Qc

L1439602-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1439602-02 12/17/21 05:49 • (MS) R3742527-3 12/17/21 08:13 • (MSD) R3742527-4 12/17/21 08:31

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	250	183	436	432	101	99.9	50	90.0-110			0.805	20

7 Gl

8 Al

9 Sc

L1439602-20 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1439602-20 12/17/21 14:28 • (MS) R3742527-5 12/17/21 15:25 • (MSD) R3742527-6 12/17/21 15:43

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	10000	7400	17400	17400	100	99.8	2000	90.0-110			0.0745	20

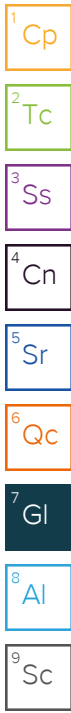
Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.



Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace Analytical Services, LLC -Dallas 400 W. Bethany Drive Suite 190 Allen, TX 75013

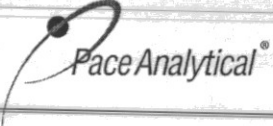
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Iowa	408	Oklahoma	8727
Louisiana	30686		

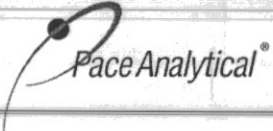
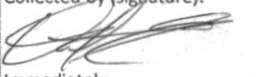
- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc

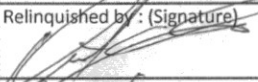
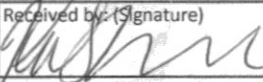
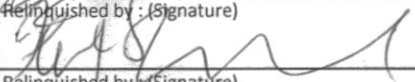
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable


* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address: ARCADIS US - New Mexico 10205 Westheimer Rd. #800 Houston, TX 77042			Billing Information: Accounts Payable 401 East Main Street Suite 400 El Paso, TX 79901			Analysis / Container / Preservative			Chain of Custody Page 2 of 2																																																																										
Report to: Russell Grant			Email To: lydia.velezgonzalez@arcadis.com;russell.grant@			Pres Chk			 <p>12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubs/pas-standard-terms.pdf</p>																																																																										
Project Description: POD 2 - UEM4822 Cooper Jal		City/State Collected: <i>Sal, NM</i>		Please Circle: PT <input type="checkbox"/> MT <input checked="" type="checkbox"/> ET																																																																															
Phone: 916-786-5246		Client Project # 30089405.0002B		Lab Project # CHEVARCNM-COOPERJAL		CHLORIDE (300.0) 125mlHDPE-NoPres TDS 250mlHDPE-NoPres <i>UOCS</i>			SDG # <i>L1439602</i>																																																																										
Collected by (print): <i>Daniel Mc...</i>		Site/Facility ID # COOPER JAL		P.O. #					Table #																																																																										
Collected by (signature): <i>[Signature]</i>		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #					Acctnum: CHEVARCNM Template: T200378 Prelogin: P892038 PM: 526 - Chris McCord																																																																										
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>		Date Results Needed <i>Standard</i>		No. of Cntrs					PB:																																																																										
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<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample ID</th> <th>Comp/Grab</th> <th>Matrix *</th> <th>Depth</th> <th>Date</th> <th>Time</th> <th>No. of Cntrs</th> <th>CHLORIDE (300.0)</th> <th>TDS 250mlHDPE-NoPres</th> <th colspan="3"></th> </tr> </thead> <tbody> <tr> <td><i>RW-2R-W-202107</i></td> <td><i>G</i></td> <td><i>GW</i></td> <td></td> <td><i>12-7-21</i></td> <td><i>0940</i></td> <td><i>2</i></td> <td><i>X</i></td> <td><i>X</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td><i>GW</i></td> <td></td> <td></td> <td></td> <td><i>2</i></td> <td><i>X</i></td> <td><i>X</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td><i>DUP-01-W-202107</i></td> <td><i>G</i></td> <td><i>GW</i></td> <td></td> <td><i>12-7-21</i></td> <td><i>---</i></td> <td><i>2</i></td> <td><i>X</i></td> <td><i>X</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td><i>GW</i></td> <td></td> <td></td> <td></td> <td><i>2</i></td> <td><i>X</i></td> <td><i>X</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td><i>Trip Blank</i></td> <td><i>-</i></td> <td></td> <td></td> <td><i>-</i></td> <td><i>-</i></td> <td><i>1</i></td> <td></td> <td></td> <td><i>X</i></td> <td></td> <td></td> </tr> </tbody> </table>												Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE (300.0)	TDS 250mlHDPE-NoPres				<i>RW-2R-W-202107</i>	<i>G</i>	<i>GW</i>		<i>12-7-21</i>	<i>0940</i>	<i>2</i>	<i>X</i>	<i>X</i>						<i>GW</i>				<i>2</i>	<i>X</i>	<i>X</i>				<i>DUP-01-W-202107</i>	<i>G</i>	<i>GW</i>		<i>12-7-21</i>	<i>---</i>	<i>2</i>	<i>X</i>	<i>X</i>						<i>GW</i>				<i>2</i>	<i>X</i>	<i>X</i>				<i>Trip Blank</i>	<i>-</i>			<i>-</i>	<i>-</i>	<i>1</i>			<i>X</i>		
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE (300.0)	TDS 250mlHDPE-NoPres																																																																											
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* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other			Remarks:						pH _____ Temp _____ Flow _____ Other _____																																																																										
Samples returned via: _ UPS _ FedEx _ Courier			Tracking # <i>GLI 3089822494</i>						Sample Receipt Checklist COC Seal Present/Intact: <input type="checkbox"/> NP <input type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headpace: <input type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input type="checkbox"/> Y <input type="checkbox"/> N																																																																										
Relinquished by: (Signature) <i>[Signature]</i>		Date: <i>12-7-21</i>	Time: <i>1635</i>	Received by: (Signature) <i>[Signature]</i>		Trip Blank Received: Yes / No HCL / MeOH TBR																																																																													
Relinquished by: (Signature) <i>[Signature]</i>		Date: <i>12-7-21</i>	Time: <i>17:00</i>	Received by: (Signature) <i>[Signature]</i>		Temp: °C Bottles Received:		If preservation required by Login: Date/Time																																																																											
Relinquished by: (Signature) <i>GH</i>		Date: <i>12/8/21</i>	Time: <i>1211</i>	Received for lab by: (Signature) <i>Sudiksha PACE</i>		Date: <i>12/8/21</i>	Time: <i>1211</i>	Hold:		Condition: NCF / OK																																																																									

Company Name/Address: ARCADIS US - New Mexico 10205 Westheimer Rd. #800 Houston, TX 77042		Billing Information: Accounts Payable 401 East Main Street Suite 400 El Paso, TX 79901		Pres Chk		Analysis / Container / Preservative										Chain of Custody Page 1 of 2						
Report to: Russell Grant		Email To: lydia.velezgonzalez@arcadis.com;russell.grant@														 <p>12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubs/pas-standard-terms.pdf</p>						
Project Description: POD 2 - UEM4822 Cooper Jal		City/State Collected: Jal, NM		Please Circle: PT MT <u>CT</u> ET												SDG # <u>U439602</u>						
Phone: 916-786-5246		Client Project # 30089405.0002B		Lab Project # CHEVARCNM-COOPERJAL												Table #						
Collected by (print): Daniel Milne		Site/Facility ID # COOPER JAL		P.O. #												Acctnum: CHEVARCNM						
Collected by (signature): 		Rush? (Lab MUST Be Notified) Same Day Five Day Next Day 5 Day (Rad Only) Two Day 10 Day (Rad Only) Three Day		Quote #												Template: T200378						
Immediately Packed on Ice N <u>Y</u> X				Date Results Needed Standard												Prelogin: P892038						
				No. of Cntrs												PM: 526 - Chris McCord						
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time	CHLORIDE (300.0) 125mlHDPE-NoPres		TDS 250mlHDPE-NoPres												Shipped Via:	
																					Remarks	Sample # (lab only)
MW-1-W-2021 <u>06</u>		G	GW		12-6-21	1540	2	X	X													
MW-2-W-2021 <u>06</u>		G	GW		12-6-21	1600	2	X	X													
MW-4-W-2021 <u>06</u>		G	GW		12-6-21	1635	2	X	X													
MW-5-W-2021 <u>06</u>		G	GW		12-6-21	1600	2	X	X													
MW-7-W-2021 <u>07</u>		G	GW		12-7-21	1030	2	X	X													
MW-9-W-2021 <u>07</u>		G	GW		12-7-21	1105	2	X	X													
MW-10-W-2021 <u>07</u>		G	GW		12-7-21	1015	2	X	X													
MW-12-W-2021 <u>06</u>		G	GW		12-6-21	1515	2	X	X													
RW-1-W-2021 <u>06</u>		G	GW		12-6-21	1645	2	X	X													
RW-2-W-2021 <u>07</u>		G	GW		12-7-21	0955	2	X	X													

* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks:		pH _____ Temp _____ Flow _____ Other _____		<p>Sample Receipt Checklist</p> <p>COC Seal Present/Intact: <u>NP</u> Y <u>N</u> COC Signed/Accurate: <u>Y</u> N Bottles arrive intact: <u>Y</u> N Correct bottles used: <u>Y</u> N Sufficient volume sent: <u>Y</u> N If Applicable VOA Zero Headspace: <u>Y</u> N Preservation Correct/Checked: <u>Y</u> N RAD Screen <0.5 mR/hr: <u>Y</u> N</p>													
Samples returned via: <u>UPS</u> FedEx Courier		Tracking # <u>GLI 3089822494</u>																	
Relinquished by: (Signature) 		Date: 12-7-21	Time: 1635	Received by: (Signature) 		Trip Blank Received: Yes / No HCL / MeOH TBR													
Relinquished by: (Signature) 		Date: 12-7-21	Time: 1710	Received by: (Signature) Grayson		Temp: °C Bottles Received:		If preservation required by Login: Date/Time											
Relinquished by: (Signature) GH		Date: 12/8/21	Time: 1211	Received for lab by: (Signature) Sudiksha PACE		Date: 12/8/21	Time: 1211	Hold:		Condition: NCF / OK									

	Document Name: Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No.: F-DAL-C-001-rev.14	Issuing Authority: Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas
 Ft Worth
 Corpus Christi
 Austin

Client Name: ARCADIS Project Work order (place label): _____
 Courier: FedEX UPS USPS Client LSO PACE Other: GH
 Tracking #: _____ L143
 Custody Seal on Cooler/Box: Yes No
 Received on ice: Wet Blue No ice
 Receiving Lab 1 Thermometer Used: IR-18 Cooler Temp °C: 0.9 (Recorded) -0.2 (Correction Factor) 0.7 (Actual)
 Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6°C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: SM Date: 12/8/21

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Login Person: AP Date: 12/8/21

Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
pH Strips: _____	
Residual Chlorine Present	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Cl Strips: _____	
Sulfide Present	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Lead Acetate Strips: _____	
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 48 hrs	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area outside of Texas	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
State Sampled: _____	
Non-Conformance(s): _____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____

SHIPMENT MANIFEST

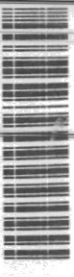
Carrier/ Sched #: _____ Bus #: _____ Dep. Time: _____
 Service: Priority Pieces: 2
 1st Lane Segment: Transfer:
ODESSA MIDLAND DALLAS
GLI 1454

Destination: **DALLAS, TX**



Driver's Signature: _____

PRI PPD 07DEC21 01:08P ** ORIGIN ** GLI 3089822494



Pcs: 1 of 2
 Sched: GLI 1454
 From: **ODESSA MIDLAND, TX**
 To: **DALLAS, TX**
Priority
 P EXPRS \$ 30.00 C EXPRS
 P VALUE C VALUE

PRI PPD 07DEC21 01:08P ** LABEL ** GLI 3089822494



Pcs: 1 of 2
 Sched: GLI 1454
 From: **PACE ANALYTICAL WEST TEXAS**
972-727-1123
 RECVD: **PACE ANALYTICAL WEST TEXAS**

Manual Wght: 100.0
 Tariff Wght: 100.0

HFPV
DALLAS, TX 75202
Phone: 432-202-4238

PO/Ref #:

Priority
 Agency Phone: (214) 747-8859
 WWW.SHIPGREYHOUND.COM



ANALYTICAL REPORT

September 13, 2022

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

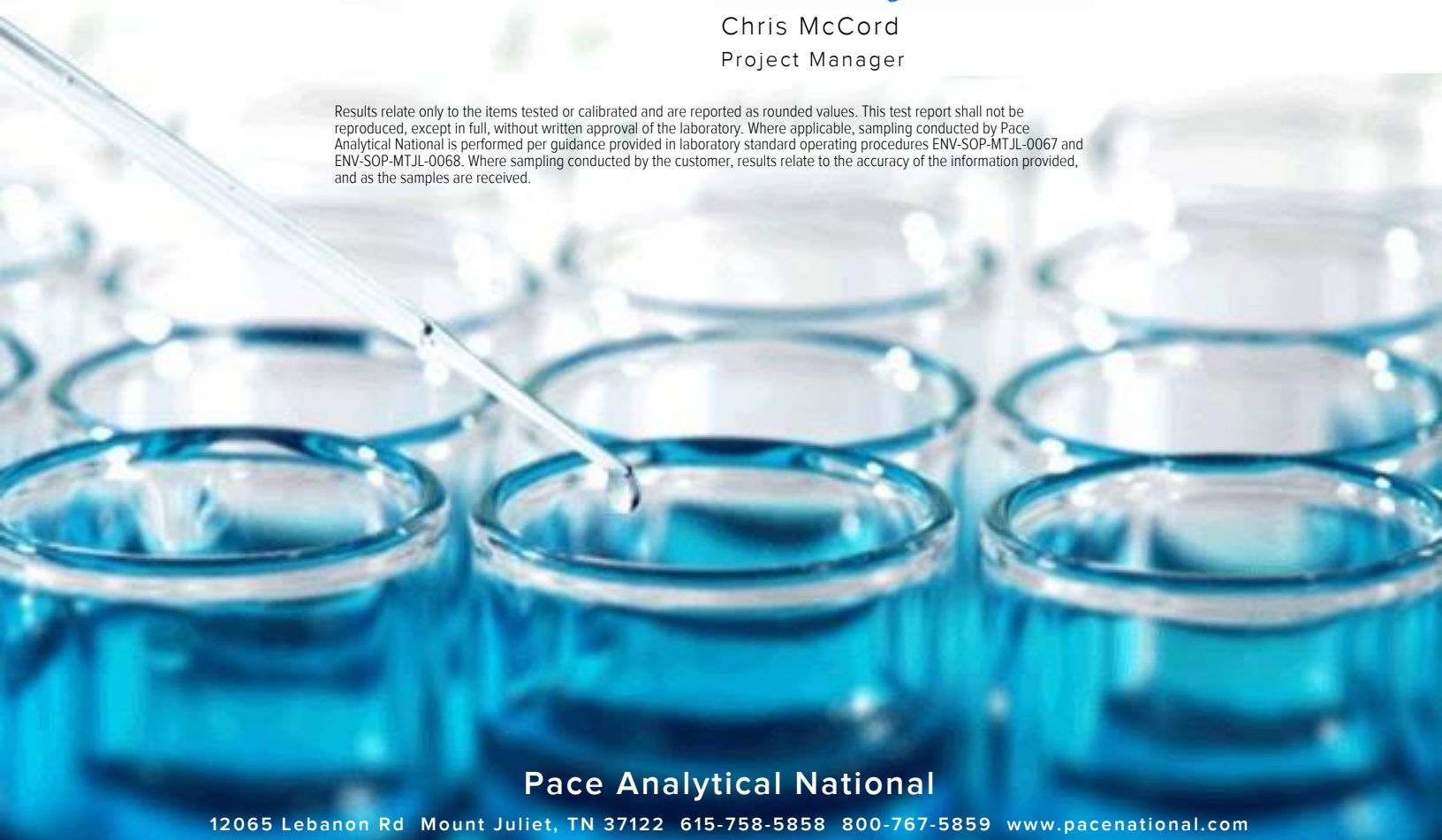
Arcadis - Chevron - NM

Sample Delivery Group: L1528752
 Samples Received: 08/24/2022
 Project Number: 30144968 TASK 0002
 Description: POD 2 - UEM4822 Cooper Jal
 Site: COOPER JAL
 Report To: Russell Grant
 10205 Westheimer Rd.
 #800
 Houston, TX 77042

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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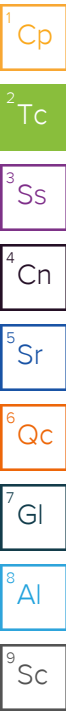
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MW-1-W-20220823 L1528752-01 GW

Collected by Daniel McGee
Collected date/time 08/23/22 09:00
Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

1 Cp

2 Tc

3 Ss

MW-2-W-20220823 L1528752-02 GW

Collected by Daniel McGee
Collected date/time 08/23/22 09:30
Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

4 Cn

5 Sr

6 Qc

MW-2A-W-20220823 L1528752-03 GW

Collected by Daniel McGee
Collected date/time 08/23/22 09:40
Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

7 Gl

8 Al

9 Sc

MW-6R-W-20220823 L1528752-04 GW

Collected by Daniel McGee
Collected date/time 08/23/22 09:55
Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

MW-5-W-20220823 L1528752-05 GW

Collected by Daniel McGee
Collected date/time 08/23/22 10:15
Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

MW-5A-W-20220823 L1528752-06 GW

Collected by Daniel McGee
Collected date/time 08/23/22 10:25
Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

MW-4-W-20220823 L1528752-07 GW

Collected by Daniel McGee
Collected date/time 08/23/22 11:20
Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

MW-4A-W-20220823 L1528752-08 GW

Collected by Daniel McGee Collected date/time 08/23/22 11:10 Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

- 1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

RW-1-W-20220823 L1528752-09 GW

Collected by Daniel McGee Collected date/time 08/23/22 11:40 Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

RW-2-W-20220823 L1528752-10 GW

Collected by Daniel McGee Collected date/time 08/23/22 12:30 Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

RW-2R-W-20220823 L1528752-11 GW

Collected by Daniel McGee Collected date/time 08/23/22 12:45 Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

MW-10-W-20220823 L1528752-12 GW

Collected by Daniel McGee Collected date/time 08/23/22 13:00 Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

MW-14-W-20220823 L1528752-13 GW

Collected by Daniel McGee Collected date/time 08/23/22 13:10 Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

MW-7-W-20220823 L1528752-14 GW

Collected by Daniel McGee Collected date/time 08/23/22 13:30 Received date/time 08/24/22 08:45

Table with 7 columns: Method, Batch, Dilution, Preparation date/time, Analysis date/time, Analyst, Location. Rows include Gravimetric Analysis by Method 2540 C-2011 and Wet Chemistry by Method 300.0.

DUP-1-W-20220823 L1528752-15 GW

Collected by Daniel McGee
Collected date/time 08/23/22 00:00
Received date/time 08/24/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1917993	1	08/29/22 12:25	08/29/22 15:36	DTM	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1916346	10	08/26/22 06:22	08/26/22 06:22	GEB	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 08/23/22 09:00

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1540		50.0	1	08/29/2022 17:34	WG1918192

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	805		3.79	10.0	10	08/26/2022 02:19	WG1916346

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 08/23/22 09:30

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2250		50.0	1	08/30/2022 15:14	WG1918454

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1190		3.79	10.0	10	08/26/2022 02:33	WG1916346

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 08/23/22 09:40

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	560		13.3	1	08/30/2022 15:14	WG1918454

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	124		0.379	1.00	1	08/26/2022 02:46	WG1916346

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 08/23/22 09:55

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	514		10.0	1	08/30/2022 15:14	WG1918454

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	145		0.379	1.00	1	08/26/2022 03:00	WG1916346

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 08/23/22 10:15

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	493		10.0	1	08/29/2022 15:36	WG1917993

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	101		0.379	1.00	1	08/26/2022 03:13	WG1916346

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 08/23/22 10:25

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	18500		400	1	08/29/2022 15:36	WG1917993

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	15000		37.9	100	100	08/26/2022 03:27	WG1916346

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 08/23/22 11:20

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	465		10.0	1	08/29/2022 15:36	WG1917993

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	73.6		0.379	1.00	1	08/26/2022 03:40	WG1916346

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 08/23/22 11:10

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	988		20.0	1	08/29/2022 15:36	WG1917993

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	424		1.90	5.00	5	08/26/2022 04:48	WG1916346

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 08/23/22 11:40

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	6920		200	1	08/29/2022 15:36	WG1917993

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	8180		37.9	100	100	08/26/2022 05:01	WG1916346

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 08/23/22 12:30

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	2390		50.0	1	08/29/2022 15:36	WG1917993

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	948		3.79	10.0	10	08/26/2022 05:15	WG1916346

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Collected date/time: 08/23/22 12:45

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	10100		200	1	08/29/2022 15:36	WG1917993

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	8070		37.9	100	100	08/26/2022 05:28	WG1916346

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 08/23/22 13:00

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1010		20.0	1	08/29/2022 15:36	WG1917993

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	376		1.90	5.00	5	08/26/2022 05:42	WG1916346

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 08/23/22 13:10

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	1090		10.0	1	08/29/2022 15:36	WG1917993

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	48.0		0.379	1.00	1	08/26/2022 05:55	WG1916346

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 08/23/22 13:30

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	10800	<u>J3</u>	200	1	08/29/2022 15:36	WG1917993

1 Cp

2 Tc

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	5170		37.9	100	100	08/26/2022 06:09	WG1916346

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Collected date/time: 08/23/22 00:00

L1528752

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	3860	<u>J3</u>	50.0	1	08/29/2022 15:36	WG1917993

Wet Chemistry by Method 300.0

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1390		3.79	10.0	10	08/26/2022 06:22	WG1916346

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

[L1528752-05.06.07.08.09.10.11.12.13.14.15](#)

Method Blank (MB)

(MB) R3835182-1 08/29/22 15:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1528752-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1528752-14 08/29/22 15:36 • (DUP) R3835182-3 08/29/22 15:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	10800	11500	1	7.00	J3	5

L1528752-15 Original Sample (OS) • Duplicate (DUP)

(OS) L1528752-15 08/29/22 15:36 • (DUP) R3835182-4 08/29/22 15:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	3860	4460	1	14.3	J3	5

Laboratory Control Sample (LCS)

(LCS) R3835182-2 08/29/22 15:36

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8170	92.8	77.3-123	

Gravimetric Analysis by Method 2540 C-2011

[L1528752-01](#)

Method Blank (MB)

(MB) R3835712-1 08/29/22 17:34

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

¹Cp

²Tc

³Ss

L1529687-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1529687-01 08/29/22 17:34 • (DUP) R3835712-3 08/29/22 17:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	108	102	1	5.71	J3	5

⁴Cn

⁵Sr

⁶Qc

L1529766-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1529766-01 08/29/22 17:34 • (DUP) R3835712-4 08/29/22 17:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1540	1780	1	14.8	J3	5

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3835712-2 08/29/22 17:34

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8180	93.0	77.3-123	

Gravimetric Analysis by Method 2540 C-2011

L1528752-02,03,04

Method Blank (MB)

(MB) R3835448-1 08/30/22 15:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1528414-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1528414-02 08/30/22 15:14 • (DUP) R3835448-3 08/30/22 15:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	625	639	1	2.11		5

L1528459-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1528459-01 08/30/22 15:14 • (DUP) R3835448-4 08/30/22 15:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1130	1170	1	3.66		5

Laboratory Control Sample (LCS)

(LCS) R3835448-2 08/30/22 15:14

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8220	93.4	77.3-123	

Wet Chemistry by Method 300.0

[L1528752-01,02,03,04,05,06,07,08,09,10,11,12,13,14,15](#)

Method Blank (MB)

(MB) R3830974-1 08/25/22 17:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.379	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1528582-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1528582-01 08/25/22 19:06 • (DUP) R3830974-3 08/25/22 19:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	49.2	48.5	1	1.45		20

L1528752-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1528752-07 08/26/22 03:40 • (DUP) R3830974-6 08/26/22 03:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	73.6	73.7	1	0.200		20

Laboratory Control Sample (LCS)

(LCS) R3830974-2 08/25/22 17:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40.0	38.6	96.6	90.0-110	

L1528582-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1528582-01 08/25/22 19:06 • (MS) R3830974-4 08/25/22 19:33 • (MSD) R3830974-5 08/26/22 02:06

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50.0	49.2	99.3	99.7	100	101	1	80.0-120			0.428	20

L1528752-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1528752-07 08/26/22 03:40 • (MS) R3830974-7 08/26/22 04:07

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50.0	73.6	123	98.2	1	80.0-120	

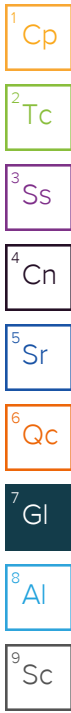
Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.



Qualifier Description

J3	The associated batch QC was outside the established quality control range for precision.
----	--

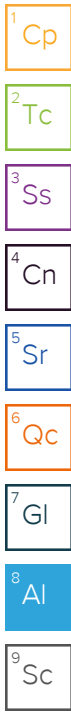
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122


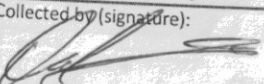
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Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

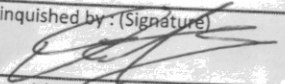
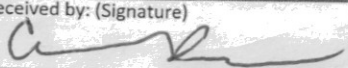
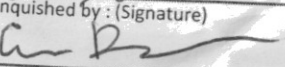
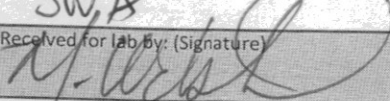



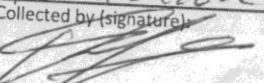
Company Name/Address: Arcadis - Chevron - NM		Billing Information: Accounts Payable 401 East Main Street Suite 400 El Paso, TX 79901		Analysis / Container / Preservative		Chain of Custody Page <u>1</u> of <u>2</u>	
10205 Westheimer Rd. #800 Houston, TX 77042		Email To: lydia.velezgonzalez@arcadis.com;russell.grant@		Pres Chk		 MT JULIET, TN 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubs/pas-standard-terms.pdf SDG # <u>U528752</u> <div style="border: 1px solid black; padding: 5px; display: inline-block;">B082</div> Acctnum: CHEVARCNM Template: T200378 Prelogin: P943483 PM: 526 - Chris McCord PB: Shipped Via:	
Report to: Russell Grant		City/State Collected: <u>Jal, NM</u>		Please Circle: PT MT <u>CT</u> ET			
Project Description: POD 2 - UEM4822 Cooper Jal		Client Project # 30144968 TASK 0002		Lab Project # CHEVARCNM-COOPERJAL		CHLORIDE (300.0) 125mlHDPE-NoPres TDS 250mlHDPE-NoPres	
Phone: 916-786-5246		Site/Facility ID # COOPER JAL		P.O. #			
Collected by (print): <u>Daniel McBoe</u>		Rush? (Lab MUST Be Notified)		Quote #			
Collected by (signature): 		Same Day _____ Five Day _____ Next Day _____ 5 Day (Rad Only) _____ Two Day _____ 10 Day (Rad Only) _____ Three Day _____		Date Results Needed <u>Standard</u>			
Immediately Packed on Ice N <u>Y</u> <u>X</u>		No. of Cntrs					
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time		
MW-1-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>0900</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-2-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>0930</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-2A-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>0940</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-3-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>0955</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-4-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>1015</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-5-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>1025</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-5A-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>1120</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-5-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>1110</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-6-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>1140</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-7-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>1230</u>	<u>2</u>	<u>X</u> <u>X</u>
MW-8-W-2022 <u>0823</u>	<u>6</u>	<u>GW</u>		<u>8-23-22</u>	<u>1230</u>	<u>2</u>	<u>X</u> <u>X</u>

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____
 Samples returned via:
 UPS FedEx Courier _____
 Tracking # _____

Sample Receipt Checklist
 COC Seal Present/Intact: Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 if Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature) 	Date: <u>8-23-22</u>	Time: <u>1600</u>	Received by: (Signature) 	Trip Blank Received: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	HCL / MeOH TBR
Relinquished by: (Signature) 	Date: <u>8/23/22</u>	Time: <u>1200</u>	Received by: (Signature) <u>SWA</u>	Temp: <u>5.2/9.5.2</u> °C	Bottles Received: <u>20</u>
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) 	Date: <u>8/24/22</u>	Time: <u>845</u>

Company Name/Address: Arcadis - Chevron - NM		Billing Information: Accounts Payable 401 East Main Street Suite 400 El Paso, TX 79901		Pres Chk		Analysis / Container / Preservative										Chain of Custody Page <u>2</u> of <u>2</u>	
10205 Westheimer Rd. #800 Houston, TX 77042		Report to: Russell Grant		Email To: lydia.velezgonzalez@arcadis.com;russell.grant@		CHLORIDE (300.0) 125mlHDPE-NoPres TDS 250mlHDPE-NoPres										 PEOPLE ADVANCING SCIENCE MT JULIET, TN 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf	
Project Description: POD 2 - UEM4822 Cooper Jal		City/State Collected: Jal, NM		Please Circle: PT MT <u>CT</u> ET													
Phone: 916-786-5246		Client Project # 30144968 TASK 0002		Lab Project # CHEVARCNM-COOPERJAL													
Collected by (print): Daniel Mabee		Site/Facility ID # COOPER JAL		P.O. #													
Collected by (signature): 		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #													
Immediately Packed on Ice N <u> </u> Y <u>X</u>		Date Results Needed Standard		No. of Cntrs													
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time											

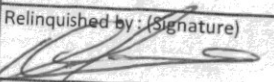
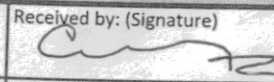
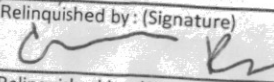
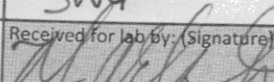
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE (300.0) 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres											Remarks	Sample # (lab only)
MW-8-W-2022 <i>RW-2R-W-20220823</i>	<i>6</i>	GW		<i>8-23-22</i>	<i>1245</i>	<i>2</i>	<i>X</i>	<i>X</i>												<i>-11</i>
MW-9-W-2022 <i>MW-10-W-20220823</i>	<i>6</i>	GW		<i>8-23-22</i>	<i>1300</i>	<i>2</i>	<i>X</i>	<i>X</i>												<i>-12</i>
MW-9A-W-2022 <i>MW-14-W-20220823</i>	<i>6</i>	GW		<i>8-23-22</i>	<i>1310</i>	<i>2</i>	<i>X</i>	<i>Y</i>												<i>-13</i>
MW-10-W-2022 <i>MW-7-W-20220823</i>	<i>6</i>	GW		<i>8-23-22</i>	<i>1330</i>	<i>2</i>	<i>X</i>	<i>X</i>												<i>-14</i>
MW-11-W-2022 <i>DUP-1-W-20220823</i>	<i>6</i>	GW		<i>8-23-22</i>	<i>---</i>	<i>2</i>	<i>X</i>	<i>X</i>												<i>-15</i>
MW-12-W-2022		GW																		
MW-14-W-2022		GW																		
MW-10-W-2022		GW																		
RW-1-W-2022		GW																		
RW-2-W-2022		GW		<i>DM 8-23-22</i>																

* Matrix: SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks: _____

pH _____ Temp _____
 Flow _____ Other _____

Samples returned via: UPS FedEx Courier _____ Tracking # _____

Relinquished by: (Signature) 	Date: <i>8-23-22</i>	Time: <i>1600</i>	Received by: (Signature) 	Trip Blank Received: Yes/No <i>HCL/MeOH</i>
Relinquished by: (Signature) 	Date: <i>8/23/22</i>	Time: <i>1700</i>	Received by: (Signature) <i>SWT</i>	Temp: <i>5.2 to 5.2</i> °C Bottles Received: <i>10</i>
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) 	Date: <i>9/20/22</i> Time: <i>945</i>

If preservation required by Login: Date/Time _____

Hold: _____ Condition: NCF / OK

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan-Grisham
Governor

Melanie A. Kenderdine
Cabinet Secretary-Designate

Ben Shelton
Deputy Secretary (Acting)

Amy Barnhill
Chevron Corporation
PO Box 4324
Houston, TX 77210

09/27/2024

Gerasimos "Gerry" Razatos
Division Director (Acting)
Oil Conservation Division



RE: Determination of Administratively Complete Stage 1 & Stage 2 Abatement Plan & Public Notice and Participation for the Cooper Jal Unit South Injection Station (Incident #nAUTOAB000105)

Ms. Barnhill,

The Oil Conservation Division (OCD) received a Stage 1 & 2 Abatement Plan as well as a Proposed Public Notice and Participation submittal prepared on Chevron Environmental Management Company's behalf by Arcadis, LLC. OCD has reviewed the plan and determined it to be administratively complete. In addition, OCD also approves the proposed draft of the Public Notice and Participation Proposal. The required public notice and participation should now proceed under the provisions of Subsections A and B of 19.15.30.15 NMAC. Proof of Public Notice must be provided to the OCD.

Additionally, both abatement plans are approved under the following conditions of approval:

1. Distribute Public Notice to all contacts, including surface owners, county commissioner, city and tribal officials who have been identified, and submit proof of distribution to OCD within fifteen (15) days from the approval date of this letter.
2. Provide OCD with an update within future groundwater monitoring reports of all ancillary remediation system and construction designs within six months of this approval letter date.
3. Include facility update after construction is complete or after one year from this approval date.

The division shall distribute notice of an abatement plan's filing with the next division and commission hearing docket following the plan's receipt.

OCD's approval of the Stage 1 & 2 Abatement Plans does not relieve Chevron, Inc of any other requirements imposed by any other regulatory agencies.

If you have any questions, please contact Mike Buchanan of the Environmental Incident Group at (505) 490-0798 or by email at michael.buchanan@emnr.nm.gov.

Respectfully,

Rosa M Romero

Rosa Romero
Environmental Bureau Chief
RR/mb

1220 South St. Francis Drive, 3rd Floor ■ Santa Fe, New Mexico 87505
Phone (505) 476-3441 ■ www.emnrd.state.nm.us/ocd



Armando Martinez
Operations Lead, Portfolio Operations Central

VIA ELECTRONIC MAIL

March 25, 2024

New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, NM 88240

**Re: Cooper Jal
2023 Stage 1 & 2 Abatement Plan
Incident ID: nAUTOfAB000105
Lea County, New Mexico**

Dear whom it concerns,

Please find enclosed for your filed, copies of the following:

- Cooper Jal – 2023 Stage 1 & 2 Abatement Plan

The 2023 Stage 1& 2 Abatement Plan was prepared by Arcadis U.S., Inc. (Arcadis) on behalf of Chevron Environmental Management Company (CEMC).

Please do not hesitate to call Russell Grant with Arcadis at 432.217.2064 or myself at 575.586.7639, should you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Armando Martinez".

Armando Martinez

Encl. Cooper Jal 2023 Stage 1 & 2 Abatement Plan

cc. Amy Barnhill, Chevron/MCBU

Armando Martinez
Operations Lead Central
Portfolio Operations - Central
354 State Highway 38, Questa, NM 87556-0469
Tel 575 586 7639 Mobile 505 690 5408 Fax 575 586 0811
amarti@chevron.com



Chevron Environmental Management Company

2023 STAGE 1 & 2 ABATEMENT PLAN

Cooper-Jal Unit South Injection Station
Section 24, Township 24 South, Range 36 East
Lea County, New Mexico

OGRID No. 4323

Incident ID: nAUTOfAB000105

January 2024

2020 STAGE 1 & 2 ABATEMENT PLAN

**2023 STAGE 1 & 2
ABATEMENT PLAN**

Cooper-Jal Unit South Injection Station
Section 24, Township 24 South, Range
36 East
Lea County, New Mexico



Sarah Johnson
Task Manager II

Prepared for:

Armando Martinez
Operations Lead, Central
Chevron Environmental Management
Company
P.O. Box 469

Questa, New Mexico 87556



Russell Grant
Certified Project Manager

Prepared by:

Arcadis U.S., Inc.
10205 Westheimer Road
Suite 800
Houston
Texas 77042
Tel 713 953 4800
Fax 713 977 4620

Our Ref:

30183400

Date:

January 2024

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2020 STAGE 1 & 2 ABATEMENT PLAN

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2020 STAGE 1 & 2 ABATEMENT PLAN

- Figure 1 Site Location Map
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- Figure 3 Potentiometric Surface Map 2023
- Figure 4 Chloride Isoconcentration Map 2023
- Figure 5 TDS Isoconcentration Map 2023
- Figure 6 Sulfate Isoconcentration Maps 2023

APPENDICES

- Appendix A. 2015 Sample Analysis Plan approved on May 19, 2015
- Appendix B. Proposed Groundwater Monitoring Reduction Work Plan submitted on July 20, 2020
- Appendix C. 2023 Revised Sample Analysis Plan per NMOCD Approval email February 13, 2023
- Appendix D. NMOSE Application to Divert Groundwater CP-884 and CP-885
- Appendix E. WR-07 Application for Permit to Drill
- Appendix F. Groundwater Analytical Reports (2016 through 2023)
- Appendix G. Cooper Jal Groundwater Model Memo
- Appendix H. Proposed Groundwater Recovery System Design
- Appendix I. Written Notice to Landowner and Newspaper Ad Public Notice

2020 STAGE 1 & 2 ABATEMENT PLAN

1 INTRODUCTION TO STAGE 1 ABATEMENT PLAN

Arcadis U.S., Inc. (Arcadis) has prepared this Abatement Plan on behalf of Chevron Environmental Management Company (CEMC), summarizing investigation activities, analytical results and selection of an abatement option for the Cooper-Jal Unit South Injection Station (Site) for submittal to the New Mexico Oil Conservation District (NMOCD) as outlined in Rule 19E(3). The Site is located on Lea County Road J7, approximately five and a half miles northwest of Jal, New Mexico, in Section 24, Township 24 South, Range 36 East, Lea County, New Mexico. The latitude and longitude coordinates of the Site are 32° 12' 7.13" N and 103° 13' 4.36" W.

Land in the vicinity of the Site is utilized primarily for livestock ranching and oil and gas production and has areas of undeveloped rangeland, vegetated with indigenous grass. An injection well facility, operated by Resaca Resources, LLC (Resaca), is located adjacent to the Site. No active Chevron U.S.A. Inc. (Chevron) operations are present in the area. The topography slopes southeast toward Monument Draw located approximately 7.5 miles east and southeast of the Site. A Site Location Map is presented as **Figure 1**.

1.1 Site Background

Site assessment activities were initiated in 1993 when Environmental Spill Control, Inc. (ESCI) of Hobbs, New Mexico, performed a subsurface assessment of an unlined earthen produced water overflow pit, reportedly located adjacent to the western edge of the Site. During the investigation, five boreholes were advanced to depths ranging from 15 feet below ground surface (ft bgs) to 100 ft bgs. The investigation revealed the presence of hydrocarbon-impacted soil. In 1996, Texaco Exploration and Production, Inc. (Texaco) filed a notice of intent to close the pit with the NMOCD. Approximately 1,248 cubic yards (cy) of hydrocarbon-impacted soil were removed from the pit. During the closure activities, the excavation was lined with imported clay and backfilled with imported caliche. Texaco submitted a pit closure report to the NMOCD in December 1996.

In 1997, the NMOCD requested additional assessment activities to define the vertical extent of affected soil beneath the former pit. Assessment activities performed by Highlander Environmental Corporation revealed elevated chloride concentrations in the soil. In October 1997, monitoring well MW-1 was installed near the former pit. Groundwater samples collected from (MW-1) contained chloride concentrations above the New Mexico Water Quality Control Commission (NMWQCC) Human Health Standards for Groundwater (250 milligrams per liter [mg/L]). Assessment activities performed through May 1998 included the installation of 13 additional monitoring wells. In 1998, electromagnetic (EM 34) terrain conductivity surveys were completed to identify areas of elevated chloride concentrations in soil.

In June 1998, Texaco prepared a groundwater corrective action plan to mitigate chloride concentrations and to provide plume containment by extracting groundwater from the affected groundwater-bearing unit (GWB). Between 1999 and 2013, assessment activities included the installation of wells MW-6R, MW-11 to MW-14, RW-1, RW-2, and RW-2R. Monitoring well MW-6 was plugged and abandoned in September 2013 due to a damaged well casing.

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Due to on-site wells (MW-1, MW-2, MW-2A, MW-3, and MW-6R) fully delineating the northern boundary of the chloride plume, monitoring well MW-13, located approximately 1,000 feet up-gradient and off-site, was plugged and abandoned on July 11, 2017.

Historically, chloride concentrations show decreasing trends in upgradient monitoring wells MW-1, MW-2, and MW-5, as shown on concentration versus date graphs in Exhibit 1A, available in the *2018 Annual Groundwater Monitoring Report*. Increasing trends have been observed since 1997 in downgradient monitoring wells MW-7, MW-9, MW-9A, and MW-10, as indicated in Exhibit 1B (available in the *2018 Annual Groundwater Monitoring Report*), although more recent data indicated that these concentrations are stabilizing with some variability, with the exception of monitor well MW-7. Similar trends are apparent in total dissolved solids (TDS) and sulfate concentrations. There are no significant variations in trends in the observed historical concentrations of fluoride. Based on current and historical concentration data, the groundwater plume at the Site is fully delineated.

1.2 Regulatory Framework

The NMOCD has regulatory jurisdiction over corrective actions conducted at the Site. Corrective actions follow guidance given by the NMOCD in Guidelines for Remediation of Leaks, Spills, and Releases (August 13, 1993). These guidelines require remediation of four constituents of concern (COCs) (chloride, TDS, sulfate, and fluoride) in groundwater to the human health standards of the NMWQCC set forth in New Mexico Administrative Code 20.6.2.3103B as follows:

Analyte	NMWQCC Standard for Groundwater (mg/L)
Chloride	250
TDS	1,000
Fluoride	1.6
Sulfate (SO ₄)	600

Note: mg/L = milligrams per liter

The original analyte list included carbonate alkalinity, bicarbonate alkalinity, total alkalinity, nitrate-N, calcium, magnesium, potassium, sodium, chloride, TDS, fluoride, and sulfate. In a letter to the NMOCD dated December 15, 2014, GHD (formerly Conestoga-Rovers & Associates, Inc. [CRA]), on behalf of CEMC, requested a reduction in the list of analytical parameters and a reduction in the wells included in the monitoring program. In a subsequent email dated May 19, 2015, the NMOCD approved the reduction of the list of analyses to chloride, TDS, fluoride, and sulfate only. No wells were eliminated from the monitoring program, **Appendix A**. During 2019, Arcadis began management of semi-annual sampling and annual reporting activities for the Site. Upon review of the Site's historical analytical data, Arcadis prepared the Proposed Groundwater Monitoring Reduction Work Plan, **Appendix B**, and submitted to NMOCD for approval in July 2020. NMOCD sent an email on February 13, 2023, approving the Proposed Groundwater Monitoring Reduction Plan, **Appendix C**.

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1.3 Soil Boring and Monitor Well Installation

The New Mexico Office of the State Engineer (NMOSE) governs water usage in the State of New Mexico. Applications for Permits to Appropriate Groundwater were submitted by Texaco in October 1999 and were approved with specific conditions in June 2008. A total of 65 acre-feet (ac-ft) per annum from the two on-Site recovery wells (RW-1 and RW-2) was granted by the NMOSE for environmental remediation purposes. Usage of groundwater was granted by the NMOSE under well permits CP-884 (RW-2; 32.5 ac-ft per annum) and CP-885 (RW-1; 32.5 ac-ft per annum), **Appendix D**.

Due to apparent damage at RW-2 that would prevent the installation of a pump, RW-2R was installed under well permit CP-884-POD2 to replace RW-2 in 2013. An application to change the designation of RW-2 from a recovery well to a monitoring well was submitted on December 16, 2016. This was done to allow the well to remain in the monitoring well network instead of being plugged and abandoned. The change was conditionally approved, pending further assessment of the well integrity, by the NMOSE in a telephone conversation on January 9, 2017. On February 10, 2017, GHD further assessed RW-2 and found the annular seal to be compliant with New Mexico Administrative Code (NMAC) 19.27.4.30 Regulations and the well casing and well pad to be in good condition. These findings were documented in a letter sent to the NMOSE on February 16, 2017. Based on GHD's reported understanding of the January 9, 2017, conversation, RW-2 is now designated as a monitoring well.

To date, neither RW-1 nor RW-2R have been equipped for groundwater recovery. RW-2R was converted to a monitoring well per the WR-07 application that was approved on January 12, 2017 (**Appendix E**). Notifications to NMOSE will be submitted if these wells become equipped in the future. Until each well is permanently equipped, an Extension of Time (EOT) request will be sent to the NMOSE. An EOT was received by NMOSE on April 23, 2018. The request was approved in written correspondence and extended through April 30, 2020.

1.3.1 Regional Geologic Conditions

The region is characterized by a surface cover of up to 200 feet of unconsolidated to semi-lithified sediments of the Ogallala Formation consisting of sand, clay, and fluvial gravel. The upper portion of the Ogallala Formation has been heavily cemented by caliche. The Tertiary-aged sediments are underlain by the Triassic-aged Dockum Group shale ("red beds").

1.3.2 Site Geology

Site boring logs used to interpret the Site geology included the October 2013 GHD field work notes and boring logs from previous groundwater assessments. The locations of the soil borings and monitoring wells are shown on **Figure 2**. The subsurface stratigraphy typically included the following:

- A thick sand (approximately 163 ft thick) layer of unconsolidated fine to medium grained sand containing trace caliche nodules;
- A fine sand layer typically ranging from 3 ft to 30 ft thick;
- A sandy clay layer typically ranging from 2 ft to 11 ft thick directly above the upper Dockum "redbeds"; and

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- Red and gray weathered shale and mudstone “redbeds” of the Triassic Dockum Group that form the underlying confining layer.

1.3.3 Site Hydrogeology

The uppermost GWBU underlying the Site is the Tertiary Ogallala Aquifer (Ogallala) formation. The depth to groundwater at the Site ranges from approximately 129.89 to 139.62 ft bgs, based on the groundwater monitoring event conducted in November 2023 (**Table 1**). The saturated thickness of the unconfined aquifer ranges from approximately 15 to 30 ft bgs. The saturated thickness varies in conjunction with the elevation of the top of the Dockum shale. The thickest saturated portion of the Ogallala is to the southwest where the bedrock surface of the Dockum is the lowest.

At the Site, the local groundwater flow direction trends to the southeast with an average horizontal hydraulic gradient of approximately 0.00534 feet per foot (ft/ft), as presented on **Figure 3** and **Table 1**. The southeast groundwater flow direction observed at the Site is consistent with the regional groundwater flow direction to the southeast in the Ogallala Aquifer. The deflection to the east at the eastern property boundary is likely related to the break of the slope of the land towards the Monument Draw to the east.

1.3.4 Water Well Inventory

A summary of the 15 registered water wells located inside and within one mile of the perimeter of the three-dimensional contaminate plume is included in **Table 2**. The closest registered water well is approximately 3,431 feet from the northern plume boundary.

1.3.5 Surface Water Hydrology

The Monument Draw is located approximately 7.5 miles east and southeast of the Site. The magnitude of contamination and impacts to the Monument Draw, defined by conducting a biological assessment of fish, benthic macroinvertebrates and other wildlife populations has not been investigated. No other surface water bodies were identified.

1.4 Site-Wide Groundwater Conditions

The stratification of chloride-affected groundwater is monitored with selectively screened wells within the GWBU. Shallow wells (MW-2A, MW-4A, MW-5A, and MW-9A) are screened across the upper portion of the water table. Deep wells (MW-1 through MW-5 and MW-7 through MW-10), along with off-site upgradient monitor well MW-12 are screened across the bottom 10-20 feet of the saturated zone. Fully penetrating wells (MW-6R, MW-11, MW-14, RW-1, RW-2, and RW-2R) are screened across the entire saturated zone.

Aquifer testing was performed on October 2, 2013, on recovery well RW-2R. To assess the radius of influence of the pumping from this well, water levels were measured in monitor well RW-2 and six other monitor wells (MW-14, MW-4A, MW-5, MW-5A, MW-7 and MW-10). A pumping rate of approximately 6 gallons per minute (gpm) [approximately 10 acre-ft/yr] and a drawdown of 19 feet were sustained for the duration of the test period (approximately eight hours). Evaluation of the data resulted in a calculated aquifer transmissivity of 25.62 ft²/day (0.73 ft/day). Additional information about the aquifer testing can be found in the *2013 Annual Groundwater Monitoring Report*, submitted in February 2014.

On March 21 and 23, 2017, GHD performed single well response testing (slug testing) on 10 monitor wells at the Site. The results were then evaluated using AQTESOLV v4.5. The hydraulic conductivity values

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observed ranged from 0.23 to 3.76 feet per day (ft/d), with a 1.79 ft/d geometric mean. The results were mostly within an order of magnitude of each other, suggesting a homogeneous aquifer, and were consistent with previous results.

1.5 Groundwater Monitoring Program

Groundwater at the Site was gauged and sampled semi-annually per the 2015 sampling analysis plan (SAP) (**Appendix A**) from a network of 18 monitoring wells and 2 recovery wells. A Site Details Map is presented as **Figure 2**. Cumulative summary tables of groundwater analytical results and potentiometric elevation data obtained for the Site from 1998 through 2023 are presented in **Tables 1** and **3**, respectively. Copies of the 2016 through 2023 certified analytical reports and chain-of-custody documentation from Xenco Laboratories, Eurofins TestAmerica and Pace Laboratories are provided in **Appendix F**. Analytical reports generated before 2016 can be found in annual groundwater monitoring reports submitted to the NMOCD prior to 2016.

Analytical isoconcentration maps showing the most recent interpretation of the chloride, and TDS plumes extrapolated from analytical data collected during 2023 are presented on **Figures 4** through **5**.

Prior to sampling, static fluid water levels are measured with an electronic interface probe to the nearest hundredth of a foot and recorded. In addition, a conductivity probe is used to record the down hole conductivity levels every 2 feet in each well to evaluate the vertical distribution of chloride-affected groundwater. After recording conductivity levels, discrete samples are collected at the interval of highest conductivity using a Hydrasleeve™. All non-disposable groundwater sampling equipment are thoroughly decontaminated between measurements to prevent possible cross-contamination between wells.

Laboratory-supplied sample containers are filled directly from the Hydrasleeve™. Groundwater samples were placed on ice in insulated coolers and chilled to a temperature of approximately 4°C (40°F). The coolers were sealed for shipment with proper chain-of-custody documentation and shipped to Pace Laboratories, located in Mt. Juliet, Tennessee for analysis of chloride and sulfate by Environmental Protection Agency (EPA) Method 300.0 and TDS by SM 2540C.

All excess purge water is collected onsite in a new 55-gallon steel drum. Excess purged groundwater is classified as Oil and Gas (O&G) exploratory waste and disposed of at a facility which meets both Chevron and State requirements. The O&G groundwater waste is disposed of after the completion of each year's second semi-annual monitoring event.

Upon the completion of both Site semi-annual groundwater monitoring events, the field and analytical data will be used to prepare an annual Site groundwater monitoring report. This report will be prepared and provided for submittal to NMOCD by the end of the following year's first quarter. Semiannual groundwater monitoring activities and annual reporting to the NMOCD for this Site have been performed by GHD from 2005 to 2018 and by Arcadis since 2019 and are currently on-going per the SAP.

In an effort to keep Arcadis employees, subcontractors safe from possible Site hazards, a site-specific health and safety plan (HASP) was created to identify Site hazards and instructions on how to mitigate these hazards when performing various Site activities. A copy of the HASP will be submitted upon request.

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2 STAGE 2 ABATEMENT PLAN

2.1 Proposed Groundwater Reduction Plan

The reduced SAP was implemented during the second semiannual event in 2020. NMOCD approved the reduced SAP, with the addition of collecting annual sulfate analysis from MW-4A and RW-2R, in an email dated February 13, 2023. The first semiannual monitoring event includes sampling all Site wells, and the second semiannual sampling event was reduced to only sampling select monitoring and recovery wells. Details of the NMOCD approved 2023 Revised SAP are included in **Appendix C**.

2.2 Groundwater Model Development and Conclusions

A Site-specific, three-dimensional groundwater flow and solute transport model completed August 10, 2020 was used to assess potential remediation approaches to mitigate the chloride plume beneath the Site. Arcadis constructed the model to evaluate plume transport under three scenarios:

- Scenario 1 – Monitored Natural Attenuation (non-pumping condition). Chloride attenuation below 250 mg/L is not expected within 50-years,
- Scenario 2 – Five (5) recovery wells with time-varying strategic pumping conditions. Chloride attenuation below 250 mg/L is expected to be achieved in approximately 25 years, and
- Scenario 3 – Seven (7) recovery wells with time-varying strategic pumping conditions. Chloride attenuation below 250 mg/L is expected to be achieved in approximately 15 years.

The results to these scenarios and corresponding figures can be found in **Appendix G**. The preferred method of groundwater remediation on Site is to design a recovery system to achieve the target extraction flowrates and volumes that are detailed in **Appendix E**, under scenario 3.

Scenario 3 predicts that site groundwater attenuation below 250 mg/L can be achieved in a three phased approach spanning approximately 15 years. System operation target flowrates and duration required to meet scenario 3 can be seen in the table below:

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Modeling Phase	Simulated Time Period (Years)	Total Pumping Rate (GPM)	Total Number of Operational Recovery Wells	Operating Recovery Wells
Phase 1	0 to 10	7.1	7	RW-1 through RW-7
Phase 2	10 to 13	5.9	5	RW-3 through RW-7
Phase 3	13 to 15	5.1	3	RW-3 through RW-5

2.3 Stage 2 Plans: Proposed Workplan

Arcadis will continue to sample the Site monitoring wells on a semiannual basis as outlined in the 2023 Revised SAP approved by NMOCD on February 13, 2023 (**Appendix C**). All Site wells will be gauged to determine depth to water and depth to LNAPL if present. Groundwater samples will be collected and analyzed for chloride, TDS, and Sulfate by a state approved laboratory.

2.3.1 Proposed Groundwater Remediation System

Based on the conclusions from the “Cooper-Jal Groundwater Model” attached as **Appendix G**, Arcadis proposes designing a groundwater recovery system to meet Scenario 3 detailed above in Section 2.2 to remediate chloride impacted groundwater. The proposed groundwater extraction system will consist of a network of seven total onsite extraction wells (two current onsite recovery wells [RW-1 and RW-2R] and five additional recovery wells). The seven extraction wells will be connected to a surface buried header line connected to an aboveground storage tank, or series of tanks with an anticipated storage capacity of 300 BBLs, **Appendix G**. The ASTs will be positioned within a lined secondary containment with a capacity of 110% or greater of the onsite AST capacity. The extracted chloride impacted groundwater will be pumped into an onsite AST for later transport and disposal in a saltwater disposal (SWD) well. Two options will be considered for SWD disposal methods; (1) extracted groundwater will be transported off-site for disposal down an off-site SWD, or (2) extracted groundwater will be hard lined to a nearby SWD injection facility.

The chloride impacted groundwater is expected to be attenuated below 250 mg/L in 15 years upon completion of the three-phase approach outlined in Scenario 3 of the Cooper Jal Model Memo (**Appendix G**). NMOSE has previously agreed to approve CP-884 and CP-885 upon proof of well completion for 32.5 ac-ft per annum each, **Appendix D**. Phase 1 of scenario 3 requires a total combined pumping rate from all

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seven recovery wells of 7.1 gpm, which would not exceed the previously agreed approval of 32.5 ac-ft per annum. **Appendix H** includes the initial high-level proposed recovery system diagram. Phases 2 and 3 will decrease the total combined extraction flow rate to 5.9 gpm and 5.1 gpm respectively. Flowmeters will be installed on each system recovery well to measure flowrate and total gallons extracted. Additional flowmeters will be installed on the influent and effluent process piping of the 300 BBL AST.

Upon NMOCD's concurrence of the proposed chloride recovery system, Arcadis will complete the recovery system design and begin securing the required water usage permitting. Quarterly progress reports will be prepared and provided to NMOCD through the design completion, permitting and construction of the proposed groundwater recovery system. Additionally, prior to the recovery system start-up, an operation and maintenance plan will be developed and will outline frequency of site visit/inspections, data/sample collections, frequency of critical safety devices, and procedure for responding to system alarm notifications. Arcadis will work with NMOCD to determine which of this data will be prepared and included in quarterly progress reports throughout the life cycle of the remediation process.

2.4 Abatement Plan Implementation Schedule and Reporting

Upon receiving approval for the Stage 1 & 2 Abatement plans from the NMOCD, Arcadis will provide a remediation work plan detailing the proposed recovery well and ancillary remediation system construction design within six months of the approval notice. The proposed recovery system activities, including the installation of five additional recovery wells, will commence within one year of approval notice.

Arcadis will continue to sample the Site monitoring wells on a semiannual basis as outlined in the 2023 revised SAP, **Appendix C**. All Site wells will be gauged to determine depth to water and depth to LNAPL if present. Groundwater samples will be collected and analyzed at a state approved laboratory. Results from the semiannual monitoring events will be summarized in an annual report for submittal to the NMOCD. The report will include:

- A scaled Site plan showing locations of all on-Site wells with sampling results and other relevant Site features;
- Tabulated gauging and analytical results;
- Figures showing locations and results;
- Geotagged photographic documentation of field activities;
- Gradient maps and laboratory analytical data sheets; and
- Recovery well recovered volume reports submitted to the NMOSE in accordance with permit requirements.

Arcadis will work with NMOCD and NMOSE to determine additional reporting frequencies and information throughout the design, construction, system start-up, and remediation life cycle.

2.5 Public Notification

Once NMOCD has approved the Stage 1 and 2 Abatement Plan and the site-specific addendum is administratively complete, the draft written notification letter, **Appendix I**, will be sent to the following individuals and entities.

- Surface owners of record within one mile of the perimeter of the affected area;
- The local County Commissioners;

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- Individuals or organizations requesting notification that are identified by the director; and
- All others as directed by the Director of the New Mexico Energy, Minerals and Natural Resources Department.

Within fifteen days after receiving notice from the NMOCD that the general Stage 1 and 2 Abatement Plan is administratively complete, CEMC will issue a public notice, **Appendix I**, in the newspapers with county and statewide circulation (such as the Jal Record, Hobbs News-Sun and the Albuquerque Journal).

The public notice will include the following:

- Name and address of the responsible party;
- Location of the proposed abatement;
- Description of the source, extent, and estimated volume of release and affected media;
- Description of the Stage 1 and 2 Abatement Plan;
- Description of the procedure required by the Director before making a final determination;
- Statement that the Abatement Plan can be viewed at the Division office in Hobbs, New Mexico or electronically from a Division maintained site;
- Statement that the Director will consider the following comments and requests if received within 30 days after publication of the public notice:
 - Written comments on the Abatement plan.
 - For Stage 2 Abatement plan, written requests for public hearing that includes reasons why a hearing should be held.
 - Address and telephone number at which interested persons may obtain further information.

3 CONCLUSION

This Stage 1 and 2 Abatement Plan pursuant to 19.15.30.9 NMAC is being submitted to the NMOCD to illustrate the abatement options available to CEMC for the remediation of chloride impacted groundwater associated with the release of nAUTOAB000105 in Lea County, New Mexico. This document illustrates industry standard remediation options available to date that are suitable to current site conditions. Future technological advances, modifications to NMAC and/or changes in site conditions may require modifications of this document and the abatement options as illustrated.

With concurrence from NMOCD to move forward with the proposed Chloride Impacted Groundwater Recovery System, Arcadis will develop a complete system design to meet the flowrates exhibited in Scenario 3 of the Groundwater Model detailed in **Appendix G**.

TABLES



Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-1 3320.00	05/18/98	135.05	3184.95	173.00	2.00	153-173
	05/25/99	134.93	3185.07	---	---	---
	02/08/01	134.80	3185.20	---	---	---
	05/10/02	134.77	3185.23	---	---	---
	10/22/02	134.89	3185.11	---	---	---
	05/20/03	135.17	3184.83	---	---	---
	11/24/03	134.70	3185.30	---	---	---
	05/11/04	134.75	3185.25	---	---	---
	11/15/04	134.76	3185.24	---	---	---
	05/17/05	134.29	3185.71	---	---	---
	11/15/05	134.93	3185.07	---	---	---
	05/08/06	134.68	3185.32	---	---	---
	11/13/06	134.62	3185.38	---	---	---
	05/29/07	134.71	3185.29	---	---	---
	11/16/07	134.70	3185.30	---	---	---
	05/14/08	134.73	3185.27	---	---	---
	11/03/08	134.69	3185.31	---	---	---
	05/19/09	134.64	3185.36	---	---	---
	11/02/09	134.71	3185.29	---	---	---
	05/05/10	134.90	3185.10	---	---	---
	11/08/10	134.50	3185.50	---	---	---
	05/11/11	134.60	3185.40	---	---	---
	11/08/11	134.64	3185.36	---	---	---
	05/16/12	134.60	3185.40	---	---	---
	10/10/12	134.73	3185.27	---	---	---
	05/16/13	134.58	3185.42	---	---	---
	10/08/13	134.53	3185.47	---	---	---
	05/01/14	134.70	3185.30	---	---	---
10/05/14	134.49	3185.51	---	---	---	
05/21/15	134.56	3185.44	---	---	---	
10/19/15	134.80	3185.20	---	---	---	
05/25/16	134.69	3185.31	---	---	---	
10/17/16	134.35	3185.65	---	---	---	
05/10/17	134.44	3185.56	---	---	---	
10/24/17	134.63	3187.31	---	---	---	
05/22/18	134.45	3187.49	---	---	---	
10/17/18	134.54	3187.40	---	---	---	
06/20/19	134.56	3187.38	171.17	---	---	
04/13/20	134.56	3187.38	---	---	---	
10/12/20	134.72	3187.22	---	---	---	
06/21/21	134.58	3187.36	---	---	---	
12/06/21	134.57	3187.37	---	---	---	
08/22/22	134.47	3187.47	---	---	---	
12/21/22	134.38	3187.56	---	---	---	
07/20/23	134.52	3187.42	---	---	---	
11/13/23	134.45	3187.49	---	---	---	
3321.94						

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-2 3319.86	05/18/98	135.00	3184.86	173.00	2.00	163-173
	05/25/99	134.79	3185.07	---	---	---
	02/08/01	134.63	3185.23	---	---	---
	05/10/02	134.65	3185.21	---	---	---
	10/22/02	134.72	3185.14	---	---	---
	05/20/03	134.95	3184.91	---	---	---
	11/24/03	134.56	3185.30	---	---	---
	05/11/04	134.55	3185.31	---	---	---
	11/15/04	134.53	3185.33	---	---	---
	05/17/05	134.39	3185.47	---	---	---
	11/15/05	134.77	3185.09	---	---	---
	05/08/06	134.52	3185.34	---	---	---
	11/13/06	134.44	3185.42	---	---	---
	05/29/07	134.54	3185.32	---	---	---
	11/14/07	134.52	3185.34	---	---	---
	05/14/08	134.53	3185.33	---	---	---
	11/03/08	134.44	3185.42	---	---	---
	05/19/09	134.46	3185.40	---	---	---
	11/16/09	134.51	3185.35	---	---	---
	05/05/10	134.62	3185.24	---	---	---
	11/08/10	134.25	3185.61	---	---	---
	05/11/11	134.31	3185.55	---	---	---
	11/08/11	134.36	3185.50	---	---	---
	05/16/12	134.31	3185.55	---	---	---
	10/10/12	134.51	3185.35	---	---	---
	05/16/13	134.33	3185.53	---	---	---
	10/07/13	142.85	3177.01	---	---	---
05/01/14	134.37	3185.49	---	---	---	
10/05/14	134.14	3185.72	---	---	---	
05/21/15	134.21	3185.65	---	---	---	
10/19/15	134.20	3185.66	---	---	---	
05/25/16	134.38	3185.48	---	---	---	
10/17/16	134.00	3185.86	---	---	---	
3321.27	05/10/17	134.13	3185.73	---	---	---
	10/25/17	134.32	3186.95	---	---	---
	05/22/18	134.11	3187.16	---	---	---
	10/17/18	134.21	3187.06	---	---	---
	06/20/19	134.27	3187.00	168.39	---	---
	04/13/20	134.2	3187.07	---	---	---
	10/12/20	134.49	3186.78	---	---	---
	06/21/21	134.39	3186.88	---	---	---
	12/06/21	134.21	3187.06	---	---	---
	08/22/22	134.16	3187.11	---	---	---
	12/21/22	143.07	3178.20	---	---	---
	07/20/23	134.20	3187.07	---	---	---
	11/13/23	134.11	3187.16	---	---	---

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-2A 3319.86	05/18/98	134.80	3185.06	145.00	2.00	130-145
	05/25/99	134.73	3185.13	---	---	---
	02/08/01	134.58	3185.28	---	---	---
	05/10/02	134.50	3185.36	---	---	---
	10/22/02	134.66	3185.20	---	---	---
	05/20/03	135.80	3184.06	---	---	---
	11/24/03	134.60	3185.26	---	---	---
	05/11/04	134.53	3185.33	---	---	---
	11/15/04	134.58	3185.28	---	---	---
	05/17/05	134.47	3185.39	---	---	---
	11/15/05	134.74	3185.12	---	---	---
	05/08/06	134.46	3185.40	---	---	---
	11/13/06	134.39	3185.47	---	---	---
	05/29/07	134.50	3185.36	---	---	---
	11/14/07	134.48	3185.38	---	---	---
	05/14/08	134.49	3185.37	---	---	---
	11/03/08	134.46	3185.40	---	---	---
	05/19/09	134.42	3185.44	---	---	---
	11/02/09	134.45	3185.41	---	---	---
	05/05/10	134.52	3185.34	---	---	---
	11/08/10	134.30	3185.56	---	---	---
	05/11/11	134.38	3185.48	---	---	---
	11/08/11	134.42	3185.44	---	---	---
	05/16/12	134.43	3185.43	---	---	---
	10/10/12	134.65	3185.21	---	---	---
	05/16/13	134.35	3185.51	---	---	---
	10/07/13	134.20	3185.66	---	---	---
	05/01/14	134.45	3185.41	---	---	---
10/05/14	134.15	3185.71	---	---	---	
05/21/15	134.32	3185.54	---	---	---	
10/19/15	134.40	3185.46	---	---	---	
05/25/16	134.49	3185.37	---	---	---	
10/17/16	134.10	3185.76	---	---	---	
3321.30	05/10/17	134.29	3185.57	---	---	---
	10/25/17	134.40	3186.90	---	---	---
	05/22/18	134.31	3186.99	---	---	---
	10/17/18	134.31	3186.99	---	---	---
	06/20/19	134.43	3186.87	142.47	---	---
	04/13/20	134.29	3187.01	---	---	---
	10/12/20	134.45	3186.85	---	---	---
	06/21/21	134.29	3187.01	---	---	---
	12/06/21	134.29	3187.01	---	---	---
	08/22/22	134.23	3187.07	---	---	---
	12/21/22	134.14	3187.16	---	---	---
	07/20/23	134.25	3187.05	---	---	---
11/13/23	134.19	3187.11	---	---	---	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-3 3318.21	05/18/98	132.65	3185.56	171.00	2.00	161-171
	05/25/99	132.52	3185.69	---	---	---
	02/08/01	132.40	3185.81	---	---	---
	05/10/02	132.40	3185.81	---	---	---
	10/22/02	132.49	3185.72	---	---	---
	05/20/03	132.75	3185.46	---	---	---
	11/24/03	132.29	3185.92	---	---	---
	05/11/04	132.38	3185.83	---	---	---
	11/15/04	132.46	3185.75	---	---	---
	05/17/05	132.32	3185.89	---	---	---
	11/15/05	132.55	3185.66	---	---	---
	05/08/06	132.32	3185.89	---	---	---
	11/13/06	132.27	3185.94	---	---	---
	05/29/07	132.36	3185.85	---	---	---
	11/16/07	132.34	3185.87	---	---	---
	05/14/08	132.36	3185.85	---	---	---
	11/03/08	132.31	3185.90	---	---	---
	05/19/09	132.25	3185.96	---	---	---
	11/02/09	132.37	3185.84	---	---	---
	05/05/10	132.48	3185.73	---	---	---
	11/08/10	132.14	3186.07	---	---	---
	05/11/11	132.24	3185.97	---	---	---
	11/08/11	132.30	3185.91	---	---	---
	05/16/12	132.25	3185.96	---	---	---
	10/10/12	132.54	3185.67	---	---	---
	05/16/13	132.25	3185.96	---	---	---
	10/08/13	132.14	3186.07	---	---	---
	05/01/14	132.10	3186.11	---	---	---
10/05/14	132.58	3185.63	---	---	---	
05/21/15	132.25	3185.96	---	---	---	
10/19/15	132.25	3185.96	---	---	---	
05/25/16	132.34	3185.87	---	---	---	
10/17/16	132.00	3186.21	---	---	---	
05/10/17	132.21	3186.00	---	---	---	
10/24/17	132.30	3187.78	---	---	---	
05/22/18	132.15	3187.93	---	---	---	
10/17/18	132.21	3187.87	---	---	---	
06/20/19	132.24	3187.84	171.93	---	---	
04/13/20	132.32	3187.76	---	---	---	
10/12/20	132.36	3187.72	---	---	---	
06/22/21	132.12	3187.96	---	---	---	
12/06/21	132.16	3187.92	---	---	---	
08/22/22	132.03	3188.05	---	---	---	
12/21/22	132.00	3188.08	---	---	---	
07/21/23	132.21	3187.87	---	---	---	
11/13/23	132.07	3188.01	---	---	---	
3320.08						

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-4 3319.74	05/18/98	136.01	3183.73	171.00	2.00	161-171
	05/25/99	135.57	3184.17	---	---	---
	02/08/01	135.87	3183.87	---	---	---
	05/10/02	135.67	3184.07	---	---	---
	10/22/02	135.90	3183.84	---	---	---
	05/20/03	136.00	3183.74	---	---	---
	11/24/03	135.70	3184.04	---	---	---
	05/11/04	135.34	3184.40	---	---	---
	11/15/04	135.76	3183.98	---	---	---
	05/17/05	135.69	3184.05	---	---	---
	11/15/05	135.85	3183.89	---	---	---
	05/08/06	135.60	3184.14	---	---	---
	11/13/06	135.59	3184.15	---	---	---
	05/29/07	135.75	3183.99	---	---	---
	11/14/07	135.62	3184.12	---	---	---
	05/14/08	135.76	3183.98	---	---	---
	11/03/08	135.66	3184.08	---	---	---
	05/19/09	135.67	3184.07	---	---	---
	11/02/09	135.68	3184.06	---	---	---
	05/05/10	135.83	3183.91	---	---	---
	11/08/10	135.36	3184.38	---	---	---
	05/05/11	135.40	3184.34	---	---	---
	11/08/11	135.43	3184.31	---	---	---
	05/16/12	135.38	3184.36	---	---	---
	10/10/12	135.55	3184.19	---	---	---
	05/16/13	135.38	3184.36	---	---	---
	10/07/13	135.53	3184.21	---	---	---
05/01/14	135.41	3184.33	---	---	---	
10/05/14	135.61	3184.13	---	---	---	
05/21/15	135.25	3184.49	---	---	---	
10/19/15	135.70	3184.04	---	---	---	
05/25/16	135.44	3184.30	---	---	---	
10/17/16	135.11	3184.63	---	---	---	
05/10/17	135.20	3184.54	---	---	---	
10/25/17	135.40	3186.18	---	---	---	
05/22/18	135.13	3186.45	---	---	---	
10/16/18	135.32	3186.26	---	---	---	
06/20/19	136.21	3185.37	171.81	---	---	
04/15/20	135.25	3186.33	---	---	---	
10/12/20	135.41	3186.17	---	---	---	
06/21/21	135.28	3186.30	---	---	---	
12/06/21	135.23	3186.35	---	---	---	
08/22/22	135.27	3186.31	---	---	---	
12/21/22	134.98	3186.60	---	---	---	
07/20/23	135.24	3186.34	---	---	---	
11/13/23	135.10	3186.48	---	---	---	
3321.58						

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-4A 3319.58	05/18/98	135.68	3183.90	143.00	2.00	128-143
	05/21/99	135.65	3183.93	---	---	---
	05/25/99	135.90	3183.68	---	---	---
	02/08/01	135.34	3184.24	---	---	---
	05/10/02	135.30	3184.28	---	---	---
	10/22/02	135.51	3184.07	---	---	---
	05/20/03	135.55	3184.03	---	---	---
	11/24/03	135.31	3184.27	---	---	---
	05/11/04	135.72	3183.86	---	---	---
	11/15/04	135.38	3184.20	---	---	---
	05/17/05	135.32	3184.26	---	---	---
	11/15/05	135.52	3184.06	---	---	---
	05/08/06	135.26	3184.32	---	---	---
	11/13/06	135.20	3184.38	---	---	---
	05/29/07	135.32	3184.26	---	---	---
	11/14/07	135.20	3184.38	---	---	---
	05/14/08	135.31	3184.27	---	---	---
	11/03/08	135.27	3184.31	---	---	---
	05/19/09	135.25	3184.33	---	---	---
	11/02/09	135.25	3184.33	---	---	---
	05/05/10	135.33	3184.25	---	---	---
	11/08/10	135.18	3184.40	---	---	---
	05/11/11	135.17	3184.41	---	---	---
	11/08/11	135.22	3184.36	---	---	---
	05/16/12	135.18	3184.40	---	---	---
	10/10/12	135.33	3184.25	---	---	---
	05/16/13	135.20	3184.38	---	---	---
	10/07/13	135.01	3184.57	---	---	---
	05/01/14	135.26	3184.32	---	---	---
	10/05/14	135.05	3184.53	---	---	---
05/21/15	135.11	3184.47	---	---	---	
10/19/15	135.20	3184.38	---	---	---	
05/25/16	135.27	3184.31	---	---	---	
10/17/16	135.00	3184.58	---	---	---	
05/10/17	135.01	3184.57	---	---	---	
3321.42	10/25/17	135.22	3186.20	---	---	---
	05/22/18	134.97	3186.45	---	---	---
	10/16/18	135.11	3186.31	---	---	---
	06/20/19	134.98	3186.44	145.55	---	---
	04/15/20	136.09	3185.33	---	---	---
	10/12/20	136.13	3185.29	---	---	---
	06/21/21	135.15	3186.27	---	---	---
	12/06/21	135.08	3186.34	---	---	---
	08/22/22	135.05	3186.37	---	---	---
	12/21/22	134.86	3186.56	---	---	---
07/20/23	135.06	3186.36	---	---	---	
11/13/23	134.98	3186.44	---	---	---	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-5 3321.10	05/18/98	137.42	3183.68	171.00	2.00	161-171
	05/25/99	137.28	3183.82	---	---	---
	02/08/01	137.18	3183.92	---	---	---
	05/10/02	137.10	3184.00	---	---	---
	10/22/02	137.04	3184.06	---	---	---
	05/20/03	137.45	3183.65	---	---	---
	11/24/03	137.01	3184.09	---	---	---
	05/11/04	137.01	3184.09	---	---	---
	11/15/04	137.08	3184.02	---	---	---
	05/17/05	137.00	3184.10	---	---	---
	11/15/05	137.18	3183.92	---	---	---
	05/08/06	136.90	3184.20	---	---	---
	11/13/06	136.81	3184.29	---	---	---
	05/29/07	136.92	3184.18	---	---	---
	11/14/07	136.85	3184.25	---	---	---
	05/14/08	136.97	3184.13	---	---	---
	11/03/08	136.89	3184.21	---	---	---
	05/19/09	136.90	3184.20	---	---	---
	11/02/09	136.90	3184.20	---	---	---
	05/05/10	137.02	3184.08	---	---	---
	11/08/10	136.93	3184.17	---	---	---
	05/11/11	136.92	3184.18	---	---	---
	11/08/11	136.84	3184.26	---	---	---
	05/16/12	136.80	3184.30	---	---	---
	10/10/12	136.98	3184.12	---	---	---
	05/16/13	136.80	3184.30	---	---	---
	10/07/13	136.79	3184.31	---	---	---
	05/01/14	136.83	3184.27	---	---	---
10/05/14	136.63	3184.47	---	---	---	
05/21/15	130.60	3190.50	---	---	---	
10/19/15	136.70	3184.40	---	---	---	
05/25/16	136.79	3184.31	---	---	---	
10/17/16	136.51	3184.59	---	---	---	
3322.98	05/10/17	136.53	3184.57	---	---	---
	10/25/17	136.80	3186.18	---	---	---
	05/22/18	136.51	3186.47	---	---	---
	10/16/18	136.58	3186.40	---	---	---
	06/20/19	136.65	3186.33	173.72	---	---
	04/15/20	136.48	3186.50	---	---	---
	10/12/20	136.78	3186.20	---	---	---
	06/21/21	136.64	3186.34	---	---	---
	12/06/21	136.58	3186.40	---	---	---
	08/22/22	136.52	3186.46	---	---	---
	12/21/22	136.38	3186.60	---	---	---
	07/20/23	136.56	3186.42	---	---	---
11/13/23	136.45	3186.53	---	---	---	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-5A 3321.07	05/18/98	137.20	3183.87	141.00	2.00	126-141
	05/25/99	137.11	3183.96	---	---	---
	02/08/01	136.99	3184.08	---	---	---
	05/10/02	136.90	3184.17	---	---	---
	10/22/02	137.17	3183.90	---	---	---
	05/20/03	137.24	3183.83	---	---	---
	11/24/03	136.91	3184.16	---	---	---
	05/11/04	136.88	3184.19	---	---	---
	11/15/04	136.92	3184.15	---	---	---
	05/17/05	136.83	3184.24	---	---	---
	11/15/05	137.06	3184.01	---	---	---
	05/08/06	136.80	3184.27	---	---	---
	11/13/06	136.74	3184.33	---	---	---
	05/29/07	136.82	3184.25	---	---	---
	11/14/07	136.88	3184.19	---	---	---
	05/14/08	136.83	3184.24	---	---	---
	11/03/08	136.81	3184.26	---	---	---
	05/19/09	136.78	3184.29	---	---	---
	11/02/09	136.80	3184.27	---	---	---
	05/05/10	136.91	3184.16	---	---	---
	11/08/10	136.69	3184.38	---	---	---
	05/11/11	136.87	3184.20	---	---	---
	11/08/11	136.77	3184.30	---	---	---
	05/16/12	136.74	3184.33	---	---	---
	10/10/12	136.85	3184.22	---	---	---
	05/16/13	136.72	3184.35	---	---	---
	10/07/13	137.45	3183.62	---	---	---
	05/01/14	136.81	3184.26	---	---	---
	10/05/14	136.61	3184.46	---	---	---
	05/21/15	136.68	3184.39	---	---	---
	10/19/15	136.55	3184.52	---	---	---
	05/25/16	136.84	3184.23	---	---	---
	10/17/16	136.43	3184.64	---	---	---
	05/10/17	136.66	3184.41	---	---	---
10/25/17	136.80	3184.27	---	---	---	
05/22/18	136.55	3184.52	---	---	---	
10/16/18	136.64	3184.43	---	---	---	
06/20/19	144.05	3177.02	176.71	---	---	
04/15/20	136.60	3184.47	---	---	---	
10/12/20	136.80	3184.27	---	---	---	
06/21/21	136.71	3184.36	---	---	---	
12/06/21	136.56	3184.51	---	---	---	
08/22/22	136.55	3184.52	---	---	---	
12/21/22	136.49	3184.58	---	---	---	
07/20/23	136.66	3184.41	---	---	---	
11/13/23	136.52	3184.55	---	---	---	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)	
MW-6 3321.15	05/18/98	136.73	3184.42	170.00	2.00	120-170	
	05/25/99	136.61	3184.54	---	---	---	
	02/08/01	136.50	3184.65	---	---	---	
	05/10/02	136.40	3184.75	---	---	---	
	10/22/02	136.57	3184.58	---	---	---	
	05/20/03	136.85	3184.30	---	---	---	
	11/24/03	136.38	3184.77	---	---	---	
	05/11/04	136.41	3184.74	---	---	---	
	11/15/04	136.08	3185.07	---	---	---	
	05/17/05	136.58	3184.57	---	---	---	
	11/15/05	136.82	3184.33	---	---	---	
	05/08/06	136.58	3184.57	---	---	---	
	11/13/06	136.49	3184.66	---	---	---	
	05/29/07	136.61	3184.54	---	---	---	
	11/15/07	136.59	3184.56	---	---	---	
	05/14/08	136.58	3184.57	---	---	---	
	11/03/08	136.52	3184.63	---	---	---	
	05/19/09	136.52	3184.63	---	---	---	
	11/02/09	136.51	3184.64	---	---	---	
	05/05/10	136.53	3184.62	---	---	---	
11/08/10	136.40	3184.75	---	---	---		
05/11/11	Well Casing Damaged						
11/08/11	Well Casing Damaged						
05/16/12	Well Casing Damaged						
10/09/12	Well Casing Damaged						
09/30/13	Well Plugged and Abandoned 9/30/2013						
MW-6R 3321.50	05/01/14	136.25	3185.25	---	---	---	
	10/05/14	136.40	3185.10	---	---	---	
	05/21/15	136.13	3185.37	---	---	---	
	10/19/15	136.20	3185.30	---	---	---	
	05/25/16	136.27	3185.23	---	---	---	
	10/17/16	135.96	3185.54	---	---	---	
	05/10/17	136.07	3185.43	---	---	---	
	3323.04	10/25/17	136.20	3186.84	---	---	---
		05/22/18	136.03	3187.01	---	---	---
		10/17/18	136.09	3186.95	---	---	---
		06/20/19	---	---	---	---	---
		06/21/21	163.11	3159.93	---	---	---
		12/06/21	136.09	3186.95	---	---	---
		08/22/22	136.02	3187.02	---	---	---
		12/21/22	135.91	3187.13	---	---	---
07/20/23		136.07	3186.97	---	---	---	
11/13/23	135.97	3187.07	---	---	---		

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-7 3318.39	05/18/98	136.19	3182.20	166.00	2.00	151-166
	05/25/99	135.98	3182.41	---	---	---
	02/08/01	135.87	3182.52	---	---	---
	05/10/02	135.67	3182.72	---	---	---
	10/22/02	135.89	3182.50	---	---	---
	05/20/03	136.12	3182.27	---	---	---
	11/24/03	135.71	3182.68	---	---	---
	05/11/04	135.74	3182.65	---	---	---
	11/15/04	135.78	3182.61	---	---	---
	05/17/05	135.68	3182.71	---	---	---
	11/15/05	135.90	3182.49	---	---	---
	05/08/06	135.64	3182.75	---	---	---
	11/13/06	135.58	3182.81	---	---	---
	05/29/07	135.73	3182.66	---	---	---
	11/15/07	135.64	3182.75	---	---	---
	05/14/08	135.68	3182.71	---	---	---
	11/03/08	135.66	3182.73	---	---	---
	05/19/09	135.63	3182.76	---	---	---
	11/02/09	135.65	3182.74	---	---	---
	05/05/10	135.80	3182.59	---	---	---
	11/08/10	135.51	3182.88	---	---	---
	05/11/11	135.68	3182.71	---	---	---
	11/08/11	135.62	3182.77	---	---	---
	05/16/12	135.55	3182.84	---	---	---
	10/10/12	135.79	3182.60	---	---	---
	05/16/13	135.59	3182.80	---	---	---
	10/07/13	NS	NS	---	---	---
	05/01/14	135.65	3182.74	---	---	---
10/05/14	135.58	3182.81	---	---	---	
05/21/15	135.52	3182.87	---	---	---	
10/19/15	135.54	3182.85	---	---	---	
05/25/16	135.75	3182.64	---	---	---	
10/17/16	135.35	3183.04	---	---	---	
05/10/17	135.39	3183.00	---	---	---	
10/24/17	135.38	3184.81	---	---	---	
05/22/18	135.39	3184.80	---	---	---	
10/15/18	135.59	3184.60	---	---	---	
06/20/19	135.48	3184.71	162.60	---	---	
04/15/20	135.59	3184.60	---	---	---	
10/12/20	135.64	3184.55	---	---	---	
06/22/21	135.50	3184.69	---	---	---	
12/06/21	135.44	3184.75	---	---	---	
08/22/22	135.4	3184.79	---	---	---	
12/21/22	135.26	3184.93	---	---	---	
07/20/23	135.50	3184.69	---	---	---	
11/13/23	135.37	3184.82	---	---	---	
3320.19						

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-8 3317.14	05/18/98	134.36	3182.78	170.00	2.00	155-170
	05/25/99	134.21	3182.93	---	---	---
	02/08/01	134.08	3183.06	---	---	---
	05/10/02	133.95	3183.19	---	---	---
	10/22/02	134.18	3182.96	---	---	---
	05/20/03	134.38	3182.76	---	---	---
	11/24/03	133.99	3183.15	---	---	---
	05/11/04	134.02	3183.12	---	---	---
	11/15/04	134.11	3183.03	---	---	---
	05/17/05	133.97	3183.17	---	---	---
	11/15/05	134.21	3182.93	---	---	---
	05/08/06	133.94	3183.20	---	---	---
	11/13/06	133.90	3183.24	---	---	---
	05/29/07	134.02	3183.12	---	---	---
	11/15/07	133.76	3183.38	---	---	---
	05/15/08	133.98	3183.16	---	---	---
	11/03/08	134.01	3183.13	---	---	---
	05/19/09	133.97	3183.17	---	---	---
	11/02/09	134.00	3183.14	---	---	---
	05/05/10	134.08	3183.06	---	---	---
	11/08/10	134.03	3183.11	---	---	---
	05/11/11	133.98	3183.16	---	---	---
	11/08/11	133.96	3183.18	---	---	---
	05/16/12	133.84	3183.30	---	---	---
	10/10/12	134.15	3182.99	---	---	---
	05/16/13	133.94	3183.20	---	---	---
	10/07/13	133.90	3183.24	---	---	---
	05/01/14	133.91	3183.23	---	---	---
10/05/14	133.75	3183.39	---	---	---	
05/21/15	133.88	3183.26	---	---	---	
10/19/15	133.88	3183.26	---	---	---	
05/25/16	133.86	3183.28	---	---	---	
10/17/16	133.68	3183.46	---	---	---	
05/10/17	133.84	3183.30	---	---	---	
10/24/17	133.72	3185.34	---	---	---	
05/22/18	133.77	3185.29	---	---	---	
10/17/18	133.87	3185.19	---	---	---	
06/20/19	133.87	3185.19	146.85	---	---	
04/15/20	133.81	3185.25	---	---	---	
10/12/20	133.96	3185.10	---	---	---	
06/22/21	133.74	3185.32	---	---	---	
12/06/21	133.74	3185.32	---	---	---	
08/22/22	133.68	3185.38	---	---	---	
12/21/22	133.64	3185.42	---	---	---	
07/20/23	133.81	3185.25	---	---	---	
11/13/23	133.72	3185.34	---	---	---	
3319.06						

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-9 3312.79	05/18/98	132.89	3179.90	164.00	2.00	149-164
	05/25/99	132.68	3180.11	---	---	---
	02/08/01	132.52	3180.27	---	---	---
	05/10/02	137.20	3175.59	---	---	---
	10/22/02	132.56	3180.23	---	---	---
	05/20/03	132.75	3180.04	---	---	---
	11/24/03	132.35	3180.44	---	---	---
	05/11/04	132.39	3180.40	---	---	---
	11/15/04	132.43	3180.36	---	---	---
	05/17/05	132.26	3180.53	---	---	---
	11/15/05	132.60	3180.19	---	---	---
	05/08/06	132.26	3180.53	---	---	---
	11/13/06	132.19	3180.60	---	---	---
	05/29/07	132.32	3180.47	---	---	---
	11/14/07	132.34	3180.45	---	---	---
	05/15/08	132.29	3180.50	---	---	---
	11/03/08	132.33	3180.46	---	---	---
	05/19/09	132.21	3180.58	---	---	---
	11/02/09	132.35	3180.44	---	---	---
	05/05/10	132.41	3180.38	---	---	---
	11/08/10	132.10	3180.69	---	---	---
	05/11/11	132.22	3180.57	---	---	---
	11/08/11	132.19	3180.60	---	---	---
	05/16/12	132.05	3180.74	---	---	---
	10/10/12	132.32	3180.47	---	---	---
	05/16/13	132.08	3180.71	---	---	---
	10/07/13	131.94	3180.85	---	---	---
	05/01/14	Not Measured - Obstruction In Well				
10/05/14	131.95	3180.84	---	---	---	
05/21/15	132.05	3180.74	---	---	---	
10/19/15	132.01	3180.78	---	---	---	
05/25/16	131.98	3180.81	---	---	---	
10/17/16	131.91	3180.88	---	---	---	
05/10/17	131.95	3180.84	---	---	---	
10/24/17	131.92	3182.76	---	---	---	
05/22/18	131.90	3182.78	---	---	---	
10/17/18	131.98	3182.70	---	---	---	
06/20/19	131.95	3182.73	161.46	---	---	
04/15/20	139.92	3174.76	---	---	---	
10/12/20	132.09	3182.59	---	---	---	
06/22/21	131.94	3182.74	---	---	---	
12/06/21	131.87	3182.81	---	---	---	
08/22/22	131.86	3182.82	---	---	---	
12/21/22	131.68	3183.00	---	---	---	
07/20/23	131.90	3182.78	---	---	---	
11/13/23	131.76	3182.92	---	---	---	
3314.68						

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-9A 3312.56	05/18/98	132.65	3179.91	142.00	2.00	127-142
	05/25/99	132.43	3180.13	---	---	---
	02/08/01	132.37	3180.19	---	---	---
	05/10/02	137.20	3175.36	---	---	---
	10/22/02	132.35	3180.21	---	---	---
	05/20/03	132.55	3180.01	---	---	---
	11/24/03	132.10	3180.46	---	---	---
	05/11/04	132.14	3180.42	---	---	---
	11/15/04	132.19	3180.37	---	---	---
	05/17/05	132.06	3180.50	---	---	---
	11/15/05	132.35	3180.21	---	---	---
	05/08/06	132.02	3180.54	---	---	---
	11/13/06	131.09	3181.47	---	---	---
	05/29/07	132.08	3180.48	---	---	---
	11/14/07	132.06	3180.50	---	---	---
	05/15/08	132.03	3180.53	---	---	---
	11/03/08	131.98	3180.58	---	---	---
	05/19/09	132.00	3180.56	---	---	---
	11/02/09	131.90	3180.66	---	---	---
	05/05/10	131.96	3180.60	---	---	---
	11/08/10	131.85	3180.71	---	---	---
	05/11/11	132.06	3180.50	---	---	---
	11/08/11	131.95	3180.61	---	---	---
	05/16/12	131.81	3180.75	---	---	---
10/10/12	132.09	3180.47	---	---	---	
05/16/13	131.88	3180.68	---	---	---	
10/07/13	131.90	3180.66	---	---	---	
05/01/14	Not Measured - Obstruction In Well					
10/05/14	Not Measured - Obstruction In Well					
05/21/15	Not Measured - Obstruction In Well					
3314.48	10/19/15	131.68	3180.88	---	---	---
	05/25/16	131.73	3180.83	---	---	---
	10/17/16	131.62	3180.94	---	---	---
	05/10/17	131.68	3180.88	---	---	---
	10/24/17	131.60	3182.88	---	---	---
	05/22/18	131.81	3182.67	---	---	---
	10/17/18	131.72	3182.76	---	---	---
	06/20/19	131.69	3182.79	141.72	---	---
	04/15/20	131.5	3182.98	---	---	---
	10/12/20	131.86	3182.62	---	---	---
	06/22/21	131.65	3182.83	---	---	---
	12/06/21	131.64	3182.84	---	---	---
	08/22/22	131.53	3182.95	---	---	---
	12/21/22	131.41	3183.07	---	---	---
	07/20/23	131.60	3182.88	---	---	---
11/13/23	131.50	3182.98	---	---	---	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-10 3319.30	05/18/98	137.18	3182.12	166.00	2.00	151-166
	05/25/99	137.04	3182.26	---	---	---
	02/08/01	136.88	3182.42	---	---	---
	05/10/02	136.80	3182.50	---	---	---
	10/22/02	136.91	3182.39	---	---	---
	05/20/03	137.13	3182.17	---	---	---
	11/24/03	136.71	3182.59	---	---	---
	05/11/04	136.77	3182.53	---	---	---
	11/15/04	136.82	3182.48	---	---	---
	05/17/05	136.34	3182.96	---	---	---
	11/15/05	136.95	3182.35	---	---	---
	05/08/06	136.65	3182.65	---	---	---
	11/13/06	136.59	3182.71	---	---	---
	05/29/07	136.68	3182.62	---	---	---
	11/15/07	136.61	3182.69	---	---	---
	05/15/08	136.65	3182.65	---	---	---
	11/03/08	136.60	3182.70	---	---	---
	05/19/09	136.60	3182.70	---	---	---
	11/02/09	136.60	3182.70	---	---	---
	05/05/10	136.44	3182.86	---	---	---
	11/08/10	136.58	3182.72	---	---	---
	05/11/11	136.62	3182.68	---	---	---
	11/08/11	136.57	3182.73	---	---	---
	05/16/12	136.44	3182.86	---	---	---
	10/10/12	136.91	3182.39	---	---	---
	05/16/13	136.51	3182.79	---	---	---
	10/07/13	136.55	3182.75	---	---	---
	05/01/14	136.37	3182.93	---	---	---
10/05/14	136.42	3182.88	---	---	---	
05/21/15	136.40	3182.90	---	---	---	
10/19/15	136.41	3182.89	---	---	---	
05/25/16	136.40	3182.90	---	---	---	
10/17/16	136.33	3182.97	---	---	---	
05/10/17	136.34	3182.96	---	---	---	
10/24/17	136.28	3184.84	---	---	---	
05/22/18	130.07	3191.05	---	---	---	
10/15/18	136.34	3184.78	---	---	---	
06/20/19	136.28	3184.84	160.72	---	---	
04/15/20	136.23	3184.89	---	---	---	
10/12/20	136.56	3184.56	---	---	---	
06/22/21	136.37	3184.75	---	---	---	
12/06/21	136.29	3184.83	---	---	---	
08/22/22	136.25	3184.87	---	---	---	
12/21/22	136.11	3185.01	---	---	---	
07/20/23	136.31	3184.81	---	---	---	
11/13/23	136.22	3184.90	---	---	---	
3321.12						

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-11 3309.69	03/23/99	131.12	3178.57	140.00	4.00	125-140
	05/25/99	130.91	3178.78	---	---	---
	02/08/01	130.11	3179.58	---	---	---
	05/10/02	135.60	3174.09	---	---	---
	10/22/02	130.76	3178.93	---	---	---
	05/20/03	131.03	3178.66	---	---	---
	11/24/03	130.57	3179.12	---	---	---
	05/11/04	130.61	3179.08	---	---	---
	11/15/04	130.65	3179.04	---	---	---
	05/17/05	131.56	3178.13	---	---	---
	11/15/05	130.70	3178.99	---	---	---
	05/08/06	130.41	3179.28	---	---	---
	11/13/06	130.42	3179.27	---	---	---
	05/29/07	130.52	3179.17	---	---	---
	11/14/07	130.42	3179.27	---	---	---
	05/15/08	130.46	3179.23	---	---	---
	11/03/08	130.41	3179.28	---	---	---
	05/19/09	130.40	3179.29	---	---	---
	11/02/09	130.40	3179.29	---	---	---
	05/05/10	130.43	3179.26	---	---	---
	11/08/10	130.28	3179.41	---	---	---
	05/11/11	130.40	3179.29	---	---	---
	11/08/11	130.37	3179.32	---	---	---
	05/16/12	130.23	3179.46	---	---	---
	10/10/12	130.49	3179.20	---	---	---
	05/16/13	130.27	3179.42	---	---	---
	10/07/13	130.12	3179.57	---	---	---
05/01/14	130.21	3179.48	---	---	---	
10/05/14	130.16	3179.53	---	---	---	
05/21/15	130.17	3179.52	---	---	---	
10/19/15	130.20	3179.49	---	---	---	
05/25/16	130.17	3179.52	---	---	---	
10/17/16	130.02	3179.67	---	---	---	
05/10/17	130.09	3179.60	---	---	---	
10/24/17	130.14	3181.42	---	---	---	
05/22/18	130.07	3181.49	---	---	---	
10/17/18	130.09	3181.47	---	---	---	
06/20/19	130.13	3181.43	165.71	---	---	
04/15/20	130.06	3181.50	---	---	---	
10/12/20	130.19	3181.37	---	---	---	
06/22/21	130.03	3181.53	---	---	---	
12/06/21	129.99	3181.57	---	---	---	
08/22/22	129.95	3181.61	---	---	---	
12/21/22	129.82	3181.74	---	---	---	
07/21/23	130.05	3181.51	---	---	---	
11/13/23	129.89	3181.67	---	---	---	
3311.56						

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
MW-12* 3328.43	05/10/02	139.57	3188.86	171.65	4.00	157-172
	10/22/02	139.73	3188.70	---	---	---
	05/20/03	139.72	3188.71	---	---	---
	11/24/03	139.69	3188.74	---	---	---
	05/11/04	139.64	3188.79	---	---	---
	11/15/04	139.68	3188.75	---	---	---
	05/17/05	139.58	3188.85	---	---	---
	11/15/05	139.83	3188.60	---	---	---
	05/08/06	139.55	3188.88	---	---	---
	11/13/06	139.53	3188.90	---	---	---
	05/29/07	139.65	3188.78	---	---	---
	11/16/07	139.05	3189.38	---	---	---
	05/14/08	139.69	3188.74	---	---	---
	11/03/08	139.61	3188.82	---	---	---
	05/19/09	139.59	3188.84	---	---	---
	11/02/09	139.62	3188.81	---	---	---
	05/05/10	139.66	3188.77	---	---	---
	11/08/10	139.55	3188.88	---	---	---
	05/11/11	139.04	3189.39	---	---	---
	11/08/11	139.68	3188.75	---	---	---
	05/16/12	139.65	3188.78	---	---	---
	10/10/12	139.95	3188.48	---	---	---
	05/16/13	139.67	3188.76	---	---	---
	10/07/13	139.50	3188.93	---	---	---
	05/01/14	139.58	3188.85	---	---	---
	10/05/14	139.56	3188.87	---	---	---
	05/21/15	139.65	3188.78	---	---	---
	10/19/15	139.65	3188.78	---	---	---
05/25/16	139.71	3188.72	---	---	---	
10/17/16	139.45	3188.98	---	---	---	
05/10/17	139.61	3188.82	---	---	---	
3330.33	10/24/17	139.72	3190.61	---	---	---
	05/22/18	139.59	3190.74	---	---	---
	10/17/18	139.68	3190.65	---	---	---
	06/20/19	139.72	3190.61	171.02	---	---
	04/13/20	139.78	3190.55	---	---	---
	10/12/20	139.88	3190.45	---	---	---
	06/22/21	139.61	3190.72	---	---	---
	12/06/21	139.64	3190.69	---	---	---
	08/22/22	139.63	3190.70	---	---	---
	12/21/22	139.55	3190.78	---	---	---
	07/21/23	139.81	3190.52	---	---	---
11/13/23	139.62	3190.71	---	---	---	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)	
MW-13* 3338.49	05/10/02	144.45	3194.04	171.65	4.00	157-172	
	10/22/02	144.49	3194.00	---	---	---	
	05/20/03	144.90	3193.59	---	---	---	
	11/24/03	144.37	3194.12	---	---	---	
	05/11/04	144.47	3194.02	---	---	---	
	11/15/04	144.56	3193.93	---	---	---	
	05/17/05	144.36	3194.13	---	---	---	
	11/15/05	144.60	3193.89	---	---	---	
	05/08/06	144.29	3194.20	---	---	---	
	11/13/06	144.38	3194.11	---	---	---	
	05/29/07	144.54	3193.95	---	---	---	
	11/16/07	144.54	3193.95	---	---	---	
	05/14/08	144.45	3194.04	---	---	---	
	11/03/08	144.36	3194.13	---	---	---	
	05/19/09	144.51	3193.98	---	---	---	
	11/02/09	144.35	3194.14	---	---	---	
	05/05/10	144.39	3194.10	---	---	---	
	11/08/10	144.40	3194.09	---	---	---	
	05/11/11	144.60	3193.89	---	---	---	
	11/08/11	144.74	3193.75	---	---	---	
	05/16/12	144.70	3193.79	---	---	---	
	10/10/12	144.82	3193.67	---	---	---	
	05/16/13	144.70	3193.79	---	---	---	
	10/07/13	144.60	3193.89	---	---	---	
	05/01/14	144.53	3193.96	---	---	---	
	10/05/14	144.70	3193.79	---	---	---	
05/21/15	144.78	3193.71	---	---	---		
10/19/15	144.75	3193.74	---	---	---		
05/25/16	144.87	3193.62	---	---	---		
10/17/16	144.54	3193.95	---	---	---		
05/10/17	144.66	3193.83	---	---	---		
07/11/17	Well Plugged and Abandoned on 7/11/2017						
MW-14 3316.84	10/07/13	134.60	3182.24	171.50	4.00	131-171	
	05/01/14	134.51	3182.33	---	---	---	
	10/05/14	134.44	3182.40	---	---	---	
	05/21/15	134.31	3182.53	---	---	---	
	10/19/15	134.49	3182.35	---	---	---	
	05/25/16	134.42	3182.42	---	---	---	
	10/17/16	134.30	3182.54	---	---	---	
	05/10/17	134.35	3182.49	---	---	---	
	3318.36	10/24/17	134.30	3184.06	---	---	---
		05/22/18	134.32	3184.04	---	---	---
		10/15/18	134.41	3183.95	---	---	---
		06/20/19	134.78	3183.58	178.74	---	---
		06/23/21	134.36	3184.00	---	---	---
		12/06/21	134.42	3183.94	---	---	---
		08/22/22	134.19	3184.17	---	---	---
		12/21/22	134.14	3184.22	---	---	---
07/20/23	134.33	3184.03	---	---	---		
11/13/23	134.40	3183.96	---	---	---		
RW-1	05/21/99	134.32	3184.18	175.00	5.00	130-174	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
3318.50	05/25/99	134.24	3184.26	---	---	---
	02/08/01	134.15	3184.35	---	---	---
	05/10/02	134.00	3184.50	---	---	---
	10/22/02	134.17	3184.33	---	---	---
	05/20/03	134.40	3184.10	---	---	---
	11/24/03	134.02	3184.48	---	---	---
	05/11/04	134.01	3184.49	---	---	---
	11/15/04	134.06	3184.44	---	---	---
	05/17/05	133.97	3184.53	---	---	---
	11/15/05	134.20	3184.30	---	---	---
	05/08/06	133.93	3184.57	---	---	---
	11/13/06	133.92	3184.58	---	---	---
	05/29/07	134.00	3184.50	---	---	---
	11/15/07	133.88	3184.62	---	---	---
	05/14/08	133.98	3184.52	---	---	---
	11/03/08	133.99	3184.51	---	---	---
	05/19/09	133.92	3184.58	---	---	---
	11/02/09	134.00	3184.50	---	---	---
	05/05/10	134.03	3184.47	---	---	---
	11/08/10	133.81	3184.69	---	---	---
	05/11/11	133.83	3184.67	---	---	---
	11/08/11	133.88	3184.62	---	---	---
	05/16/12	133.84	3184.66	---	---	---
	10/10/12	135.01	3183.49	---	---	---
	05/16/13	133.85	3184.65	---	---	---
	10/07/13	133.68	3184.82	---	---	---
	05/01/14	133.91	3184.59	---	---	---
	10/05/14	133.64	3184.86	---	---	---
	05/21/15	133.73	3184.77	---	---	---
	10/19/15	133.73	3184.77	---	---	---
	05/25/16	133.73	3184.77	---	---	---
	10/17/16	133.80	3184.70	---	---	---
05/10/17	133.67	3184.83	---	---	---	
3320.31	10/25/17	133.80	3186.51	---	---	---
	05/22/18	133.61	3186.70	---	---	---
	10/16/18	133.76	3186.55	---	---	---
	06/20/19	133.64	3186.67	164.03	---	---
	04/15/20	133.68	3186.63	---	---	---
	10/12/20	133.95	3186.36	---	---	---
	06/21/21	133.84	3186.47	---	---	---
	12/06/21	133.74	3186.57	---	---	---
	08/22/22	133.69	3186.62	---	---	---
	12/21/22	133.52	3186.79	---	---	---
07/20/23	133.71	3186.60	---	---	---	
11/13/23	133.64	3186.67	---	---	---	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
RW-2 3318.62	02/08/01	135.58	3183.04	160.00	5.00	134-173
	05/10/02	135.55	3183.07	---	---	---
	10/22/02	135.55	3183.07	---	---	---
	05/20/03	135.58	3183.04	---	---	---
	11/24/03	135.54	3183.08	---	---	---
	05/11/04	135.48	3183.14	---	---	---
	11/15/04	135.43	3183.19	---	---	---
	05/17/05	135.46	3183.16	---	---	---
	11/15/05	135.65	3182.97	---	---	---
	05/08/06	135.42	3183.20	---	---	---
	11/13/06	135.47	3183.15	---	---	---
	05/29/07	135.54	3183.08	---	---	---
	11/15/07	135.48	3183.14	---	---	---
	05/14/08	135.48	3183.14	---	---	---
	11/03/08	135.44	3183.18	---	---	---
	05/19/09	135.44	3183.18	---	---	---
	11/02/09	135.45	3183.17	---	---	---
	05/05/10	135.47	3183.15	---	---	---
	11/08/10	135.30	3183.32	---	---	---
	05/11/11	135.55	3183.07	---	---	---
	11/08/11	135.46	3183.16	---	---	---
	05/16/12	135.40	3183.22	---	---	---
	10/10/12	135.49	3183.13	---	---	---
	05/16/13	135.33	3183.29	---	---	---
	05/01/14	135.40	3183.22	---	---	---
10/05/14	135.29	3183.33	---	---	---	
05/21/15	135.28	3183.34	---	---	---	
10/19/15	135.32	3183.30	---	---	---	
05/25/16	135.21	3183.41	---	---	---	
10/17/16	135.15	3183.47	---	---	---	
05/10/17	135.14	3183.48	---	---	---	
3320.42	10/25/17	135.30	3185.12	---	---	---
	05/22/18	135.12	3185.30	---	---	---
	10/15/18	135.21	3185.21	---	---	---
	06/20/19	135.23	3185.19	156.50	---	---
	04/15/20	135.28	3185.14	---	---	---
	10/12/20	135.38	3185.04	---	---	---
	06/21/21	135.26	3185.16	---	---	---
	12/06/21	135.16	3185.26	---	---	---
	08/22/22	135.15	3185.27	---	---	---
	12/21/22	134.97	3185.45	---	---	---
07/20/23	135.20	3185.22	---	---	---	
11/13/23	135.08	3185.34	---	---	---	

Table 1
Cumulative Summary of Potentiometric Elevation Data
Cooper-Jal Unit South Injection Station
Lea County, New Mexico



Well ID TOC Elevation (ft MSL)	Collection Date	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft MSL)	Constructed Depth (ft below TOC)	Casing Diameter (in)	Well Screen Interval (ft bgs)
RW-2R 3320.68	10/07/13	135.43	3183.19	173.00	6.00	133-173
	10/07/13	136.94	3183.74	---	---	---
	05/01/14	137.05	3183.63	---	---	---
	10/05/14	136.85	3183.83	---	---	---
	05/21/15	136.85	3183.83	---	---	---
	10/19/15	136.92	3183.76	---	---	---
	05/25/16	136.89	3183.79	---	---	---
	10/17/16	136.75	3183.93	---	---	---
	05/10/17	136.77	3183.91	---	---	---
	10/25/17	137.00	3183.68	---	---	---
	05/22/18	136.76	3183.92	---	---	---
	10/15/18	136.87	3183.81	---	---	---
	06/20/19	136.79	3183.89	176.82	---	---
	04/15/20	136.82	3183.86	---	---	---
	10/12/20	137.05	3183.63	---	---	---
	06/21/21	136.95	3183.73	---	---	---
	12/06/21	136.85	3183.83	---	---	---
08/22/22	136.78	3183.90	---	---	---	
12/21/22	136.67	3184.01	---	---	---	
07/20/23	136.83	3183.85	---	---	---	
11/13/23	137.67	3183.01	---	---	---	

Notes:

1. TOC - Top of Casing
2. ft bgs - feet below ground surface
3. in - inches
4. A - Indicates groundwater monitor well installed in shallow Uppermost Groundwater Bearing Unit.
5. MSL - Mean Sea Level
6. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.

Table 2**Water Well Summary****Cooper Jal Unit Injection Station****Lea County, New Mexico**

Water Well ID	Use
CP 01188 POD1 (MW-6R)	Monitoring Well
CP 01188 POD2 (MW-14)	Monitoring Well
CP 00884 POD1 (RW-2)	Pollution Control Well
CP 00884 POD2 (RW-2R)	Pollution Control Well
CP 00885 POD1 (RW-1)	Pollution Control Well
CP 00103 POD1	Non 72-12-1 Livestock Watering
CP 01174 POD1	Monitoring Well
CP 01174 POD2	Monitoring Well
CP 01174 POD3	Monitoring Well
CP 01174 POD4	Monitoring Well
CP 00521	72-12-1 Domestic and Livestock Watering
CP 00564	72-12-1 Domestic and Livestock Watering
CP 01132 POD1	Geothermal Boreholes
CP 01132 POD2	Geothermal Boreholes
CP 01132 POD3	Geothermal Boreholes
CP 00840 POD1	72-12-1 Prospecting or Development of Natural Resource
MW-1*	Monitoring Well
MW-2*	Monitoring Well
MW-2A*	Monitoring Well
MW-3*	Monitoring Well
MW-4*	Monitoring Well
MW-4A*	Monitoring Well
MW-5*	Monitoring Well
MW-5A*	Monitoring Well
MW-6*	Monitoring Well
MW-7*	Monitoring Well
MW-8*	Monitoring Well
MW-9*	Monitoring Well
MW-9A*	Monitoring Well
MW-10*	Monitoring Well
MW-11*	Monitoring Well
MW-12*	Monitoring Well
MW-13*	Monitoring Well

Notes

1. *Wells not available in New Mexico Office of the State Engineer database

Table 2

Water Well Summary

Cooper Jal Unit Injection Station

Lea County, New Mexico

Owner	Total Depth	Depth to Water	Latitude	Longitude
Chevron Enviro Mgmt Co	179	136	32.20221	-103.217082
Chevron Enviro Mgmt Co	174	134	32.20039	-103.214819
Chevron USA Inc	156	135	32.200526	-103.216284
Chevron USA Inc	181	137	32.200548	-103.216309
Chevron USA Inc	165	134	32.201374	-103.217478
Deep Wells Ranch Inc.	--	--	32.211034	-103.213529
Environmental Compliance Assoc	--	--	32.206083	-103.212028
Environmental Compliance Assoc	--	--	32.206083	-103.212028
Environmental Compliance Assoc	--	--	32.206083	-103.212028
Environmental Compliance Assoc	--	--	32.206083	-103.212028
Fred B. Cooper	--	--	32.208336	-103.229505
Fred B. Cooper	180	160	32.208336	-103.229505
Intercontinental Potash Corp	100	--	32.190139	-103.216944
Intercontinental Potash Corp	100	--	32.188222	-103.212861
Intercontinental Potash Corp	100	--	32.186223	-103.216722
Texaco Expl & Production Inc	--	--	32.199214	103.214523
Chevron Enviro Mgmt Co	170	135	32.201828	-103.21817
Chevron Enviro Mgmt Co	170	134	32.201856	-103.217386
Chevron Enviro Mgmt Co	142	134	32.201884	-103.217346
Chevron Enviro Mgmt Co	172	132	32.202234	-103.218607
Chevron Enviro Mgmt Co	172	135	32.20124	-103.217606
Chevron Enviro Mgmt Co	146	135	32.201213	-103.217567
Chevron Enviro Mgmt Co	174	137	32.201548	-103.216646
Chevron Enviro Mgmt Co	144	137	32.20152	-103.216621
Chevron Enviro Mgmt Co	169	136	32.20217	-103.21705
Chevron Enviro Mgmt Co	163	136	32.199964	-103.216383
Chevron Enviro Mgmt Co	147	134	32.199077	-103.218252
Chevron Enviro Mgmt Co	161	132	32.198937	-103.215188
Chevron Enviro Mgmt Co	142	132	32.198928	-103.215267
Chevron Enviro Mgmt Co	161	137	32.200834	-103.215492
Chevron Enviro Mgmt Co	167	130	32.197559	-103.21492
Chevron Enviro Mgmt Co	171	140	32.203786	-103.221784
Chevron Enviro Mgmt Co	172	134	32.20676	-103.22533

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000	
MW-1	09/16/97	--	--	280.00	8,500.00	--	--	1,100.00	520.00	630.00	50.00	4,300.00	15,000.00	
	02/25/98	--	--	280.00	5,600.00	--	--	570.00	285.00	520.00	116.00	2,900.00	9,300.00	
Dup	02/14/01	<1.00	306.00	306.00	11,000.00	4.40	7.70	1,000.00	374.00	780.00	236.00	5,236.00	20,000.00	
	05/17/02	<1.00	208.00	208.00	237.00	5.83	3.28	86.90	45.70	20.10	11.90	184.00	784.00	
	10/23/02	--	--	--	168.00	--	--	96.80	--	--	--	--	696.00	
	05/21/03	<1.00	290.00	290.00	6,600.00	<8.00	10.90	875.00	238.00	475.00	96.50	3,410.00	13,200.00	
	11/25/03	<1.00	250.00	250.00	402.00	7.03	2.72	125.00	19.20	22.00	18.50	294.00	1,158.00	
	05/12/04	<1.00	264.00	264.00	504.00	7.31	2.70	136.00	17.20	23.10	22.40	355.00	1,328.00	
	11/16/04	<1.00	232.00	232.00	384.00	4.94	3.30	103.00	29.20	22.70	25.40	373.00	952.00	
	11/16/05	<10.00	262.00	262.00	1,210.00	3.00	2.40	215 D1	85.40	92.60	23.00	847.00	2,640.00	
	11/14/06	<10.00	200.00	200.00	96.00	4.20	2.00	76.00	13.20	6.49	15.60	172.00	624.00	
	11/16/07	<10.00	255.00	255.00	4,250.00	3.70	3.90 D1	602 D1	154.00	187.00	54.00	2,100 D1	10,900.00	
	11/04/08	<5.00	190.00	190.00	110.00	6.30	1.60	83.00	10.00	5.80	7.90	180.00	590.00	
	11/03/09	<10.00	270.00	270.00	4,100.00	4.10	2.80	640.00	190.00	250.00	61.00	2,300.00	8,000.00	
	11/10/10	<10.00	223.00	223.00	2,670.00	1.92	2.62	373.00	138.00	196.00	21.50	1,480.00	5,020.00	
	11/10/11	<5.00	209.00	209.00	3,220.00	1.02	2.37	275.00	169.00	176.00	22.50	1,340.00	5,250.00	
	11/10/11	<5.00	213.00	213.00	2,930.00	1.05	2.35	240.00	183.00	197.00	22.60	1,480.00	4,640.00	
	10/11/12	<5.00	190.00	190.00	2,190.00	6.74	4.52	301.00	132.00	145.00	17.90	1,140.00	1,880.00	
	10/08/13	<6.00	211.00	211.00	1,890.00	1.46	2.39	247.00	131.00	114.00	15.30	914.00	2,380.00	
	10/07/14	<4.00	205.00	205.00	1,700.00	0.46	2.37	277.00	118.00	126.00	14.90	860.00	3,690.00	
	10/21/15	--	--	--	182.00	<4.00	--	78.10	--	--	--	--	--	559.00
	10/18/16	--	--	--	1,320.00	0.83	--	221.00	--	--	--	--	--	2,700.00
	10/24/17	--	--	--	148.00	2.57	--	79.40	--	--	--	--	--	594.00
	10/18/18	--	--	--	1,290.00	0.79	--	215.00	--	--	--	--	--	2,360.00
	06/20/19	--	--	--	1,110.00	--	--	--	--	--	--	--	--	2,510.00
	4/20/20	--	--	--	317.00	--	--	--	--	--	--	--	--	826.00
	10/12/20	--	--	--	285.00	--	--	--	--	--	--	--	--	799.00
	06/25/21	--	--	--	938.00	--	--	--	--	--	--	--	--	2,030.00
	12/06/21	--	--	--	656.00	--	--	--	--	--	--	--	--	1,800.00
	08/23/22	--	--	--	805	--	--	--	--	--	--	--	--	1,540
12/21/22	--	--	--	960	--	--	--	--	--	--	--	--	1,240	
07/20/23	--	--	--	736	--	--	--	--	--	--	--	--	1,720	
11/13/23	--	--	--	857	--	--	--	--	--	--	--	--	1,840	
MW-2	02/25/98	--	--	210.00	5,900.00	--	--	760.00	840.00	380.00	30.00	2,650.00	9,400.00	
	04/09/98	--	--	290.00	8,200.00	--	--	990.00	1,100.00	490.00	29.00	3,430.00	15,000.00	
	02/14/01	<1.00	184.00	184.00	7,400.00	2.30	4.10	870.00	1,025.00	488.00	48.50	3,189.00	15,000.00	
	05/17/02	<1.00	160.00	160.00	3,200.00	1.72	3.18	483.00	587.00	239.00	35.60	1,160.00	6,040.00	
	10/23/02	--	--	--	2,920.00	--	--	451.00	--	--	--	--	6,770.00	
	05/22/03	<1.00	158.00	158.00	2,550.00	2.04	3.87	386.00	448.00	176.00	20.00	1,020.00	5,880.00	
	11/25/03	<1.00	160.00	160.00	3,330.00	<4.00	5.63	446.00	555.00	227.00	32.00	1,120.00	6,760.00	
	05/12/04	<1.00	146.00	146.00	1,750.00	<2.00	2.78	246.00	308.00	112.00	29.70	549.00	3,965.00	
	11/16/04	<1.00	120.00	120.00	430.00	<1.00	2.13	56.90	104.00	29.40	22.40	158.00	832.00	
	11/16/05	<10.00	171.00	171.00	4,720.00	0.72	2.60	645 D1	594.00	209.00	20.80	3,290.00	10,000.00	
	11/14/06	<10.00	160.00	160.00	3,500.00	0.78 N	2.10	470.00	535.00	212.00	21.00	15,400.00	8,260.00	
	11/14/07	<10.00	178.00	178.00	3,280.00	0.76	1.93	462 D1	449.00	152.00	16.20	1310 D1	9,110.00	
	11/04/08	<5.00	150.00	150.00	2,900.00	<1.0	1.10	430.00	380.00	160.00	26.00	1,200.00	5,600.00	
	11/16/09	<10.00	150.00	150.00	2,000.00	1.10	1.60	340.00	290.00	120.00	20.00	750.00	4,300.00	
	11/12/10	<10.00	186.00	186.00	1,890.00	0.73	1.86	327.00	326.00	120.00	9.80	795.00	3,680.00	
	11/10/11	<5.00	175.00	175.00	1,480.00	0.81	1.31	150.00	227.00	83.20	9.75	668.00	2,860.00	
	10/11/12	<5.00	149.00	149.00	524.00	0.55	1.92	231.00	119.00	31.70	8.78	286.00	1,090.00	
	10/08/13	<6.00	269.00	269.00	1,180.00	1.20	<0.10	169.00	178.00	64.70	8.16	505.00	2,520.00	
	10/07/14	<4.00	196.00	196.00	695.00	0.52	<0.023	147.00	143.00	47.50	7.30	343.00	1,310.00	
	10/21/15	--	--	--	27.10	<2.00	--	58.60	--	--	--	--	--	388.00
	10/18/16	--	--	--	26.70	<0.50	--	34.40	--	--	--	--	--	352.00
	10/25/17	--	--	--	35.80	1.00	--	36.30	--	--	--	--	--	331.00
	10/18/18	--	--	--	65.90	0.66	--	48.50	--	--	--	--	--	384.00
	06/20/19	--	--	--	283.00	--	--	--	--	--	--	--	--	960.00
	04/20/20	--	--	--	263.00	--	--	--	--	--	--	--	--	624.00
	10/12/20	--	--	--	221.00	--	--	--	--	--	--	--	--	675.00
	06/25/21	--	--	--	205.00	--	--	--	--	--	--	--	--	685.00
	12/06/21	--	--	--	183.00	--	--	--	--	--	--	--	--	675.00
08/23/22	--	--	--	1,190	--	--	--	--	--	--	--	--	2,250	
12/21/22	--	--	--	239	--	--	--	--	--	--	--	--	494	
07/20/23	--	--	--	137	--	--	--	--	--	--	--	--	437	
11/13/23	--	--	--	194	--	--	--	--	--	--	--	--	546	
MW-2A	02/26/98	--	--	190.00	280.00	--	--	330.00	144.00	36.00	5.70	215.00	1,200.00	
	02/14/01	<1.00	162.00	162.00	44.00	1.30	2.30	76.00	64.40	16.70	7.02	45.50	390.00	
	05/15/02	<1.00	176.00	176.00	36.60	<1.00	2.34	79.10	57.60	13.90	4.35	43.80	435.00	
	10/23/02	--	--	--	44.30	--	--	97.00	--	--	--	--	425.00	
	05/22/03	<1.00	168.00	168.00	40.50	<1.00	2.18	75.50	67.20	14.30	3.76	47.90	418.00	
	11/25/03	<1.00	166.00	166.00	43.10	1.00	2.23	77.40	51.70	14.40	3.98	43.80	452.00	
05/12/04	<1.00	176.00	176.00	44.80	<1.00	2.24	76.50	62.90	15.00	3.66	43.60	440.00		

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000	
	11/16/04	<1.00	164.00	164.00	52.50	1.22	2.78	75.40	68.80	15.30	3.98	49.10	428.00	
	11/16/05	<10.00	151.00	151.00	56.80	0.60	2.30	75.1 D1	157.00	18.00	4.20	49.80	630 N	
	11/14/06	<10.00	180.00	180.00	49.00	0.55	1.60	76.00	69.80	15.60	3.47	49.90	488.00	
	11/14/07	<10.00	170.00	170.00	74.60	0.58	1.51	66.8 D1	666.00	15.30	<5.00	45.40	504.00	
	11/04/08	<5.00	220.00	220.00	68.00	0.49	1.40	74.00	67.00	15.00	3.20	42.00	470.00	
	11/03/09	<10.00	230.00	230.00	62.00	0.59	1.60	81.00	66.00	15.00	3.40	50.00	480.00	
	11/11/10	<10.00	158.00	158.00	86.10	0.45	1.73	74.00	53.90	14.90	2.86	42.80	474.00	
	11/10/11	<5.00	175.00	175.00	129.00	0.28	1.25	101.00	92.50	23.30	4.17	64.70	614.00	
	10/11/12	<5.00	173.00	173.00	76.50	0.46	1.60	79.40	69.20	15.70	3.62	45.30	500.00	
	10/08/13	<6.00	248.00	248.00	78.60	0.41	0.62	75.40	92.60	18.70	4.06	51.20	496.00	
	10/07/14	<4.00	188.00	188.00	72.50	0.20	1.55	79.40	77.10	17.20	3.00	44.30	496.00	
	10/21/15	--	--	--	76.70	<4.00	--	77.50	--	--	--	--	441.00	
	10/18/16	--	--	--	84.60	<0.50	--	83.40	--	--	--	--	455.00	
	10/25/17	--	--	--	83.10	1.23	--	77.30	--	--	--	--	512.00	
	10/18/18	--	--	--	103.00	0.67	--	88.30	--	--	--	--	491.00	
	06/20/19	--	--	--	86.50	--	--	--	--	--	--	--	554.00	
	04/20/20	--	--	--	126.00	--	--	--	--	--	--	--	526.00	
	06/25/21	--	--	--	96.30	--	--	--	--	--	--	--	510.00	
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--	
	08/23/22	--	--	--	124.00	--	--	--	--	--	--	--	560.00	
	07/20/23	--	--	--	102	--	--	--	--	--	--	--	551	
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	02/27/98	--	--	190.00	452.00	--	--	406.00	200.00	50.00	11.00	237.00	1,500.00	
	02/14/01	<1.00	158.00	158.00	34.00	1.60	2.40	100.00	54.50	19.00	7.61	48.60	440.00	
	05/17/02	<1.00	158.00	158.00	30.60	1.56	2.35	102.00	55.60	18.40	5.04	50.00	433.00	
	10/23/02	--	--	--	35.40	--	--	104.00	--	--	--	--	419.00	
	05/22/03	<1.00	156.00	156.00	30.60	1.17	2.25	96.30	53.20	17.80	5.39	54.60	435.00	
	11/25/03	<1.00	160.00	160.00	31.40	1.35	2.30	103.00	46.50	18.00	5.19	51.70	440.00	
	05/12/04	<1.00	164.00	164.00	32.30	1.20	2.38	101.00	52.20	16.80	4.77	47.50	448.00	
	11/16/04	<1.00	166.00	166.00	35.10	1.53	2.77	95.40	56.30	23.60	12.70	58.90	424.00	
	11/17/05	<10.0	171.00	171.00	96.30	0.97	2.20	108 D1	89.20	22.10	8.87	93.40	840.00	
	11/15/06	<10.00	170.00	170.00	30.00	0.92 N	1.70	96.00	51.30	17.30	4.30	57.20	505.00	
	11/16/07	<10.00	170.00	170.00	39.70	0.93	1.58	88.2 D1	50.80	16.30	<5.00	50.60	570.00	
	11/06/08	<5.00	150.00	150.00	36.00	1.10	1.40	97.00	50.00	17.00	4.00	48.00	430.00	
	11/03/09	<10.00	160.00	160.00	35.00	1.10	1.60	110.00	49.00	17.00	4.20	56.00	410.00	
	11/10/10	<10.00	164.00	164.00	35.40	0.84	1.77	99.90	48.80	15.20	3.42	45.10	380.00	
	11/10/11	<5.00	165.00	165.00	36.40	0.83	1.35	87.90	57.90	18.00	3.79	53.00	404.00	
	10/11/12	<5.00	162.00	162.00	36.60	1.01	1.74	100.00	51.20	16.90	4.11	51.00	438.00	
	10/08/13	<6.00	194.00	194.00	38.40	1.02	1.17	98.70	56.50	18.30	4.08	54.90	450.00	
	10/07/14	<4.00	187.00	187.00	19.50	0.37	1.39	62.80	44.30	9.82	22.40	38.80	332.00	
	10/21/15	--	--	--	25.60	<2.00	--	74.80	--	--	--	--	--	307.00
	10/18/16	--	--	--	37.10	0.66	--	109.00	--	--	--	--	--	464.00
	10/24/17	--	--	--	35.90	1.50	--	98.70	--	--	--	--	--	442.00
	10/18/18	--	--	--	209.00	5.35	--	567.00	--	--	--	--	--	415.00
	06/20/19	--	--	--	40.00	--	--	--	--	--	--	--	--	448.00
	04/20/20	--	--	--	68.5 F2 F1	--	--	--	--	--	--	--	--	435.00
	Dup	04/20/20	--	--	--	69.60	--	--	--	--	--	--	--	502.00
06/25/21	--	--	--	42.20	--	--	--	--	--	--	--	--	424.00	
12/06/21	--	--	--	--	--	--	--	--	--	--	--	--	--	
08/24/22	--	--	--	43.10	--	--	--	--	--	--	--	--	417.00	
07/21/23	--	--	--	41.7	--	--	--	--	--	--	--	--	430 B	
11/13/23	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	02/27/98	--	--	230.00	12,000.00	--	--	1,300.00	1,700.00	880.00	48.00	5,300.00	22,000.00	
	04/09/98	--	--	240.00	13,000.00	--	--	1,500.00	1,740.00	840.00	42.00	5,400.00	23,000.00	
	02/14/01	<1.00	232.00	232.00	15,000.00	1.80	6.80	1,500.00	--	--	--	--	29,000.00	
	05/17/02	<1.00	232.00	232.00	11,300.00	2.01	6.09	1,380.00	1,610.00	814.00	60.90	4,310.00	22,600.00	
	10/23/02	--	--	--	11,300.00	--	--	1,320.00	--	--	--	--	23,200.00	
	05/22/03	<1.00	220.00	220.00	11,300.00	<10.00	12.30	1,370.00	1,450.00	659.00	47.30	4,140.00	62,500.00	
	11/26/03	<1.00	218.00	218.00	12,100.00	<8.00	12.30	1,400.00	1,830.00	889.00	62.00	4,620.00	54,450.00	
	05/11/04	<1.00	214.00	214.00	14,200.00	<8.00	8.97	1,560.00	1,800.00	829.00	60.70	4,850.00	65,450.00	
	11/17/04	<1.00	222.00	222.00	13,600.00	<20.00	31.50	1,410.00	2,020.00	972.00	73.60	5,900.00	25,200.00	
	11/17/05	<10.00	181.00	181.00	9,440.00	0.82	0.20	45.8 D1	849.00	387.00	28.10	3,880.00	24,300.00	
	11/15/06	<10.00	260.00	260.00	14,000.00	<5.00 C	5.20	1,400.00	1,760.00	897.00	58.80	6,150.00	28,700.00	
	11/14/07	<10.00	255.00	255.00	14,800.00	0.54	7.15 D1	1,410 D1	1,170.00	382.00	48.00	4,760 D1	36,300.00	
	11/12/08	<5.00	200.00	200.00	12,000.00	1.20	0.33	1,300.00	1,500.00	840.00	82.00	4,800.00	22,000.00	
	11/04/09	<5.00	250.00	250.00	15,000.00	1.10	5.30	1,600.00	1,500.00	1,000.00	65.00	5,800.00	30,000.00	
	11/11/10	<5.00	294.00	294.00	15,500.00	<1.00	10.20	1,270.00	1,380.00	904.00	40.40	5,450.00	25,500.00	
	11/10/11	<5.00	277.00	277.00	16,900.00	0.11	6.16	1,060.00	1,680.00	1,110.00	40.00	6,490.00	28,900.00	
	10/11/12	<5.00	256.00	256.00	5,850.00	2.10	4.58	629.00	434.00	334.00	21.20	2,620.00	12,000.00	
10/08/13	<6.00	294.00	294.00	16,200.00	0.72	6.79	1,460.00	1,690.00	1,180.00	40.80	7,370.00	36,300.00		
10/07/14	<4.00	291.00	291.00	15,000.00	<100.00	7.15	1,740.00	1,350.00	1,060.00	44.10	4,250.00	32,400.00		
10/20/15	--	--	--	3,200.00	<40.00	--	402.00	--	--	--	--	--	7,070.00	

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000
	10/18/16	--	--	--	17,900.00	<1.00	--	1,890.00	--	--	--	--	35,300.00
	10/25/17	--	--	--	6,830.00	<5.00	--	754.00	--	--	--	--	12,300.00
	10/18/18	--	--	--	14,800.00	<0.10	--	1,510.00	--	--	--	--	24,700.00
	04/20/20	--	--	--	14,600.00	--	--	--	--	--	--	--	28,900.00
	10/12/20	--	--	--	14,200.00	--	--	--	--	--	--	--	25,600.00
	06/25/21	--	--	--	13,600.00	--	--	--	--	--	--	--	28,400.00
	12/06/21	--	--	--	8,700.00	--	--	--	--	--	--	--	24,000.00
	08/23/22	--	--	--	73.6	--	--	--	--	--	--	--	465.00
	12/21/22	--	--	--	13,600	--	--	--	--	--	--	--	16,400
	07/21/23	--	--	--	13,300	--	--	--	--	--	--	--	19,800
	11/13/23	--	--	--	13,700	--	--	--	--	--	--	--	23,800
MW-4A	02/27/98	--	--	180.00	1,600.00	--	--	410.00	470.00	130.00	11.00	620.00	3,300.00
	02/14/01	<1.00	154.00	154.00	1,600.00	1.40	2.80	210.00	--	--	--	--	4,000.00
	05/15/02	<1.00	156.00	156.00	577.00	<1.00	2.23	121.00	200.00	49.50	10.30	125.00	1,610.00
	10/23/02	--	--	--	478.00	--	--	114.00	--	--	--	--	1,430.00
	05/22/03	<1.00	154.00	154.00	844.00	<1.00	2.43	160.00	279.00	58.90	10.10	248.00	2,200.00
	11/26/03	<1.00	158.00	158.00	1,060.00	<4.00	5.82	182.00	337.00	79.30	15.20	329.00	2,585.00
	05/11/04	<1.00	156.00	156.00	984.00	<2.00	3.30	179.00	297.00	66.50	11.50	279.00	2,300.00
	11/17/04	<1.00	164.00	164.00	1,110.00	<2.00	4.62	186.00	369.00	75.40	14.90	413.00	2,335.00
	11/16/05	<10.0	181.00	181.00	827 D1	<0.50	2.20	160 D1	335.00	64.40	9.23	382.00	2,340 N
	11/15/06	<10.00	620.00	620.00	960.00	<0.50	2.60	170.00	227.00	53.50	8.10	406.00	2,870.00
	11/14/07	<10.00	311.00	311.00	845 D1	0.35	3.60 D1	167 D1	205.00	44.90	7.33	334.00	2,650.00
	11/12/08	<5.00	640.00	640.00	650.00	0.32	2.20	170.00	160.00	37.00	9.90	290.00	1,700.00
	11/04/09	<5.00	670.00	670.00	670.00	0.56	2.60	150.00	110.00	27.00	7.40	300.00	1,600.00
	11/11/10	<5.00	217.00	217.00	663.00	0.51	2.58	125.00	65.90	15.60	4.42	317.00	1,760.00
	11/10/11	<5.00	171.00	171.00	621.00	0.78	2.02	134.00	78.80	18.70	4.71	389.00	1,400.00
	10/11/12	<5.00	169.00	169.00	516.00	1.12	2.60	100.00	48.70	11.30	4.45	359.00	1,200.00
	10/08/13	<6.00	199.00	199.00	512.00	2.63	2.47	100.00	47.70	9.93	3.64	410.00	1,170.00
	10/07/14	<4.00	186.00	186.00	387.00	1.69	2.54	102.00	37.10	7.78	3.17	276.00	962.00
	10/20/15	--	--	--	328.00	<4.00	--	83.30	--	--	--	--	819.00
	10/18/16	--	--	--	440.00	1.49	--	97.60	--	--	--	--	1,150.00
	10/25/17	--	--	--	341.00	2.83	--	93.40	--	--	--	--	960.00
	10/18/18	--	--	--	366.00	1.29	--	99.60	--	--	--	--	901.00
	06/20/19	--	--	--	336.00	--	--	--	--	--	--	--	1,040.00
	04/20/20	--	--	--	311 F1	--	--	--	--	--	--	--	808.00
	06/25/21	--	--	--	409.00	--	--	--	--	--	--	--	1,030.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--
	08/23/22	--	--	--	424	--	--	--	--	--	--	--	988
	07/20/23	--	--	--	424	--	--	101	--	--	--	--	1,260
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	02/26/98	--	--	180.00	6,600.00	--	--	910.00	1,400.00	470.00	31.00	2,400.00	12,000.00
	02/14/01	<1.00	166.00	166.00	7,700.00	1.80	4.10	910.00	--	--	--	--	18,000.00
	05/17/02	<1.00	156.00	156.00	4,040.00	1.53	4.56	586.00	757.00	319.00	60.90	1,260.00	8,340.00
	10/23/02	--	--	--	3,900.00	--	--	94.80	--	--	--	--	422.00
	05/22/03	<1.00	158.00	158.00	3,170.00	<4.00	6.52	550.00	644.00	215.00	49.90	1,240.00	7,860.00
	11/25/03	<1.00	168.00	168.00	5,120.00	<4.00	6.77	739.00	978.00	365.00	54.90	1,680.00	11,940.00
	05/11/04	<1.00	160.00	160.00	6,760.00	<3.00	4.65	1,030.00	1,180.00	417.00	40.30	2,120.00	20,380.00
	11/17/04	<1.00	172.00	172.00	6,750.00	<10.00	16.60	786.00	1,210.00	486.00	40.60	2,300.00	11,980.00
	11/17/05	<10.00	161.00	161.00	2,140 D1	0.79	0.16	334 D1	339.00	126.00	10.80	791.00	7,120 N
	11/14/06	<10.00	160.00	160.00	2,000.00	0.60	1.50	300.00	437.00	173.00	14.20	918.00	4,420.00
	11/14/07	<10.00	161.00	161.00	5,790 D1	0.37	4.01 D1	668 D1	812.00	240.00	23.30	1,850 D1	16,300.00
	11/06/08	<5.00	160.00	160.00	4,900.00	0.78	0.32	540.00	660.00	310.00	35.00	1,600.00	9,700.00
	11/03/09	<10.00	160.00	160.00	5,100.00	0.51	2.30	710.00	860.00	320.00	<13.00	1,800.00	11,000.00
	11/11/10	<5.00	176.00	176.00	4,200.00	0.16	2.37	554.00	687.00	250.00	17.30	1,400.00	8,890.00
	11/10/11	<5.00	172.00	172.00	4,340.00	0.24	0.55	411.00	944.00	326.00	19.70	1,780.00	7,840.00
	10/11/12	<5.00	164.00	164.00	3,630.00	0.38	2.26	474.00	671.00	239.00	17.00	1,360.00	8,300.00
	10/08/13	<6.00	176.00	176.00	3,730.00	0.37	1.56	425.00	659.00	253.00	15.40	1,440.00	8,060.00
	10/07/14	<4.00	172.00	172.00	2,830.00	<0.10	2.19	398.00	521.00	195.00	15.10	979.00	5,280.00
	10/21/15	--	--	--	2,480.00	<40.00	--	362.00	--	--	--	--	5,510.00
	10/18/16	--	--	--	2,260.00	<0.50	--	326.00	--	--	--	--	5,380.00
	10/25/17	--	--	--	2,090.00	<5.00	--	318.00	--	--	--	--	3,780.00
	10/25/17	--	--	--	2,010.00	<5.00	--	300.00	--	--	--	--	3,240.00
	10/18/18	--	--	--	1,890.00	<0.10	--	323.00	--	--	--	--	3,420.00
	06/20/19	--	--	--	1,700.00	--	--	--	--	--	--	--	4,280.00
	04/20/20	--	--	--	1,870.00	--	--	--	--	--	--	--	4,150.00
	10/12/20	--	--	--	1,460.00	--	--	--	--	--	--	--	2,960.00
	06/25/21	--	--	--	1,330.00	--	--	--	--	--	--	--	2,590.00
	12/06/21	--	--	--	1,190.00	--	--	--	--	--	--	--	2,630.00
	08/23/22	--	--	--	101	--	--	--	--	--	--	--	493
	12/21/22	--	--	--	1150	--	--	--	--	--	--	--	2,230
	07/20/23	--	--	--	1050	--	--	--	--	--	--	--	2,440
	11/13/23	--	--	--	991	--	--	--	--	--	--	--	2,420

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000	
MW-5A	02/26/98	--	--	170.00	190.00	--	--	180.00	107.00	23.00	3.50	117.00	740.00	
	02/15/01	<1.00	164.00	164.00	140.00	1.20	2.10	130.00	90.20	27.90	8.70	74.60	670.00	
	05/15/02	<1.00	182.00	182.00	53.50	<1.00	2.23	84.40	63.20	16.10	4.69	43.60	475.00	
	10/23/02	--	--	--	50.00	--	--	616.00	--	--	--	--	8,670.00	
	05/22/03	<1.00	158.00	158.00	32.50	<1.00	2.10	69.90	55.50	13.80	3.41	41.50	416.00	
	11/25/03	<1.00	332.00	332.00	34.10	1.05	2.20	75.50	60.90	14.60	4.08	45.00	422.00	
	05/11/04	<1.00	164.00	164.00	38.80	<1.00	2.25	75.80	60.90	15.00	3.40	43.20	484.00	
	11/17/04	<1.00	152.00	152.00	39.60	1.37	2.66	74.30	58.10	13.60	3.83	48.50	430.00	
	11/16/05	<10.00	191.00	191.00	40.20	0.82	2.10	75.2 D1	176.00	17.80	4.22	45.30	570 N	
	11/14/06	<10.00	240.00	240.00	47.00	0.64	1.50	79.00	90.40	16.10	3.58	51.40	588.00	
	11/14/07	<10.00	227.00	227.00	54.40	0.66	1.45	68.7 D1	73.70	14.00	<5.00	44.20	528.00	
	11/06/08	<5.00	350.00	350.00	53.00	0.70	1.30	72.00	76.00	15.00	3.40	43.00	450.00	
	11/03/09	<10.00	710.00	710.00	47.00	0.72	1.50	79.00	65.00	14.00	3.30	50.00	440.00	
	11/11/10	<5.00	182.00	182.00	49.60	0.57	1.61	73.60	55.70	12.90	2.79	42.00	606.00	
	11/10/11	<5.00	170.00	170.00	131.00	0.49	1.15	116.00	83.80	29.90	5.16	85.70	594.00	
	10/11/12	<5.00	163.00	163.00	68.00	0.63	1.57	69.80	60.60	15.30	3.96	49.20	534.00	
	10/08/13	<6.00	182.00	182.00	80.20	0.57	1.60	67.50	69.30	16.20	3.29	53.40	462.00	
	10/07/14	<4.00	168.00	168.00	73.60	0.29	1.56	64.90	66.20	15.70	2.76	45.20	432.00	
	10/21/15	--	--	--	84.90	<4.00	--	65.60	--	--	--	--	--	499.00
	10/18/16	--	--	--	101.00	<0.50	--	65.40	--	--	--	--	--	466.00
	10/25/17	--	--	--	99.60	1.14	--	59.30	--	--	--	--	--	537.00
	10/18/18	--	--	--	132.00	0.79	--	67.50	--	--	--	--	--	477.00
	06/20/19	--	--	--	118.00	--	--	--	--	--	--	--	--	650.00
04/20/20	--	--	--	120.00	--	--	--	--	--	--	--	--	571.00	
06/25/21	--	--	--	140.00	--	--	--	--	--	--	--	--	529.00	
12/06/21	--	--	--	--	--	--	--	--	--	--	--	--	--	
08/23/22	--	--	--	15,000	--	--	--	--	--	--	--	--	18,500	
07/20/23	--	--	--	146	--	--	--	--	--	--	--	--	552	
11/13/23	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	02/26/98	--	--	200.00	260.00	--	--	400.00	180.00	44.00	6.20	205.00	1,200.00	
	02/14/01	<1.00	158.00	158.00	59.00	1.70	2.20	99.00	67.50	22.10	7.67	52.30	470.00	
	05/17/02	<1.00	162.00	162.00	37.80	1.62	2.14	99.30	63.10	19.60	5.12	48.60	427.00	
	10/23/02	--	--	--	46.10	--	--	109.00	--	--	--	--	331.00	
	05/22/03	<1.00	162.00	162.00	40.30	1.24	2.13	94.40	61.70	17.40	4.23	51.90	464.00	
	11/25/03	<1.00	154.00	154.00	53.60	1.40	2.18	98.00	53.60	18.70	4.97	51.70	482.00	
	05/11/04	<1.00	156.00	156.00	54.40	1.23	2.19	97.00	59.00	18.10	4.22	47.80	506.00	
	11/16/04	<1.00	162.00	162.00	57.90	1.64	2.68	99.80	66.60	19.60	5.16	57.00	464.00	
	11/17/05	<10.00	201.00	201.00	101.00	0.97	0.35	97.8 D1	103.00	20.20	4.10	59.10	730.00	
	11/15/06	<10.00	750.00	750.00	68.00	0.99	1.50	93.00	64.60	20.40	4.23	57.10	507.00	
	11/15/07	<10.00	284.00	284.00	162.00	51.00	1.35	96.3 D1	84.10	25.20	<5.00	62.10	630.00	
	11/06/08	<5.00	220.00	220.00	84.00	1.20	1.20	95.00	67.00	21.00	4.30	53.00	490.00	
	11/03/09	<10.00	190.00	190.00	81.00	1.20	1.40	100.00	66.00	20.00	4.50	59.00	550.00	
	11/08/10	NS - Well Damaged												
11/10/11	NS - Well Damaged													
10/11/12	NS - Well Damaged													
09/30/13	Well Plugged and Abandoned													
MW-6R	10/08/13	<6.00	225.00	225.00	110.00	1.91	<0.10	102.00	69.90	24.40	5.17	85.60	600.00	
	10/07/14	<4.00	182.00	182.00	39.70	0.55	0.68	93.00	59.20	18.20	3.10	48.20	402.00	
	10/21/15	--	--	--	40.70	<2.00	--	98.60	--	--	--	--	390.00	
	10/18/16	--	--	--	42.30	0.63	--	105 J	--	--	--	--	442.00	
	10/25/17	--	--	--	49.30	1.46	--	93.80	--	--	--	--	465.00	
	10/18/18	--	--	--	69.10	1.05	--	107.00	--	--	--	--	442.00	
	06/20/19	--	--	--	59.10	--	--	--	--	--	--	--	482.00	
	06/20/19	--	--	--	64.40	--	--	--	--	--	--	--	592.00	
	11/23/19	--	--	--	69.40	--	--	95.20	--	--	--	--	384.00	
	04/20/20	--	--	--	77.40	--	--	--	--	--	--	--	506.00	
	06/25/21	--	--	--	71.70	--	--	--	--	--	--	--	487.00	
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--	
	08/23/22	--	--	--	145	--	--	--	--	--	--	--	514	
	07/20/23	--	--	--	71.5	--	--	--	--	--	--	--	479	
11/13/23	--	--	--	--	--	--	--	--	--	--	--	--		
MW-7	05/14/98	--	--	230.00	430.00	--	--	340.00	214.00	66.00	13.00	165.00	1,200.00	
	02/14/01	<1.00	150.00	150.00	510.00	1.70	2.40	150.00	--	--	--	--	1,500.00	
	05/16/02	<1.00	150.00	150.00	75.70	1.59	2.27	97.40	68.60	23.20	6.63	54.30	501.00	
	10/22/02	--	--	--	88.60	--	--	109.00	--	--	--	--	490.00	
	05/22/03	<1.00	140.00	140.00	173.00	1.17	2.14	88.90	85.50	28.20	6.18	64.60	631.00	
	11/26/03	<1.00	136.00	136.00	189.00	1.29	2.23	93.50	95.70	31.00	7.91	63.60	704.00	
	05/13/04	<1.00	130.00	130.00	267.00	1.11	2.18	94.70	107.00	34.70	6.59	62.90	914.00	
	11/16/04	<1.00	130.00	130.00	367.00	1.49	2.72	97.30	142.00	49.30	8.61	87.90	870.00	
	11/17/05	<10.00	121.00	121.00	456 D1	0.53	0.28	106 D1	412.00	64.70	12.10	100.00	1,440.00	
	11/15/06	<10.00	240.00	240.00	550.00	0.63	1.50	110.00	202.00	70.30	7.40	102.00	2,100.00	
	11/15/07	<10.00	189.00	189.00	458 D1	1.20	1.39	176 D1	144.00	59.50	9.95	148.00	1,880.00	

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000
	11/12/08	<5.00	110.00	110.00	650.00	0.84	1.20	140.00	210.00	76.00	12.00	120.00	1,600.00
	11/04/09	<5.00	110.00	110.00	1,100.00	0.63	1.50	160.00	310.00	120.00	11.00	130.00	2,800.00
	11/10/10	<5.00	111.00	111.00	1,310.00	0.37	1.64	173.00	415.00	149.00	10.00	150.00	3,130.00
	11/10/11	<5.00	106.00	109.00	1,710.00	0.30	1.45	147.00	662.00	203.00	12.30	198.00	3,660.00
	10/11/12	<5.00	108.00	108.00	2,020.00	0.44	1.71	261.00	619.00	215.00	12.30	208.00	5,580.00
	10/08/13	<6.00	142.00	142.00	2,840.00	0.45	2.11	331.00	916.00	258.00	13.30	265.00	7,530.00
	10/07/14	<4.00	116.00	116.00	2,190.00	<0.10	2.03	317.00	682.00	238.00	12.20	227.00	7,920.00
	10/20/15	--	--	--	1,420.00	<20.00	--	231.00	--	--	--	--	3,130.00
	10/18/16	--	--	--	2,920.00	<0.50	--	385.00	--	--	--	--	7,160.00
	10/24/17	--	--	--	1,670.00	<2.00	--	249.00	--	--	--	--	2,660.00
	10/18/18	--	--	--	4,000.00	<0.10	--	482.00	--	--	--	--	6,450.00
	06/20/19	--	--	--	4,210.00	--	--	--	--	--	--	--	15,500.00
	04/20/20	--	--	--	4,570.00	--	--	--	--	--	--	--	14,100.00
	10/12/20	--	--	--	4,560.00	--	--	--	--	--	--	--	8,090.00
	06/25/21	--	--	--	4,140.00	--	--	--	--	--	--	--	298.00
	12/07/21	--	--	--	3,780.00	--	--	--	--	--	--	--	8,540.00
	08/23/22	--	--	--	5,170	--	--	--	--	--	--	--	10,800
	12/21/22	--	--	--	5,280	--	--	--	--	--	--	--	11,700
	07/20/23	--	--	--	5,150	--	--	--	--	--	--	--	14,500
	11/14/23	--	--	--	5,350	--	--	--	--	--	--	--	11,600
MW-8	05/13/98	--	--	200.00	270.00	--	--	390.00	190.00	60.00	12.00	170.00	1,200.00
	02/14/01	<1.00	156.00	156.00	49.00	1.80	2.50	100.00	59.90	21.50	7.84	52.90	400.00
	05/16/02	<1.00	158.00	158.00	32.90	1.57	2.33	101.00	56.60	19.20	5.20	49.50	432.00
	10/22/02	--	--	--	40.80	--	--	104.00	--	--	--	--	392.00
	05/22/03	8.00	160.00	168.00	33.20	1.40	2.32	98.30	53.90	18.30	9.31	46.40	410.00
	11/26/03	<1.00	142.00	142.00	31.70	1.59	2.38	95.60	55.30	18.20	5.31	50.20	443.00
	05/12/04	<1.00	154.00	154.00	36.30	1.39	2.38	101.00	53.00	17.30	4.56	48.10	435.00
	11/16/04	<1.00	170.00	170.00	39.80	1.94	2.94	103.00	57.80	18.60	5.63	56.40	435.00
	05/17/05	4.00	152.00	156.00	41.00	1.64	2.94	105.00	61.00	18.60	5.78	47.30	434.00
	11/17/05	<10.00	171.00	171.00	113.00	1.10	<0.05	115 D1	83.40	21.70	5.74	102.00	750.00
	05/09/06	<10.00	160.00	160.00	210.00	0.89	1.40	200.00	72.70	33.30	7.12	125.00	896.00
	11/14/06	<10.00	150.00	150.00	230.00	1.10	<1.20	200.00	74.20	38.30	9.61	162.00	912.00
	05/30/07	<10.00	141.00	141.00	62.00	1.20	1.74	120.00	54.10	19.10	<5.00	59.30	500.00
	11/15/07	<10.00	159.00	159.00	43.10	1.33	1.56	94.2 D1	52.10	17.20	<5.000	49.80	540.00
	05/15/08	<1.53	151.00	151.00	40.70	1.40	1.78	99.6 D1	51.70	16.80	4.10	54.8 D1	427.00
	11/12/08	<5.00	140.00	140.00	39.00	1.40	1.50	97.00	52.00	17.00	<2.6	46.00	350.00
	05/20/09	<5.00	140.00	140.00	39.00	1.30	1.60	110.00	50.00	17.00	4.30	49.00	430.00
	11/04/09	<5.00	150.00	150.00	41.00	1.40	1.70	110.00	46.00	16.00	3.30	47.00	450.00
	05/07/10	<5.00	<5.00	172.00	34.90	1.09	1.70	97.80	49.50	15.70	3.52	45.50	426.00
Dup	05/07/10	<5.00	<5.00	157.00	34.90	1.09	1.71	98.00	51.00	14.50	3.21	43.60	466.00
Dup	11/12/10	<5.00	172.00	172.00	38.70	1.10	1.77	98.20	48.90	15.70	3.40	45.40	410.00
	11/12/10	<5.00	160.00	160.00	38.70	1.10	1.76	98.30	50.50	15.30	3.44	44.80	398.00
	05/11/11	<5.00	170.00	170.00	185.00	1.20	1.60	93.00	73.00	28.40	5.68	165.00	692.00
	11/10/11	<5.00	161.00	161.00	36.90	1.06	1.41	87.40	57.10	17.00	3.46	48.60	406.00
	05/17/12	<5.00	173.00	173.00	37.90	1.09	1.59	92.90	53.30	16.40	3.83	56.70	440.00
	10/11/12	<5.00	158.00	158.00	39.90	1.29	1.83	103.00	49.00	16.60	4.30	49.00	444.00
	05/17/13	<5.00	167.00	167.00	38.30	1.37	1.70	106.00	55.30	17.50	3.67	45.90	416.00
	10/08/13	<6.00	182.00	182.00	39.50	1.17	1.78	96.20	57.40	19.70	4.35	57.60	446.00
	05/01/14	<10.00	165.00	165.00	40.60	1.12 J	1.81	106.00	55.10	19.90	3.82	52.90	436.00
	10/07/14	<4.00	176.00	176.00	8.14	0.16	1.07	30.50	40.00	4.98	7.81	35.10	259.00
	05/22/15	--	--	--	10.00	<2.00	--	30.10	--	--	--	--	252.00
	10/20/15	--	--	--	8.03	<2.00	--	32.50	--	--	--	--	146.00
	05/25/16	--	--	--	30.00	0.85	--	88.70	--	--	--	--	434.00
	10/18/16	--	--	--	4.28	<0.50	--	32.80	--	--	--	--	261.00
	05/11/17	--	--	--	9.10	<0.02	--	32.20	--	--	--	--	214.00
Dup	05/11/17	--	--	--	8.62	<0.02	--	32.20	--	--	--	--	182.00
	10/24/17	--	--	--	3.69	0.23	--	18.30	--	--	--	--	286.00
	05/22/18	--	--	--	5.22	0.32	--	21.90	--	--	--	--	282.00
	10/18/18	--	--	--	5.41	0.61	--	19.10	--	--	--	--	258.00
	06/20/19	--	--	--	NS	--	--	--	--	--	--	--	NS
	04/20/20	--	--	--	49.00	--	--	--	--	--	--	--	305.00
	06/25/21	--	--	--	28.90	--	--	--	--	--	--	--	391.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--
	08/24/22	--	--	--	32.0	--	--	--	--	--	--	--	371
	07/20/23	--	--	--	36.9	--	--	--	--	--	--	--	432
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	05/14/98	--	--	190.00	350.00	--	--	470.00	207.00	61.00	12.00	200.00	1,300.00
	02/15/01	<1.00	156.00	156.00	31.70	2.60	2.40	110.00	60.40	19.80	7.47	47.00	430.00
	05/16/02	<1.00	160.00	160.00	31.70	2.22	2.28	99.40	60.80	17.60	5.32	50.10	440.00
	10/23/02	--	--	--	39.00	--	--	102.00	--	--	--	--	436.00
	05/22/03	<1.00	160.00	160.00	31.00	1.75	2.19	93.30	52.20	15.80	4.75	50.20	455.00
	11/26/03	<1.00	150.00	150.00	31.80	1.99	2.34	99.80	57.70	16.60	4.69	46.30	452.00

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000	
Dup	05/12/04	<1.00	164.00	164.00	33.60	1.79	2.29	99.20	54.80	16.00	4.27	43.50	467.00	
	11/16/04	8.00	154.00	162.00	367.00	1.49	2.72	97.30	63.20	17.80	5.59	55.50	433.00	
	05/17/05	4.00	154.00	154.00	44.20	2.43	3.05	117.00	58.80	16.70	5.94	44.10	434.00	
	11/17/05	<10.00	161.00	161.00	83.50	1.30	0.14	111 D1	149.00	26.20	7.43	80.40	790 N	
	05/09/06	<10.00	170.00	170.00	37.00	1.80	1.80	99.00	52.70	15.00	3.21	45.50	428.00	
	11/15/06	<10.00	150.00	150.00	210.00	1.10	1.20	190.00	70.50	35.80	8.64	152.00	905.00	
	05/30/07	<10.00	153.00	153.00	35.00	2.10	1.69	110.00	52.20	15.80	<5.00	44.70	464.00	
	11/14/07	<10.00	151.00	151.00	186.00	1.49	1.48	156 D1	74.10	39.40	8.73	141.00	808.00	
	05/15/08	<1.53	174.00	174.00	42.50	2.38	1.72	105 D1	55.60	17.00	3.99	54.1 D1	467.00	
	11/04/08	<5.00	160.00	160.00	39.00	2.10	1.40	98.00	54.00	16.00	3.70	47.00	440.00	
	05/20/09	<5.00	320.00	320.00	69.00	2.10	1.50	120.00	58.00	19.00	4.60	58.00	520.00	
	11/04/09	<5.00	160.00	160.00	42.00	2.20	1.60	110.00	50.00	15.00	3.00	43.00	460.00	
	05/07/10	<5.00	<5.00	162.00	50.20	2.02	1.66	97.50	53.60	15.70	3.32	43.50	442.00	
	11/09/10	<5.00	186.00	186.00	60.70	1.97	1.74	98.00	59.20	18.10	3.64	50.00	446.00	
	05/11/11	<5.00	160.00	160.00	80.30	1.71	1.72	75.70	73.90	25.80	4.61	67.90	518.00	
	11/10/11	<5.00	151.00	151.00	138.00	1.66	1.38	107.00	82.70	26.90	4.34	65.40	582.00	
	05/16/12	<5.00	162.00	162.00	137.00	1.75	1.61	93.50	83.80	23.20	4.39	60.30	584.00	
	10/11/12	<5.00	147.00	147.00	148.00	1.90	1.71	98.70	80.50	25.80	4.94	59.80	644.00	
	05/17/13	<5.00	144.00	144.00	246.00	1.86	1.61	99.30	107.00	30.20	4.43	60.20	1,010.00	
	10/08/13	<6.00	164.00	164.00	150.00	1.88	1.81	99.80	90.00	25.20	4.62	60.80	620.00	
	05/02/14	<10.00	143.00	143.00	382.00	1.56	1.77	103.00	132.00	35.70	5.74	73.70	906.00	
	10/07/14	<4.00	151.00	151.00	292.00	0.89	1.33	98.10	136.00	41.00	4.65	67.40	1,110.00	
	05/22/15	--	--	--	307.00	<8.00	--	87.70	--	--	--	--	--	1,170.00
	10/20/15	--	--	--	202.00	<4.00	--	93.70	--	--	--	--	--	593.00
	05/25/16	--	--	--	404.00	1.61	--	108.00	--	--	--	--	--	1,430.00
	05/26/16	--	--	--	418.00	1.60	--	111.00	--	--	--	--	--	1,430.00
	10/18/16	--	--	--	445.00	1.34	--	115.00	--	--	--	--	--	1,490.00
	05/11/17	--	--	--	481.00	<0.22	--	118.00	--	--	--	--	--	1,090.00
	10/24/17	--	--	--	387.00	2.42	--	102.00	--	--	--	--	--	1,020.00
	05/22/18	--	--	--	460.00	1.28	--	119.00	--	--	--	--	--	1,010.00
	10/18/18	--	--	--	381.00	1.41	--	117.00	--	--	--	--	--	903.00
	06/20/19	--	--	--	621.00	--	--	--	--	--	--	--	--	2,930.00
	11/24/19	--	--	--	337.00	--	--	80.60	--	--	--	--	--	1,170.00
	04/20/20	--	--	--	1,070.00	--	--	--	--	--	--	--	--	3,090.00
	10/12/20	--	--	--	945.00	--	--	--	--	--	--	--	--	1,860.00
		--	--	--	340.00	--	--	--	--	--	--	--	--	1,173.00
	06/25/21	--	--	--	952.00	--	--	--	--	--	--	--	--	1,970.00
	12/07/21	--	--	--	856.00	--	--	--	--	--	--	--	--	1,960.00
	08/24/22	--	--	--	1,040	--	--	--	--	--	--	--	--	2,320
	12/21/22	--	--	--	1,040	--	--	--	--	--	--	--	--	2,530
07/21/23	--	--	--	1,050	--	--	--	--	--	--	--	--	2,620	
11/14/23	--	--	--	1,100	--	--	--	--	--	--	--	--	2,930	
Dup	MW-9A	05/14/98	--	--	280.00	600.00	--	--	770.00	338.00	96.00	12.00	334.00	2,200.00
	02/15/01	<1.00	142.00	142.00	85.00	1.40	2.20	71.00	71.60	19.20	6.94	46.00	400.00	
	05/15/02	<1.00	136.00	136.00	148.00	<1.00	2.18	65.30	62.90	16.10	4.62	46.80	445.00	
	10/23/02	--	--	--	168.00	--	--	75.50	--	--	--	--	651.00	
	05/22/03	<1.00	126.00	126.00	207.00	<1.00	2.09	62.10	102.00	25.20	4.80	55.70	672.00	
	11/26/03	<1.00	118.00	118.00	216.00	1.14	2.26	62.70	107.00	25.10	5.31	53.20	648.00	
	05/12/04	<1.00	122.00	122.00	242.00	<1.00	2.10	64.70	105.00	26.20	5.11	26.20	950.00	
	11/16/04	<1.00	114.00	114.00	296.00	1.24	2.74	67.50	130.00	33.10	6.24	70.30	826.00	
	05/17/05	<1.00	112.00	112.00	354.00	1.04	2.85	77.10	131.00	31.70	6.39	60.50	828.00	
	11/17/05	<10.00	121.00	121.00	310 D1	0.82	0.31	74.7 D1	337.00	41.40	8.08	74.50	1,520 N	
	05/09/06	<10.00	670.00	670.00	270.00	0.67	1.60	78.00	111.00	27.10	3.88	58.70	992.00	
	11/15/06	<10.00	1,600.00	1,600.00	290.00	0.62	1.60	72.00	126.00	33.40	4.74	68.40	1,280.00	
	05/30/07	<10.00	586.00	586.00	400.00	0.70	1.69	83.00	153.00	36.90	<5.00	71.80	1,450.00	
	11/14/07	<10.00	605.00	605.00	285 D1	0.62	1.52	64.7 D1	153.00	35.40	5.03	70.70	1,430.00	
	05/15/08	<1.53	738.00	738.00	380 D1	0.45	1.62	86.8 D1	146.00	35.50	5.45	77.2 D1	1,390.00	
	11/04/08	<5.00	370.00	370.00	330.00	<1.00	1.20	84.00	130.00	32.00	5.10	66.00	1,000.00	
	05/20/09	<5.00	600.00	600.00	480.00	0.49	1.50	86.00	170.00	43.00	6.40	76.00	1,600.00	
	11/04/09	<5.00	110.00	110.00	430.00	0.49	1.60	82.00	160.00	41.00	5.30	71.00	1,500.00	
	05/07/10	<5.00	<5.00	121.00	510.00	0.21	1.62	80.50	188.00	44.90	4.90	73.60	1,680.00	
	11/09/10	<5.00	115.00	115.00	529.00	0.33	1.72	86.00	159.00	44.30	5.00	76.10	1,660.00	
	05/11/11	<5.00	146.00	146.00	587.00	1.18	1.90	415.00	166.00	80.60	11.30	211.00	1,850.00	
	11/10/11	<5.00	115.00	115.00	841.00	0.19	1.56	125.00	280.00	84.80	7.51	117.00	2,160.00	
	05/16/12	<5.00	135.00	135.00	958.00	0.37	1.74	143.00	249.00	62.60	6.50	97.70	3,450.00	
	05/16/12	<5.00	128.00	128.00	882.00	0.31	1.70	134.00	270.00	65.70	6.72	92.30	3,050.00	
	10/11/12	<5.00	125.00	125.00	628.00	0.37	1.70	121.00	235.00	60.40	6.72	94.00	1,810.00	
	05/17/13	<5.00	137.00	137.00	754.00	0.34	1.67	145.00	224.00	53.90	5.49	86.80	1,930.00	
	10/08/13	<6.00	153.00	153.00	534.00	0.37	1.69	118.00	185.00	43.10	5.23	81.30	1,210.00	
10/07/14	Not Sampled													
10/20/2015	--	--	--	--	232.00	<4.00	--	95.40	--	--	--	--	599.00	
10/18/16	--	--	--	--	337.00	<0.50	--	113.00	--	--	--	--	1,250.00	

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000
	10/24/17	--	--	--	206.00	<0.50	--	96.60	--	--	--	--	681.00
	10/18/18	--	--	--	276.00	0.60	--	119.00	--	--	--	--	816.00
	06/20/19	--	--	--	268.00	--	--	--	--	--	--	--	1,220.00
	04/20/20	--	--	--	352.00	--	--	--	--	--	--	--	940.00
	06/25/21	--	--	--	307.00	--	--	--	--	--	--	--	857.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--
	08/24/22	--	--	--	239	--	--	--	--	--	--	--	773
	07/21/23	--	--	--	260	--	--	--	--	--	--	--	753 B
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	05/14/98	--	--	240.00	360.00	--	--	450.00	211.00	62.00	11.00	190.00	1,400.00
	02/15/01	<1.00	140.00	140.00	190.00	2.00	2.30	97.00	108.00	32.30	8.20	61.00	660.00
	05/17/02	<1.00	152.00	152.00	204.00	1.93	2.19	99.10	109.00	31.70	7.60	62.40	713.00
	10/22/02	--	--	--	213.00	--	--	108.00	--	--	--	--	758.00
	05/22/03	<1.00	152.00	152.00	213.00	1.45	2.17	96.60	109.00	29.90	8.65	74.20	764.00
	11/26/03	<1.00	152.00	152.00	220.00	1.54	2.26	103.00	120.00	35.70	6.96	64.00	752.00
	05/13/04	<1.00	158.00	158.00	232.00	1.39	2.23	102.00	114.00	31.60	5.95	57.20	802.00
	11/17/04	<1.00	170.00	170.00	245.00	1.73	2.78	104.00	121.00	35.70	7.07	70.30	764.00
	05/17/05	<1.00	150.00	150.00	233.00	1.77	2.80	106.00	113.00	32.30	6.83	60.20	776.00
	11/17/05	<10.00	151.00	151.00	205 D1	1.20	0.26	111 D1	482.00	47.40	13.10	82.40	970 N
	05/09/06	<10.00	190.00	190.00	180.00	1.40	1.60	98.00	93.30	27.10	4.31	60.40	724.00
	11/16/06	<10.00	320.00	320.00	190.00	1.20	1.60	92.00	101.00	30.00	4.75	64.10	900.00
	05/30/07	<10.00	340.00	340.00	200.00	1.40	1.68	110.00	101.00	28.60	<5.00	62.40	820.00
	11/15/07	<10.00	189.00	189.00	251 D1	1.44	1.44	152 D1	104.00	33.40	6.01	84.70	1,010.00
	05/15/08	<1.53	374.00	374.00	342 D1	1.47	1.28	257 D1	106.00	52.90	11.70	165 D1	1,140.00
	11/06/08	<5.00	150.00	150.00	210.00	1.50	1.30	89.00	110.00	32.00	5.40	64.00	730.00
	05/20/09	<5.00	240.00	240.00	270.00	1.30	1.50	120.00	110.00	35.00	6.20	72.00	960.00
	11/04/09	<5.00	150.00	150.00	240.00	1.50	1.30	130.00	100.00	35.00	5.40	78.00	1,000.00
	05/07/10	<5.00	<5.00	157.00	236.00	1.18	1.62	106.00	111.00	30.70	4.59	60.30	940.00
	11/10/10	<5.00	166.00	166.00	280.00	1.16	1.61	112.00	98.40	36.90	5.63	81.00	812.00
	05/11/11	<5.00	157.00	157.00	274.00	1.11	1.99	87.20	117.00	32.20	5.63	85.00	930.00
	11/15/11	<5.00	150.00	150.00	266.00	1.03	6.93	94.90	128.00	32.30	4.58	62.80	1,450.00
	05/16/12	<5.00	163.00	163.00	284.00	1.12	1.58	99.90	132.00	36.80	5.22	72.90	1,120.00
	10/11/12	<5.00	151.00	151.00	255.00	1.32	1.75	98.70	113.00	34.30	5.68	67.60	1,010.00
	05/17/13	<5.00	154.00	154.00	299.00	1.34	1.61	108.00	117.00	33.70	4.57	64.60	1,180.00
	10/08/13	<6.00	165.00	165.00	324.00	1.14	1.62	103.00	154.00	41.60	5.36	78.10	1,240.00
	05/01/14	<10.00	156.00	156.00	298.00	1.05 J	1.58	111.00	135.00	41.60	5.30	75.50	1,050.00
Dup	05/01/14	<10.00	158.00	158.00	301.00	<0.10 J	1.66	112.00	134.00	42.50	5.29	79.50	1,080.00
	10/07/14	<4.00	163.00	163.00	249.00	0.71	1.64	108.00	127.00	36.80	4.91	67.20	1,050.00
	05/22/15	--	--	--	298.00	<8.00	--	102.00	--	--	--	--	975.00
	10/20/15	--	--	--	250.00	<4.00	--	108.00	--	--	--	--	823.00
	05/25/16	--	--	--	307.00	1.44	--	107.00	--	--	--	--	1,080.00
	10/18/16	--	--	--	330.00	0.86	--	103.00	--	--	--	--	1,350.00
	05/11/17	--	--	--	353.00	<0.22	--	112.00	--	--	--	--	1,080.00
	10/24/17	--	--	--	240.00	1.60	--	97.00	--	--	--	--	742.00
	05/22/18	--	--	--	346.00	0.97	--	113.00	--	--	--	--	1,070.00
	10/18/18	--	--	--	351.00	1.10	--	118.00	--	--	--	--	892.00
	06/20/19	--	--	--	NS	--	--	--	--	--	--	--	NS
	04/20/20	--	--	--	372.00	--	--	--	--	--	--	--	1,050.00
	10/12/20	--	--	--	338.00	--	--	--	--	--	--	--	986.00
	06/25/21	--	--	--	392.00	--	--	--	--	--	--	--	1,010.00
	12/07/21	--	--	--	339.00	--	--	--	--	--	--	--	1,020.00
	08/23/22	--	--	--	376	--	--	--	--	--	--	--	1,010
	12/21/22	--	--	--	406	--	--	--	--	--	--	--	1,120 J3
Dup	12/21/22	--	--	--	218	--	--	--	--	--	--	--	828
	07/20/23	--	--	--	364	--	--	--	--	--	--	--	1,210
	11/14/23	--	--	--	364	--	--	--	--	--	--	--	1,180
MW-11	01/22/99	30.00	<1.00	30.00	46.00	2.30	4.20	94.00	33.00	7.00	9.10	58.00	370.00
	02/15/01	<1.00	156.00	156.00	37.00	2.40	2.40	120.00	64.00	19.10	7.83	50.10	360.00
	05/16/02	<1.00	160.00	160.00	31.90	2.13	2.33	98.80	63.50	17.20	4.83	47.00	444.00
	10/23/02	--	--	--	37.20	--	--	102.00	--	--	--	--	447.00
	05/22/03	12.00	154.00	166.00	32.30	1.74	2.28	96.70	62.30	0.00	4.63	47.60	437.00
	11/26/03	<1.00	160.00	160.00	32.40	1.83	2.23	96.40	59.20	16.60	4.67	48.60	448.00
	05/12/04	<1.00	164.00	164.00	34.60	1.71	2.38	97.70	54.80	15.70	4.28	46.20	457.00
	11/16/04	<1.00	160.00	160.00	39.00	2.17	2.81	100.00	65.20	16.80	5.14	54.30	454.00
	05/17/05	4.00	158.00	162.00	43.10	1.87	2.82	94.60	68.40	16.90	6.45	44.00	429.00
	11/17/05	<10.00	161.00	161.00	58.10	1.50	2.10	91.3 D1	75.00	17.70	4.55	64.70	700 N
	05/09/06	<10.00	180.00	180.00	37.00	1.80	1.70	100.00	54.10	16.20	3.26	46.90	456.00
	11/14/06	<10.00	170.00	170.00	34.00	1.80	1.80	110.00	58.00	18.20	4.13	53.40	532.00
	05/30/07	<10.00	142.00	142.00	36.00	1.90	1.79	120.00	54.00	16.70	<5.00	50.80	456.00
	11/14/07	<10.00	189.00	189.00	42.30	1.98	1.54	95.6 D1	57.20	17.40	<5.000	52.40	452.00
	05/15/08	<1.53	177.00	177.00	72.4 D1	1.86	1.71	141.00	58.00	19.40	4.93	66.5 D1	544.00
	11/04/08	<5.00	170.00	170.00	49.00	1.50	1.30	90.00	60.00	16.00	3.60	47.00	440.00

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000	
Dup	05/20/09	<5.00	360.00	360.00	40.00	2.20	1.70	130.00	51.00	17.00	4.50	53.00	450.00	
	11/04/09	<5.00	150.00	150.00	43.00	1.60	1.60	100.00	52.00	15.00	2.90	42.00	470.00	
	05/07/10	<5.00	<5.00	167.00	36.50	1.97	1.78	117.00	49.70	14.90	3.42	44.70	494.00	
	11/09/10	<5.00	269.00	269.00	52.50	1.45	1.79	95.40	61.00	16.70	3.56	50.00	438.00	
	05/11/11	<5.00	161.00	161.00	133.00	1.43	2.08	140.00	78.10	37.00	6.32	103.00	664.00	
	05/11/11	<5.00	161.00	161.00	130.00	1.44	2.01	137.00	77.40	37.00	6.29	104.00	706.00	
	11/10/11	<5.00	162.00	162.00	38.80	1.86	1.49	97.10	66.20	17.90	3.62	52.30	420.00	
	05/17/12	<5.00	176.00	176.00	45.80	1.29	1.62	88.50	63.60	16.30	3.66	53.40	456.00	
	10/11/12	<5.00	166.00	166.00	44.60	1.49	1.74	95.10	55.80	15.80	3.80	49.30	440.00	
	05/17/13	<5.00	171.00	171.00	43.60	1.87	1.67	106.00	57.70	14.80	3.18	42.90	428.00	
10/08/13	<6.00	178.00	178.00	45.20	1.55	1.74	95.50	60.90	16.10	3.33	52.00	450.00		
05/01/14	<10.00	173.00	173.00	63.30	<0.10	2.06	93.30	64.40	17.60	3.38	51.50	434.00		
10/07/14	<4.00	176.00	176.00	34.70	1.10	1.71	101.00	59.20	16.70	3.06	46.50	399.00		
05/22/15	--	--	--	40.40	<4.00	--	87.20	--	--	--	--	--	428.00	
10/20/15	--	--	--	37.60	<2.00	--	89.30	--	--	--	--	--	356.00	
05/25/16	--	--	--	34.30	1.87	--	103.00	--	--	--	--	--	475.00	
10/18/16	--	--	--	39.30	0.87	--	96.40	--	--	--	--	--	418.00	
05/11/17	--	--	--	35.10	<0.11	--	110.00	--	--	--	--	--	416.00	
10/24/17	--	--	--	35.10	1.87	--	95.30	--	--	--	--	--	438.00	
05/22/18	--	--	--	34.60	1.58	--	110.00	--	--	--	--	--	421.00	
05/22/18	--	--	--	34.50	1.64	--	110.00	--	--	--	--	--	415.00	
10/18/18	--	--	--	36.90	1.69	--	114.00	--	--	--	--	--	413.00	
06/20/19	--	--	--	34.40	--	--	--	--	--	--	--	--	407.00	
04/20/20	--	--	--	29.00	--	--	--	--	--	--	--	--	394.00	
06/25/21	--	--	--	37.30	--	--	--	--	--	--	--	--	431.00	
12/06/21	--	--	--	--	--	--	--	--	--	--	--	--	--	
08/24/22	--	--	--	35.70	--	--	--	--	--	--	--	--	410.00	
07/21/23	--	--	--	35.0	--	--	--	--	--	--	--	--	410 B	
11/13/23	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-12*	05/15/02	<1.00	160.00	160.00	58.30	1.09	2.44	91.30	53.50	15.90	5.52	50.30	462.00	
	10/23/02	--	--	--	65.00	--	--	102.00	--	--	--	--	477.00	
	05/22/03	<1.00	148.00	148.00	91.10	1.04	2.30	87.70	74.20	21.00	4.89	57.60	516.00	
	11/25/03	<1.00	142.00	142.00	93.10	1.18	2.36	90.90	74.70	20.90	5.41	52.50	548.00	
	05/12/04	<1.00	458.00	458.00	72.90	1.04	2.35	86.70	58.10	19.00	5.92	51.80	489.00	
	11/15/04	<1.00	184.00	184.00	79.80	1.39	2.83	88.80	59.70	21.50	16.50	77.40	512.00	
	11/17/05	<10.00	151.00	151.00	109.00	0.93	0.12	94.6 D1	193.00	26.60	13.40	87.50	700.00	
	11/16/06	<10.00	270.00	270.00	120.00	0.71	1.70	84.00	82.30	27.00	4.82	62.20	620.00	
	11/16/07	<10.00	170.00	170.00	258.00	1.21	1.55	191 D1	77.20	42.70	11.00	154.00	1,270.00	
	11/06/08	<5.00	130.00	130.00	110.00	0.89	1.40	79.00	61.00	20.00	4.50	52.00	460.00	
	11/03/09	<25.00	2,000.00	2,000.00	120.00	0.87	1.60	98.00	68.00	24.00	6.00	79.00	600.00	
	11/09/10	<5.00	144.00	144.00	211.00	0.57	1.76	89.80	75.60	27.80	4.60	60.60	712.00	
	11/10/11	<5.00	134.00	134.00	179.00	0.46	1.37	92.80	93.80	27.80	4.53	64.00	594.00	
	10/11/12	<5.00	145.00	145.00	179.00	0.71	0.79	86.50	80.40	25.40	5.44	62.90	724.00	
	10/08/13	<6.00	160.00	160.00	246.00	0.62	1.64	84.50	110.00	30.40	4.92	67.80	944.00	
	10/07/14	<4.00	145.00	145.00	200.00	0.29	1.70	86.80	93.10	29.30	5.06	65.00	765.00	
	10/21/15	--	--	--	165.00	<4.00	--	72.60	--	--	--	--	--	487.00
	10/18/16	--	--	--	270.00	<0.50	--	95.00	--	--	--	--	--	888.00
	10/24/17	--	--	--	150.00	<0.50	--	64.90	--	--	--	--	--	579.00
	10/24/17	--	--	--	149.00	<0.50	--	64.80	--	--	--	--	--	565.00
	10/18/18	--	--	--	290.00	0.74	--	106.00	--	--	--	--	--	790.00
	06/20/19	--	--	--	254.00	--	--	--	--	--	--	--	--	580.00
	04/20/20	--	--	--	245.00	--	--	--	--	--	--	--	--	902.00
	10/12/20	--	--	--	254.00	--	--	--	--	--	--	--	--	732.00
	06/25/21	--	--	--	461.00	--	--	--	--	--	--	--	--	984.00
	12/06/21	--	--	--	361.00	--	--	--	--	--	--	--	--	1,130.00
	08/24/22	--	--	--	489	--	--	--	--	--	--	--	--	1,040
12/21/22	--	--	--	482	--	--	--	--	--	--	--	--	1,280	
07/21/23	--	--	--	469	--	--	--	--	--	--	--	--	1,300	
11/13/23	--	--	--	447	--	--	--	--	--	--	--	--	1,470	
MW-13*	05/13/02	<1.00	100.00	100.00	517.00	<1.00	1.61	437.00	116.00	76.00	19.40	269.00	1,596.00	
	10/23/02	--	--	--	549.00	--	--	370.00	--	--	--	--	1,740.00	
	05/22/03	<1.00	186.00	186.00	944.00	<2.00	2.33	361.00	289.00	101.00	15.30	458.00	3,060.00	
	11/25/03	<1.00	226.00	226.00	1,460.00	<2.00	2.22	372.00	369.00	117.00	20.00	478.00	3,445.00	
	05/12/04	<1.00	234.00	234.00	1,550.00	<4.00	4.58	369.00	384.00	114.00	18.60	485.00	4,240.00	
	11/15/04	<1.00	226.00	226.00	1,870.00	<2.00	4.92	384.00	510.00	164.00	16.50	627.00	3,600.00	
	11/17/05	<10.00	201.00	201.00	722.00	1.00	2.50	206 D1	786.00	91.60	19.70	276.00	2,350.00	
	11/16/06	<10.00	1,500.00	1,500.00	2,000.00	<0.50 N	2.70	500 N	529.00	176.00	14.20	493.00	5,060.00	
	11/16/07	<10.00	236.00	236.00	2,000.00	0.33	3.05 D1	312 D1	361.00	105.00	11.40	553 D1	6,320.00	
	11/06/08	<5.00	180.00	180.00	970.00	0.98	1.80	280.00	240.00	96.00	17.00	370.00	2,400.00	
	11/03/09	<25.00	15,000.00	15,000.00	2,200.00	<0.50	2.60	440.00	490.00	180.00	22.00	490.00	5,600.00	
	11/09/10	<5.00	267.00	267.00	1,680.00	0.22	2.82	405.00	400.00	120.00	10.40	540.00	4,270.00	
	11/10/11	<5.00	206.00	206.00	2,110.00	0.18	<0.50	273.00	690.00	223.00	13.20	472.00	4,870.00	

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹
NMWQCC Groundwater Standard													
	10/11/12	<5.00	204.00	204.00	2,360.00	0.31	2.70	422.00	706.00	228.00	14.40	423.00	6,290.00
	10/08/13	<6.00	1,780.00	1,780.00	2,710.00	0.30	2.59	448.00	768.00	225.00	14.00	457.00	7,320.00
	10/07/14	<4.00	267.00	267.00	1,430.00	<0.10	1.91	379.00	355.00	109.00	11.30	612.00	3,940.00
	10/21/15	--	--	--	1,400.00	<40.0	--	353.00	--	--	--	--	3,260.00
	10/18/16	--	--	--	1,940.00	<0.50	--	440.00	--	--	--	--	5,310.00
Well Plugged and Abandoned on 7/11/2017													
MW-14	10/08/13	<6.00	267.00	267.00	162.00	3.69	<0.10	127.00	74.40	32.30	8.42	145.00	854.00
Dup	10/08/13	<6.00	271.00	271.00	166.00	3.74	<0.10	130.00	60.70	26.30	7.97	145.00	848.00
	05/01/14	<10.00	199.00	199.00	64.00	1.19 J	<0.10	84.90	60.80	21.70	3.82	59.80	468.00
	10/07/14	<4.00	227.00	2,227.00	95.20	0.79	<0.023	22.90	71.30	24.90	3.99	61.80	460.00
Dup	10/07/14	<4.00	194.00	194.00	55.70	1.36	<0.023	88.80	59.30	19.10	3.21	49.50	490.00
	05/22/15	--	--	--	77.80	<4.00	--	45.40	--	--	--	--	468.00
Dup	05/22/15	--	--	--	77.40	<4.00	--	49.00	--	--	--	--	470.00
	10/20/15	--	--	--	29.1 J	<2.00	--	53.5 J	--	--	--	--	294.00
Dup	10/21/15	--	--	--	58.9 J	<2.00	--	101 J	--	--	--	--	407.00
	05/25/16	--	--	--	79.00	1.37	--	19.90	--	--	--	--	552.00
	10/18/16	--	--	--	51.80	1.07	--	104.00	--	--	--	--	422.00
Dup	10/18/16	--	--	--	61.20	1.25	--	108 J	--	--	--	--	459.00
	05/11/17	--	--	--	70.50	<0.11	--	17.70	--	--	--	--	412.00
	10/24/17	--	--	--	57.40	1.77	--	42.20	--	--	--	--	423.00
	05/22/18	--	--	--	54.90	1.20	--	47.80	--	--	--	--	390.00
	10/18/18	--	--	--	57.20	1.35	--	47.20	--	--	--	--	401.00
	06/20/19	--	--	--	42.10	--	--	--	--	--	--	--	481.00
	11/24/19	--	--	--	37.10	--	--	94.50	--	--	--	--	328.00
	04/20/20	--	--	--	46.00	--	--	--	--	--	--	--	400.00
	06/25/21	--	--	--	42.30	--	--	--	--	--	--	--	429.00
	12/06/21	--	--	--	--	--	--	--	--	--	--	--	--
	08/23/22	--	--	--	48.00	--	--	--	--	--	--	--	1,090.00
	07/20/23	--	--	--	57.5	--	--	--	--	--	--	--	471
	11/13/23	--	--	--	--	--	--	--	--	--	--	--	--
RW-1	05/27/99	0.00	224.00	224.00	8,700.00	2.70	7.00	840.00	679.00	521.00	34.00	3,290.00	14,000.00
	05/22/03	<1.00	190.00	190.00	2,410.00	2.46	4.23	345.00	162.00	145.00	25.40	1,180.00	5,260.00
	11/26/03	<1.00	184.00	184.00	1,990.00	<4.00	20.00	324.00	199.00	147.00	38.60	1,080.00	5,050.00
	05/11/04	<1.00	148.00	148.00	491.00	1.32	2.65	109.00	66.30	23.40	11.20	252.00	1,224.00
	11/17/04	<1.00	160.00	160.00	633.00	1.65	3.23	121.00	89.70	43.50	18.00	382.00	1,314.00
	11/17/05	<10.00	221.00	221.00	895.00	1.00	1.40	166 D1	122.00	70.90	8.40	493.00	2,380.00
	11/16/06	<10.00	380.00	380.00	11,000.00	<0.50	<20.00 HC	1,100.00	539.00	694.00	43.30	5,580.00	22,000.00
Dup	11/15/07	<10.00	359.00	359.00	2,380.00	1.26	3.74 D1	252 D1	141.00	137.00	16.00	1,100 D1	5,280.00
	11/15/07	<10.00	208.00	208.00	2,620.00	1.24	3.85 D1	316 D1	136.00	133.00	15.50	1,040 D1	5,360.00
	11/12/08	<5.00	210.00	210.00	370.00	0.82	1.90	97.00	66.00	34.00	5.00	190.00	920.00
	11/04/09	<5.00	170.00	170.00	1,700.00	1.10	2.60	250.00	110.00	120.00	22.00	750.00	3,800.00
	11/11/10	<5.00	192.00	192.00	1,340.00	0.72	2.72	204.00	95.50	104.00	12.60	792.00	2,830.00
	11/10/11	<5.00	396.00	396.00	14,000.00	3.32	9.16	1,540.00	942.00	1,260.00	44.60	8,720.00	32,200.00
Dup	10/11/12	<5.00	263.00	263.00	6,530.00	2.19	4.75	625.00	314.00	445.00	28.00	3,490.00	10,100.00
	10/11/12	<5.00	286.00	286.00	2,440.00	0.31	1.23	194.00	128.00	156.00	18.60	1,260.00	17,000**
Dup	10/08/13	<6.00	285.00	285.00	6,050.00	0.95	4.29	546.00	760.00	919.00	39.00	6,370.00	11,200.00
Dup	10/08/13	<6.00	216.00	216.00	10,500.00	1.27	5.98	926.00	490.00	581.00	31.40	4,170.00	1870**
	10/07/14	<4.00	207.00	207.00	2,240.00	1.36	3.62	338.00	69.60	106.00	24.00	1,130.00	2,760.00
Dup	10/07/14	<4.00	192.00	192.00	2,570.00	2.51	3.70	363.00	82.30	125.00	26.80	1,350.00	1970**
Dup	10/21/15	--	--	--	9,110.00	<80.00	--	953 J	--	--	--	--	15,300.00
	10/20/15	--	--	--	10,200.00	<200.00	--	1,120 J	--	--	--	--	21,600.00
	12/15/15	--	--	--	1,130.00	--	--	--	--	--	--	--	2,290.00
	12/16/15	--	--	--	1,190.00	--	--	--	--	--	--	--	2,580.00
	12/17/15	--	--	--	1,030.00	--	--	--	--	--	--	--	2,260.00
	12/18/15	--	--	--	988.00	--	--	--	--	--	--	--	2,350.00
	01/04/16	--	--	--	1,200.00	--	--	--	--	--	--	--	2,280.00
	01/05/16	--	--	--	1,080.00	--	--	--	--	--	--	--	2,190.00
	01/06/16	--	--	--	1,120.00	--	--	--	--	--	--	--	2,240.00
	01/07/16	--	--	--	1,080.00	--	--	--	--	--	--	--	2,200.00
	01/08/16	--	--	--	1,310.00	--	--	--	--	--	--	--	2,370.00
	01/11/16	--	--	--	1,030.00	--	--	--	--	--	--	--	2,210.00
	01/12/16	--	--	--	1,520.00	--	--	--	--	--	--	--	2,850.00
Dup	10/18/16	--	--	--	277.00	<0.50	--	87.50	--	--	--	--	715.00
	10/18/16	--	--	--	316.00	<0.50	--	88.9 J	--	--	--	--	922.00
	10/25/17	--	--	--	254.00	1.02	--	75.50	--	--	--	--	2,040.00
	10/16/18***	--	--	--	304.00	0.61	--	93.40	--	--	--	--	757.00
Dup	10/18/18	--	--	--	7,870.00	<0.10	--	807.00	--	--	--	--	15,400.00
	10/18/18	--	--	--	7,830.00	<0.10	--	873.00	--	--	--	--	12,700.00
Dup	06/20/19	--	--	--	9,290.00	--	--	--	--	--	--	--	22,100.00
Dup	06/20/19	--	--	--	9,200.00	--	--	--	--	--	--	--	22,800.00
	04/20/20	--	--	--	9,640.00	--	--	--	--	--	--	--	12,700.00
	10/12/20	--	--	--	8,470.00	--	--	--	--	--	--	--	14,900.00

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000	
Dup	06/25/21	--	--	--	7,370.00	--	--	--	--	--	--	--	13,500.00	
	12/06/21	--	--	--	7,440.00	--	--	--	--	--	--	--	9,490.00	
	08/23/22	--	--	--	8,180	--	--	--	--	--	--	--	6,920	
	12/21/22	--	--	--	5,070	--	--	--	--	--	--	--	3,940	
	07/20/23	--	--	--	3,440	--	--	--	--	--	--	--	2,790	
	07/20/23	--	--	--	4,340	--	--	--	--	--	--	--	3,190	
	11/13/23	--	--	--	2,160	--	--	--	--	--	--	--	6,540	
Dup	11/13/23	--	--	--	1,810	--	--	--	--	--	--	--	3,530	
RW-2	05/22/03	324.00	<4.00	780.00	1,580.00	<2.00	2.43	23.90	1,060.00	<0.500	20.20	258.00	4,310.00	
	11/26/03	64.00	<4.00	704.00	1,480.00	<5.00	5.81	38.30	988.00	<0.500	23.80	240.00	3,535.00	
	11/17/04	104.00	<4.00	692.00	2,280.00	<10.00	<10.00	116.00	1,180.00	<0.500	18.50	415.00	3,915.00	
	11/17/05	281.00	<10.00	422.00	1,770.00	0.89	0.60	175 D1	861.00	16.60	13.10	361.00	7,350.00	
	11/16/06	49.00	150.00	199.00	2,500.00	0.57	1.90	370.00	978.00	48.80	18.00	437.00	5,270.00	
	11/15/07	170.00	37.80	208.00	1,680.00	0.49	1.52	166 D1	586.00	<5.000	11.20	245.00	5,590.00	
	11/12/08	150.00	<5.00	390.00	2,500.00	<0.50	0.24	250.00	1,200.00	<0.38	6.00	400.00	4,800.00	
	11/04/09	34.00	<5.00	220.00	2,200.00	<0.50	1.70	240.00	940.00	0.18	16.00	420.00	6,300.00	
	11/11/10	113.00	<5.00	172.00	2,100.00	<0.50	2.03	233.00	967.00	4.06	8.86	426.00	4,550.00	
	11/10/11	36.90	<5.00	384.00	4,330.00	<10.00	2.13	305.00	2,040.00	1.12	18.70	711.00	8,300.00	
	10/11/12	27.10	<5.00	202.00	1,920.00	<0.50	1.93	223.00	842.00	0.46	9.30	385.00	6,680.00	
	10/11/12	31.90	<5.00	206.00	2,310.00	<0.50	1.98	228.00	1,090.00	2.42	10.50	430.00	5,250.00	
	10/08/13	66.30	<6.00	117.00	2,450.00	0.14	2.36	309.00	1,570.00	2.15	15.30	639.00	4,420.00	
	10/07/14	35.20	<4.00	35.20	2,250.00	<0.10	2.52	378.00	995.00	21.60	10.30	408.00	3,090.00	
	10/20/15	--	--	--	699.00	<20.00	--	--	118.00	--	--	--	--	2,190.00
	12/15/15	--	--	--	1,130.00	--	--	--	--	--	--	--	--	2,290.00
	12/16/15	--	--	--	1,190.00	--	--	--	--	--	--	--	--	2,580.00
	12/17/15	--	--	--	1,030.00	--	--	--	--	--	--	--	--	2,260.00
	12/18/15	--	--	--	988.00	--	--	--	--	--	--	--	--	2,350.00
	01/04/16	--	--	--	1,200.00	--	--	--	--	--	--	--	--	2,280.00
	01/05/16	--	--	--	1,080.00	--	--	--	--	--	--	--	--	2,190.00
	01/06/16	--	--	--	1,120.00	--	--	--	--	--	--	--	--	2,240.00
	01/07/16	--	--	--	1,080.00	--	--	--	--	--	--	--	--	2,200.00
	01/08/16	--	--	--	1,310.00	--	--	--	--	--	--	--	--	2,370.00
	01/11/16	--	--	--	1,030.00	--	--	--	--	--	--	--	--	2,210.00
	01/12/16	--	--	--	1,520.00	--	--	--	--	--	--	--	--	2,850.00
	10/18/16	--	--	--	1,450.00	<0.50	--	--	270.00	--	--	--	--	3,910.00
	10/25/17	--	--	--	1,760.00	<5.00	--	--	288.00	--	--	--	--	4,440.00
	10/18/18	--	--	--	3,640.00	<0.10	--	--	534.00	--	--	--	--	6,890.00
	06/20/19	--	--	--	3,180.00	--	--	--	--	--	--	--	--	10,200 H
	04/20/20	--	--	--	3,610.00	--	--	--	--	--	--	--	--	7,890.00
	10/12/20	--	--	--	3,070.00	--	--	--	--	--	--	--	--	5,140.00
	10/12/20	--	--	--	2,990.00	--	--	--	--	--	--	--	--	5,460.00
Dup	06/25/21	--	--	--	1,150.00	--	--	--	--	--	--	--	2,270.00	
Dup	06/25/21	--	--	--	1,690.00	--	--	--	--	--	--	--	3,340.00	
Dup	12/07/21	--	--	--	582.00	--	--	--	--	--	--	--	1,040.00	
Dup	12/07/21	--	--	--	567.00	--	--	--	--	--	--	--	1,250.00	
Dup	08/23/22	--	--	--	948	--	--	--	--	--	--	--	2,390	
Dup	08/23/22	--	--	--	1,390	--	--	--	--	--	--	--	3,860	
Dup	12/21/22	--	--	--	232	--	--	--	--	--	--	--	824 J3	
Dup	07/20/23	--	--	--	2,910	--	--	--	--	--	--	--	4,950	
Dup	07/20/23	--	--	--	2,840	--	--	--	--	--	--	--	4,310	
Dup	11/14/23	--	--	--	890	--	--	--	--	--	--	--	2,640	
RW-2R	10/08/13	<6.00	146.00	146.00	6,550.00	0.45	1.79	762.00	1,850.00	616.00	25.50	1,350.00	14,600.00	
	10/07/14	<4.00	169.00	169.00	5,400.00	1.56	2.17	707.00	1,280.00	470.00	20.90	1,170.00	13,200.00	
	10/20/15	--	--	--	5,990.00	<80.00	--	806.00	--	--	--	--	16,200.00	
	10/18/16	--	--	--	6,390.00	<0.50	--	797.00	--	--	--	--	15,200.00	
	10/25/17	--	--	--	7,030.00	<5.00	--	872.00	--	--	--	--	12,300.00	
	10/16/18***	--	--	--	1,960.00	<0.10	--	467.00	--	--	--	--	3,380.00	
	10/18/18	--	--	--	7,920.00	<0.10	--	891.00	--	--	--	--	13,700.00	
	10/18/18	--	--	--	8,060.00	<0.10	--	815.00	--	--	--	--	13,300.00	
	06/20/19	--	--	--	7,860.00	--	--	--	--	--	--	--	29,400.00	
	04/20/20	--	--	--	9,210.00	--	--	--	--	--	--	--	21,500.00	
	10/12/20	--	--	--	7,860.00	--	--	--	--	--	--	--	13,800.00	
	06/25/21	--	--	--	7,250.00	--	--	--	--	--	--	--	12,400.00	
	12/07/21	--	--	--	7,400.00	--	--	--	--	--	--	--	6,330.00	
	08/23/22	--	--	--	8,070	--	--	--	--	--	--	--	10,100	
	12/21/22	--	--	--	7,480	--	--	--	--	--	--	--	14,600	
	07/20/23	--	--	--	8,290	--	--	--	904	--	--	--	17,100	
	11/14/23	--	--	--	8,300	--	--	--	--	--	--	--	13,500	

Table 3
Cumulative Summary of Groundwater Analytical Results
Cooper-Jal Unit Injection Station
Lea County, New Mexico



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹
NMWQCC Groundwater Standard					250	1.60	10	600.00					1,000

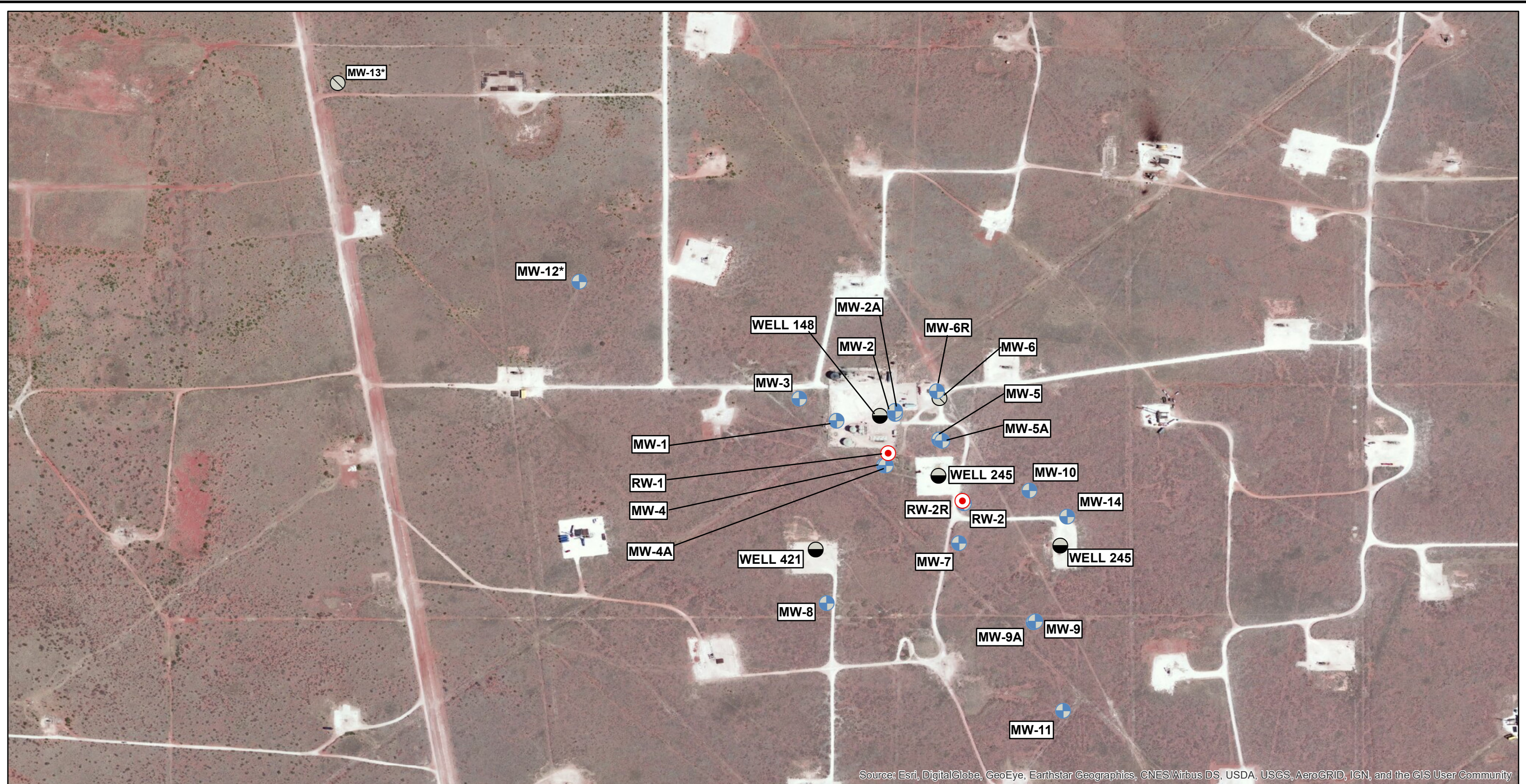
Notes:

1. Bold and Italics value indicates a laboratory detection and New Mexico Water Quality Control Commission (NMWQCC) exceedance.
2. Results shown in mg/L.
3. NS - Not Sampled.
4. D1 - The analysis was performed at a dilution due to the high analyte concentration.
5. B- The same analyte is found in the associated blank.
6. H - The analysis was performed past holding time.
7. C - Elevated detection limit due to matrix effect.
8. J - Estimated Concentration.
9. J3 - The associated batch QC was outside the established quality control range for precision.
10. < - Analyte detected below quantitation limit.
11. ¹ Human Health Standards for Groundwater.
12. ² Other Standards for Domestic Water Supply.
13. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
14. ** - Reported TDS concentration includes a low bias. Not used in trend comparison.
15. *** - Indicates groundwater monitor well that was sampled prior to semiannual groundwater event via low-flow purge for internal use.

FIGURES



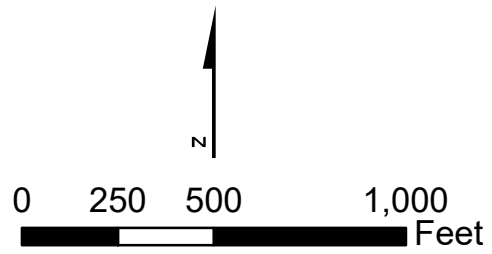
Document Path: \\arcadis-us\office\data\Houston-TX\ENV\Chevron\Texaco-TX\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper-Jal\GIS - Cooper Jal\Figure 2 Site Details Map 01.06.2020



Legend

- Monitoring Well Location
- Recovery Well
- Cooper Jal Oil Well
- Plugged & Abandoned Monitoring Well

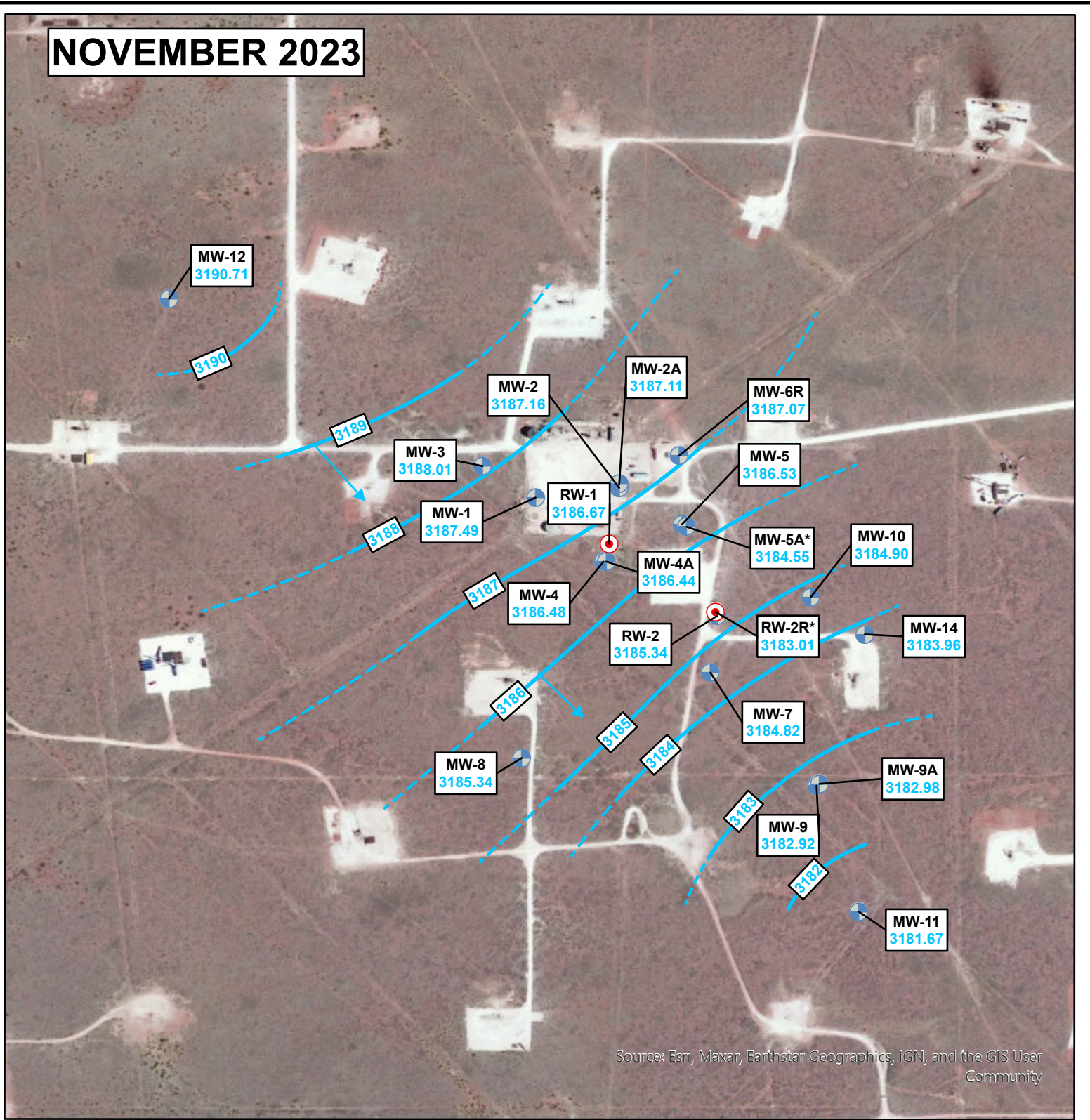
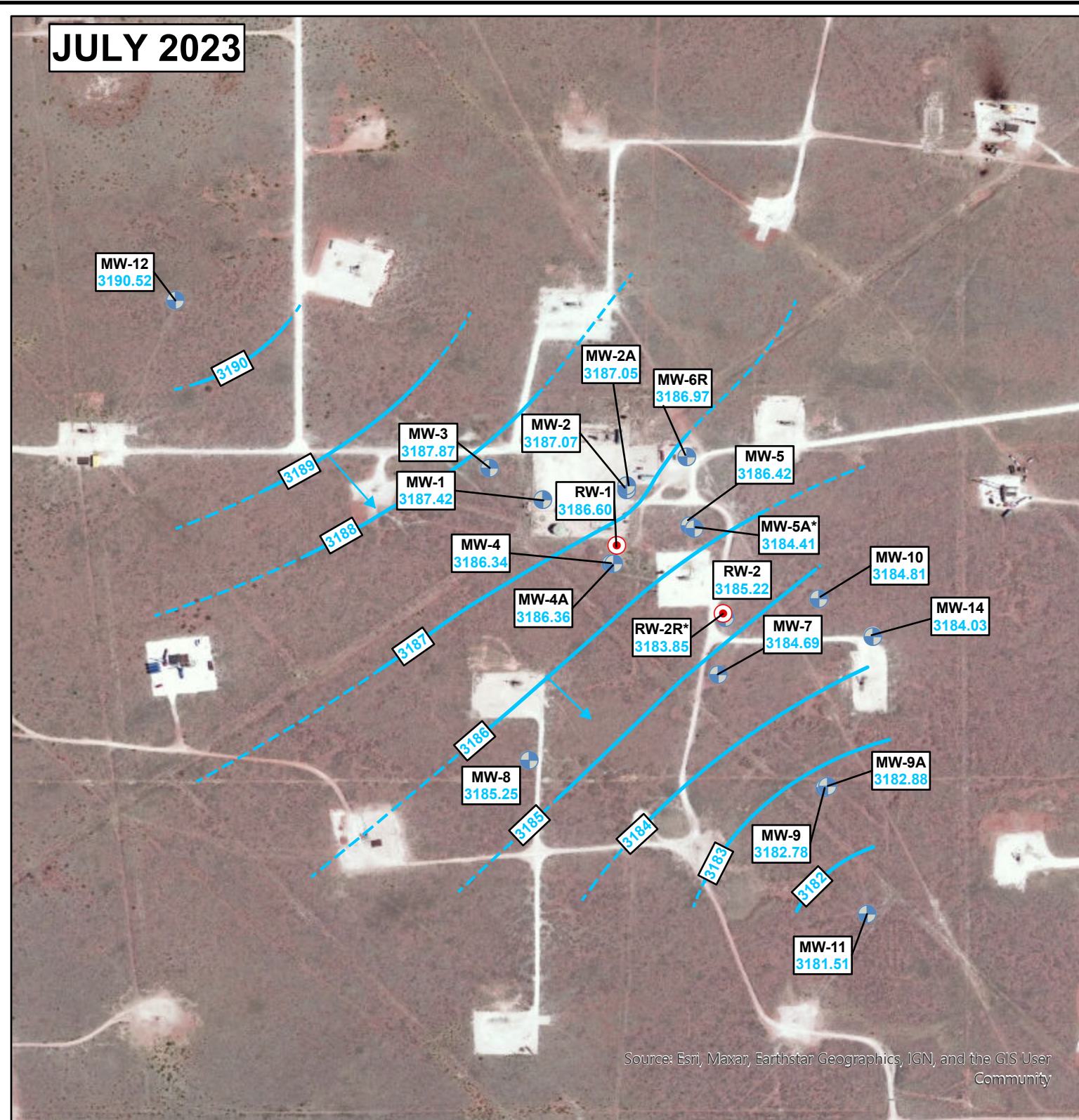
Notes:
 1. Datum: D_WGS_1984
 2. Cooper Jal Oil Wells were not gauged
 2. Site Location: 32.19891, -103.21523



Chevron Environmental Management Company
 Cooper-Jal Unit South Injection Site
 Lea County, New Mexico

SITE DETAILS MAP

ARCADIS | FIGURE 2



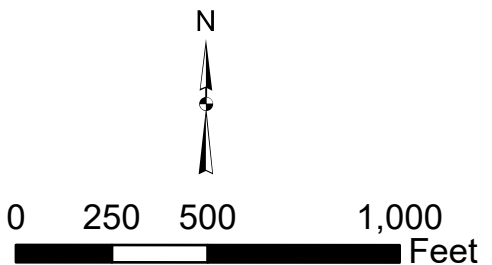
Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

Legend

- Monitoring Well Location
- Recovery Well
- Potentiometric Contour and Elevation (Dashed where Inferred)
- Groundwater Elevation (ft above mean sea level)
- Approximate Groundwater Flow

- Notes:**
1. Datum: D_WGS_1984
 2. Cooper Jal Oil Wells were not gauged
 3. Site Location: 32.19891, -103.21523
 4. MW-12 was installed off-site and upgradient of plume.
 5. * - Groundwater elevation not used for contouring

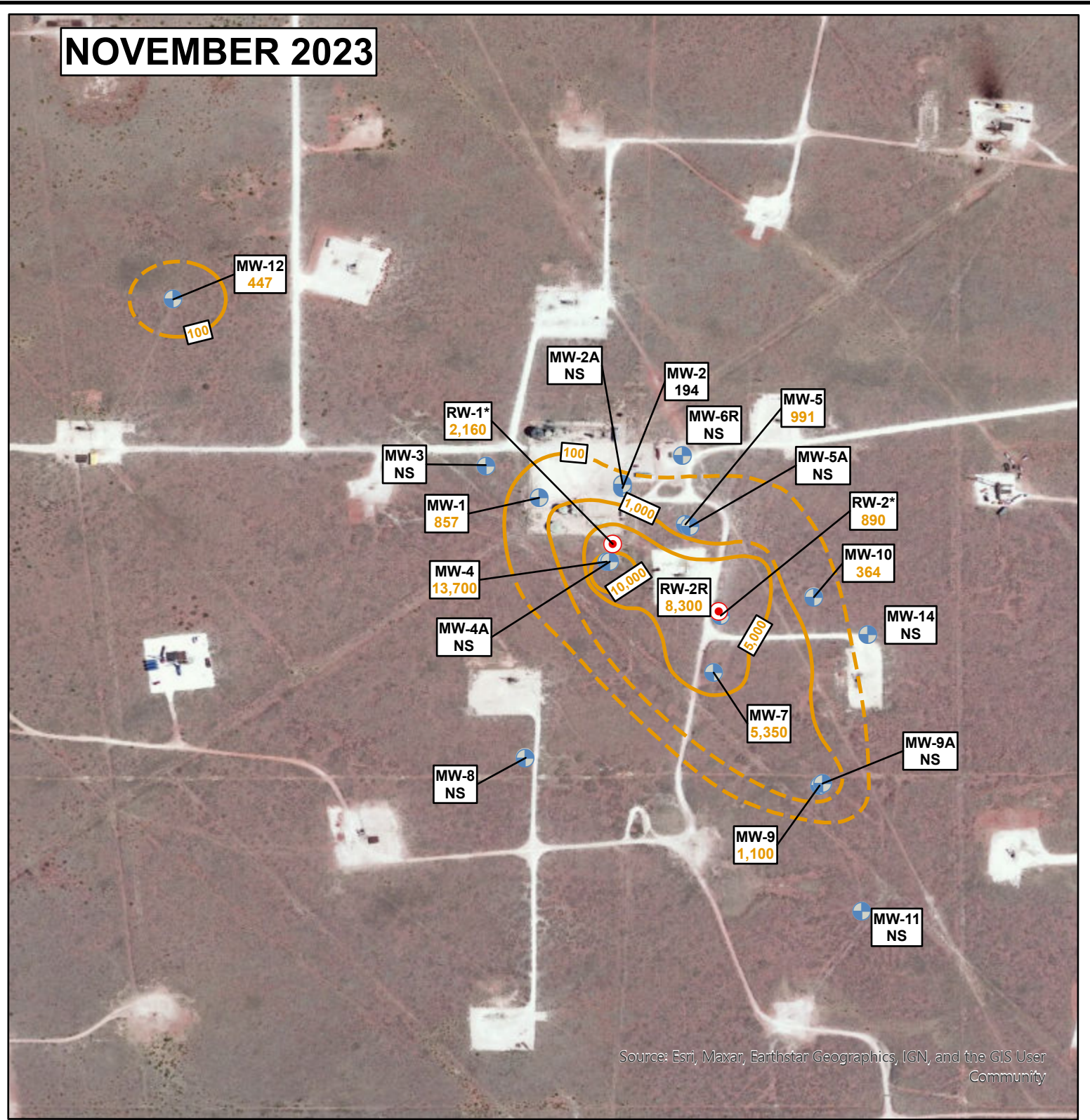
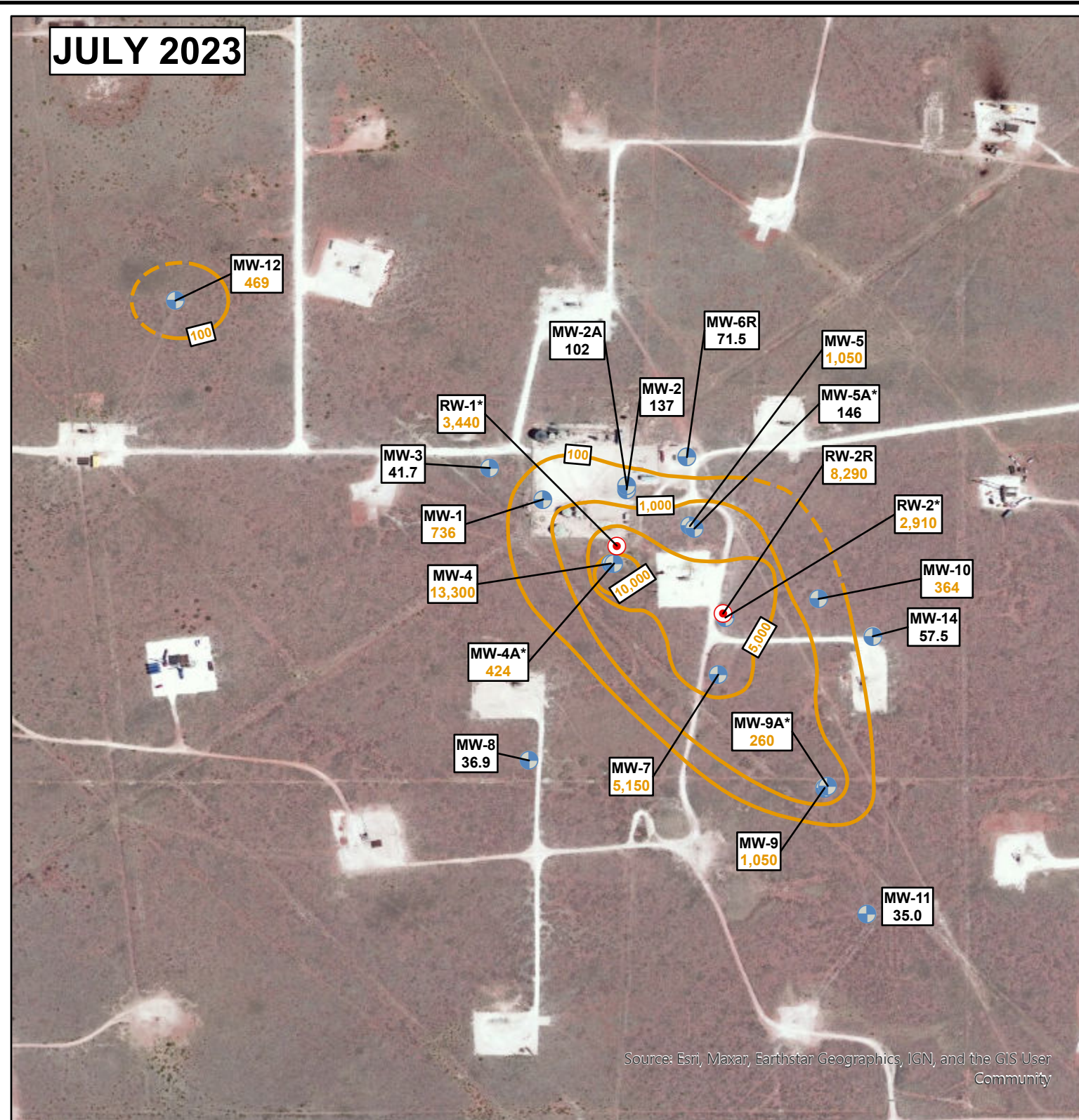


Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

**POTENTIOMETRIC SURFACE MAP
2023**

ARCADIS | FIGURE 3

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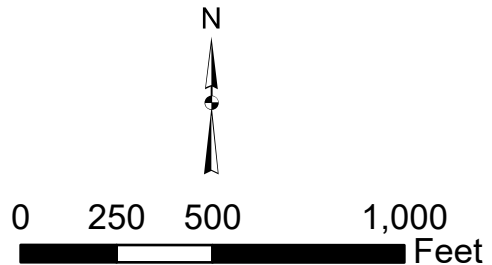
Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

Legend

- Monitoring Well Location
- Recovery Well
- Chloride Isoconcentration Contour (Dashed where Inferred)
- 137** Chloride Concentration in milligrams per liter (mg/L)
- 424** Chloride Concentration (mg/L) Exceeds New Mexico Water Quality Control Commission Other Standards for Domestic Water Supply

- Notes:
1. Datum: D_WGS_1984
 2. Cooper Jal Oil Wells were not gauged
 3. Site Location: 32.19891, -103.21523
 4. MW-12 was installed off-site and upgradient of plume.
 5. *- Groundwater monitoring well not used for contouring
 6. NS = Not Sampled.

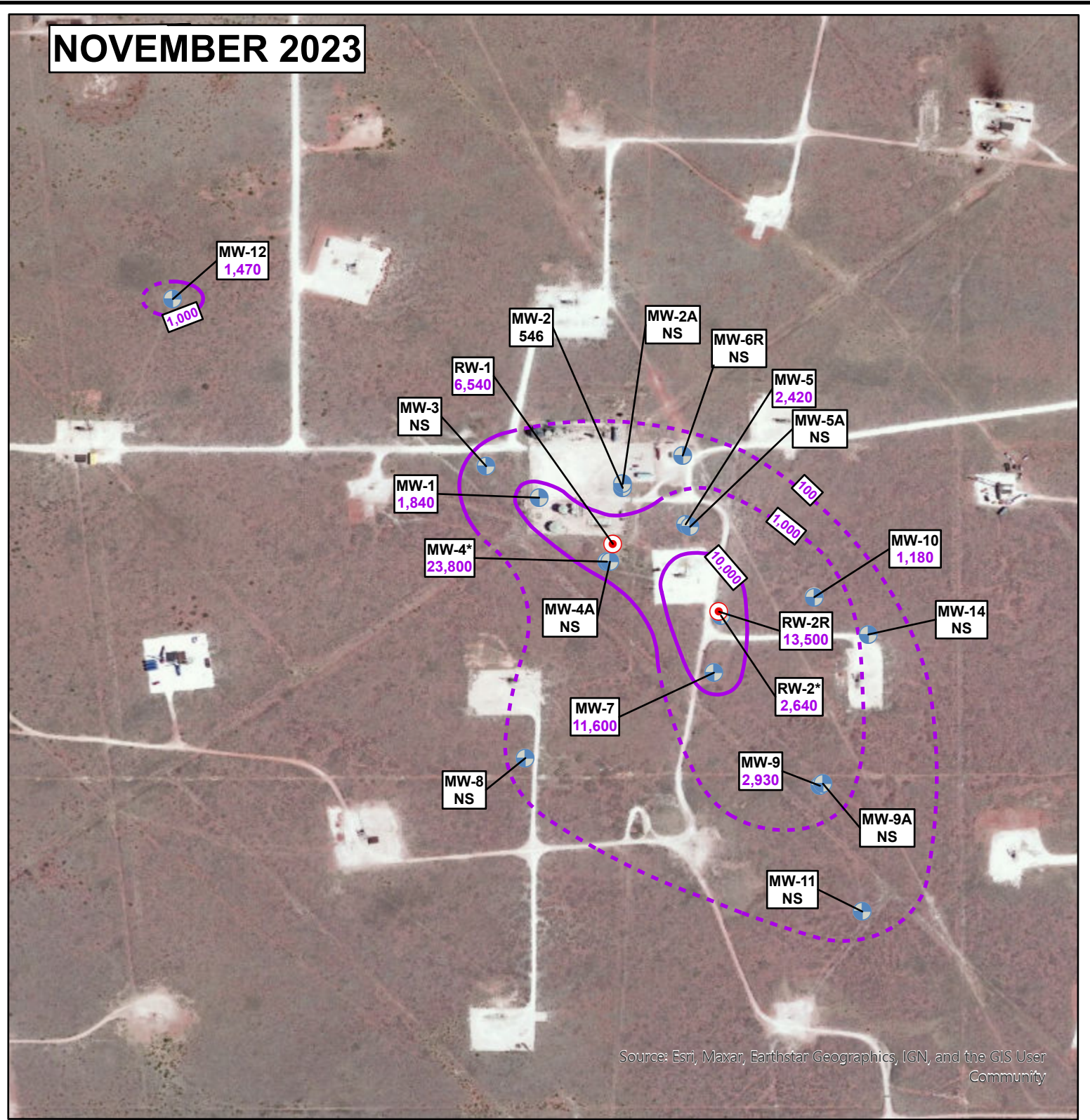
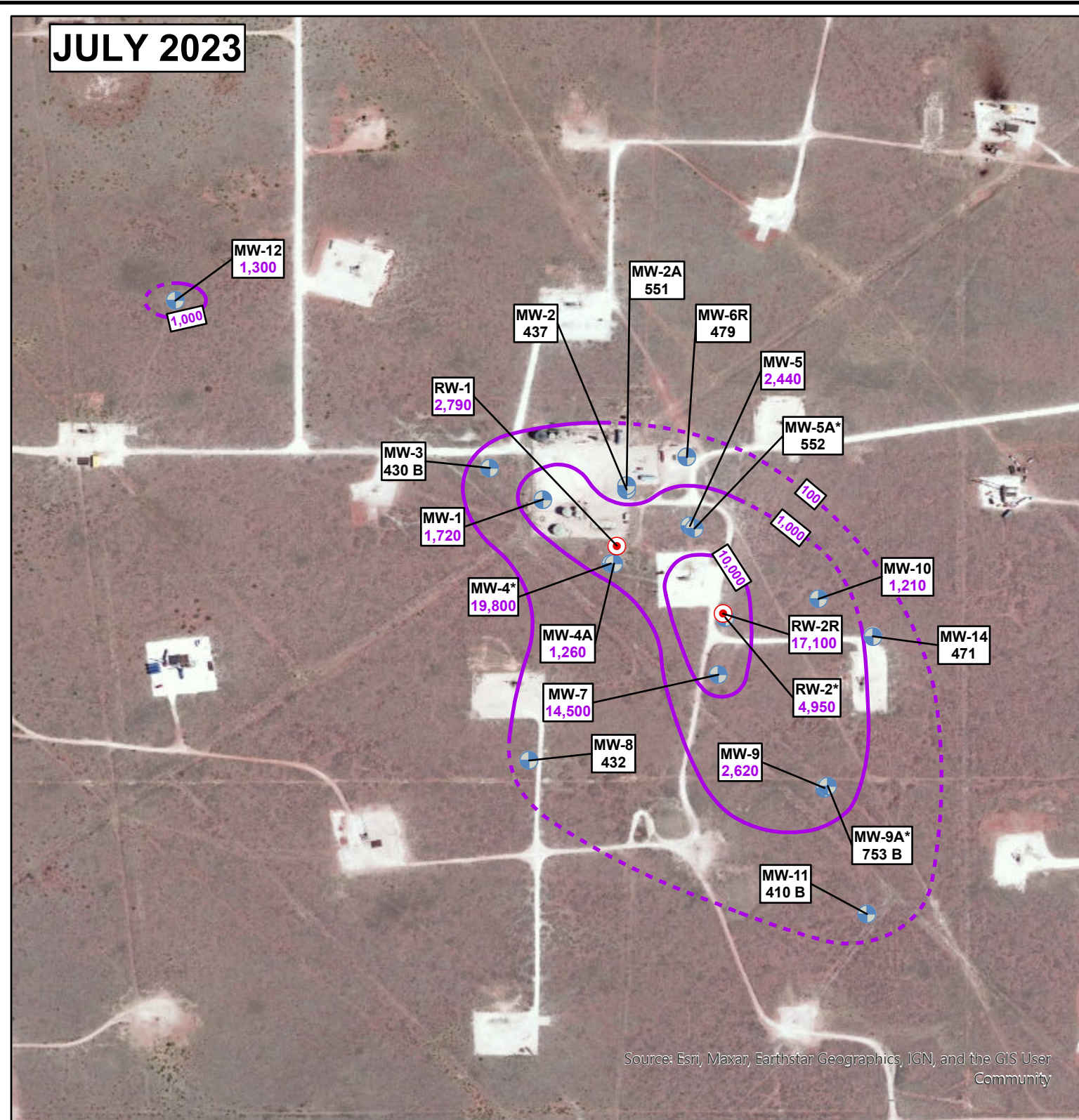


Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

CHLORIDE ISOCONCENTRATION MAP 2023

ARCADIS | FIGURE 4

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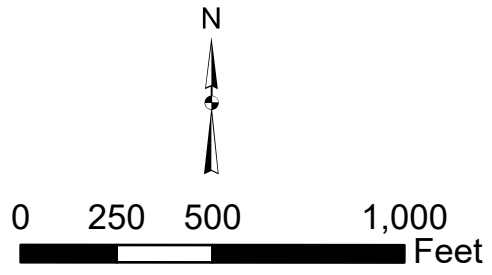
Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

Legend

- Monitoring Well Location
- Recovery Well
- Total Dissolved Solids (TDS) Isoconcentration Contour (Dashed where Inferred)
- 432** TDS Concentration in milligrams per liter (mg/L)
- 2,620** TDS Concentration (mg/L) Exceeds New Mexico Water Quality Control Commission Other Standards for Domestic Water Supply

- Notes:
1. Datum: D_WGS_1984
 2. Cooper Jal Oil Wells were not gauged
 3. Site Location: 32.19891, -103.21523
 4. MW-12 was installed off-site and upgrade of plume.
 5. * - Groundwater monitoring well not used for contouring
 6. NS - Not Sampled.

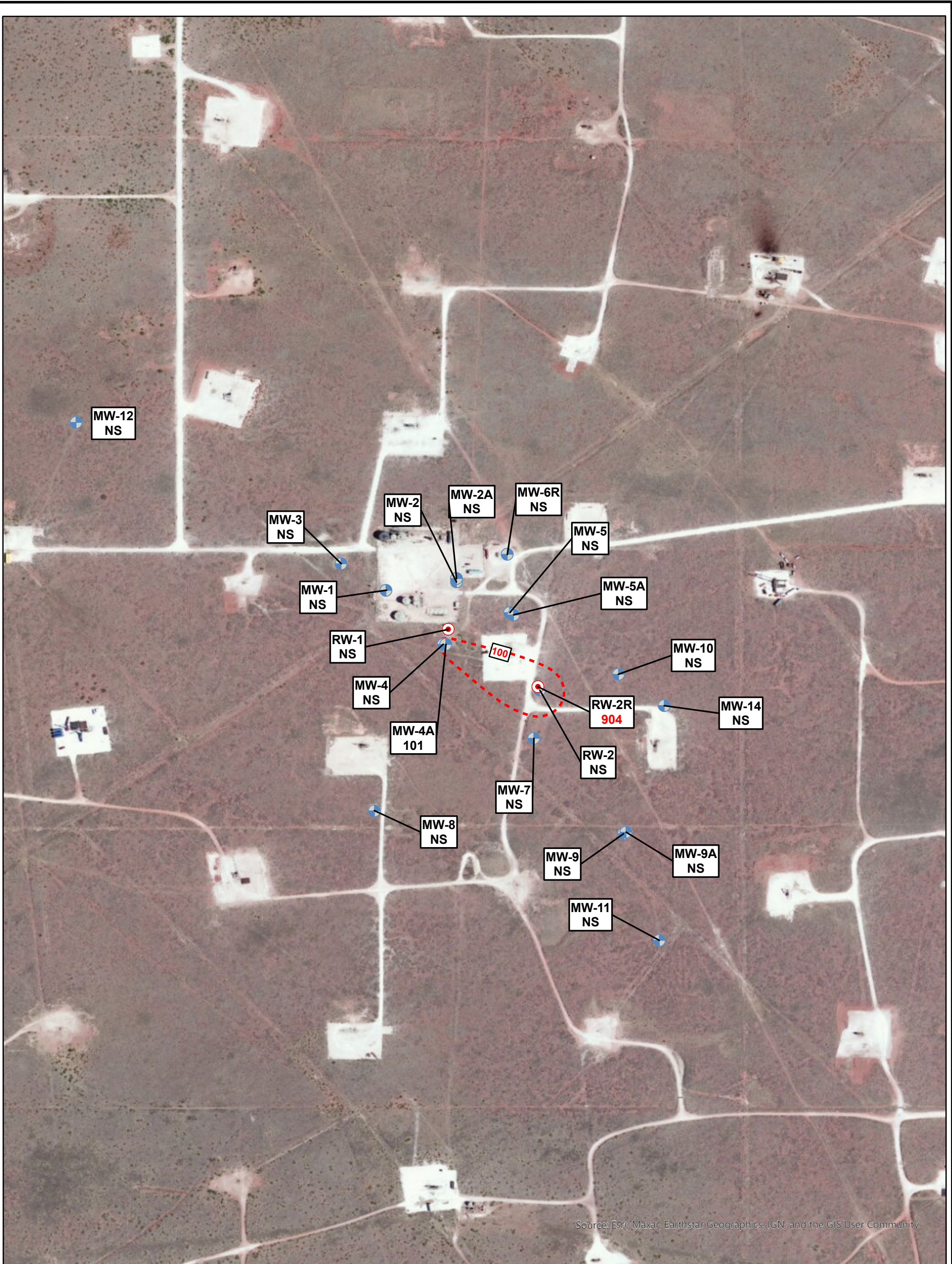


Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

**TDS
ISOCONCENTRATION MAP 2023**

ARCADIS | **FIGURE 5**

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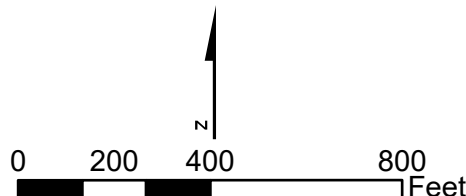


Source: Esri, Maxar, Earthstar Geographics, IGN, and the GIS User Community

Legend

- Monitoring Well Location
- Recovery Well
- Sulfate Isoconcentration Contour (dashed where Inferred)
- 101** Sulfate Concentration in milligrams per liter (mg/L)
- 904** Sulfate Concentration (mg/L) Exceeds NMWQCC Other Standards for Domestic Water Supply

- Notes:
1. Datum: D_WGS_1984
 2. Cooper Jal Oil Wells were not gauged
 2. Site Location: 32.19891, -103.21523
 4. NS = Not Sampled



Chevron Environmental Management Company
 Cooper-Jal Unit South Injection Site
 Lea County, New Mexico

**SULFATE
 ISOCONCENTRATION MAP 2023**



FIGURE
6

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APPENDIX A

2015 Sample Analysis Plan approved on May 19, 2015



Table 4
Groundwater Sampling and Analysis Plan
Cooper Jal
Lea County, NM

Monitoring Well ID	Gauge Depth to Groundwater and Total Depth	Collect	Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300
MW-1				SA	
MW-2				SA	
MW-2A				SA	
MW-3				SA	
MW-4				SA	
MW-4A				SA	
MW-5				SA	
MW-5A				SA	
MW-6R				SA	
MW-7				SA	
MW-8				SA	
MW-9				SA	
MW-9A				SA	
MW-10				SA	
MW-11				SA	
MW-12				SA	
MW-14				SA	
RW-1				SA	
RW-2				SA	
RW-2R				SA	

Notes:

USEPA = United States Environmental Protection Agency

SA= Sample to be collected semi-annually

APPENDIX B

Proposed Groundwater Monitoring Reduction Plan submitted
on July 20, 2020





Mr. Bradford Billings
Project Manager
EMNRD/OCD
5200 Oakland, NE, Suite 100
Albuquerque, NM 87113

Subject:
Proposed Groundwater Monitoring Reduction Workplan
Chevron Environmental Management Company
Cooper-Jal Unit South Injection Station (1R289)
Lea County, New Mexico

ENVIRONMENT

Dear Mr. Billings:

At the request of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) is providing this Workplan to request a reduction of groundwater monitoring frequency on select monitoring wells for the Cooper-Jal Unit South Injection Station (Site).

Date:
July 2, 2020

The Site is located on Lea County Road J7, approximately five and a half miles northwest of Jal, New Mexico, in Section 24, Township 24 South, Range 36 East, Lea County, New Mexico. The latitude and longitude coordinates of the Site are N 32° 12' 7.13" N and 103° 13' 4.36" W.

Contact:
Russell Grant
Phone:
432.217.2064

Groundwater monitoring began at the Site in September 1997. The Site is currently monitored semi-annually from a network of 17 monitoring wells and three 3 recovery wells. No monitoring or recovery wells currently contain light non-aqueous phase liquid (LNAPL). All monitoring wells and the three (3) recovery wells are currently sampled during both semi-annual sampling events. The constituents of concern (COCs) in groundwater include chloride, total dissolved solids (TDS) and sulfate.

Email:
russell.grant@arcadis.com

For additional Site-specific background information please refer to the Arcadis, 2019 Annual Groundwater Monitoring Report, dated March 25, 2020.

PROPOSED REDUCED SAMPLING PLAN

The following Workplan outlines the specifics of the proposed reduced sampling plan for select monitoring and recovery wells and the methodology for the selection of those monitoring and recovery wells. One semi-annual monitoring event will include sampling all Site wells as currently conducted with the exception of collecting Sulfate analysis. The second semi-annual sampling event will be

Mr. Bradford Billings

July 2, 2020

reduced to only sampling select monitoring and recovery wells based on the following proposed sampling methodology. The groundwater sampling frequency will be assessed yearly based on the results of the sampling events for the lifespan of the project. It is understood that a minimum of 8 consecutive Site wide sampling events will be required prior to closure request for the Site.

The following sections provide specifics for the proposed reduced groundwater monitoring plan:

Sampling Reduction for Non-impacted Monitoring Wells

Site monitoring and recovery wells with COC concentrations reported below New Mexico Water Quality Control Commission (NMWQCC) exceedance standards or monitoring and recovery wells with COC concentrations reported above the NMWQCC exceedance standards showing stable to decreasing trends for two consecutive years or longer will not be sampled during one semi-annual monitoring event per year.

The Site wells selected for removal from the second semi-annual sampling event include: MW-2A, MW-3, MW-4A, MW-5A, MW-6R, MW-8, MW-9A, MW-11, and MW-14

The previously referenced wells have been evaluated based on historical concentration trends, historical concentration trends of nearby monitoring wells, potential receptors, and groundwater gradient.

The Site monitoring/recovery wells that will be sampled during each semi-annual event are presented on attached **Table 1** (Sampling Analysis Plan).

The Site monitoring/recovery wells that will be sampled during the reduced event are presented on **Figure 1** (Potentiometric Surface Map), **Figure 2** (Reduced Sampling Plan – Chloride), and **Figure 3** (Reduced Sampling Plan – TDS), and **Figure 4** (Reduced Sampling Plan – Sulfate).

The Summary of Historical Groundwater Analytical Results is presented in **Table 2**.

Sampling Reduction for Non-Impacted Monitoring Wells

Sulfate is assigned a NMWQCC standard of 600 milligrams per liter (mg/L) and only 2 wells (MW-4, RW-2R) have consistently shown sulfate exceedances above the NMWQCC standard. These exceedances are likely attributable to natural groundwater chemistry or offsite encroachment of a neighboring contaminant plume. Data suggest that it is unlikely that the Site release contributed to elevated sulfate concentrations at the Site due to the proximity of the 2 monitoring wells from the location of the unlined earthen overflow pits southern border. Monitor

Mr. Bradford Billings

July 2, 2020

well MW-1 is located on the south eastern corner of the unlined earthen pit and historical data does not indicate that there has been any downgradient Sulfate migration from the location of the unlined pit. Additionally, monitoring wells located adjacent to MW-4 and RW-2R (MW-4A and RW-2 respectfully) have not shown similar detections of Sulfate concentrations. Thus, Arcadis is requesting approval from the New Mexico Oil Conservation Division (NMOCD) to remove sulfate from the sampling program.

Contact

Arcadis is prepared to initiate the scope of work immediately. If you have any questions or comments, please contact either Russell Grant by phone at 432 217 2064 or by e-mail at russell.grant@arcadis.com or Greg Cutshall by phone at 859 327 4626 or by email at greg.cutshall@arcadis.com.

Sincerely,

Arcadis U.S., Inc.



Russell Grant

Project Manager

Copies:

Robert Speer, CEMC Project Manager

Enclosures:

Tables

Table 1 – Sampling and Analysis Plan

Table 2 – Summary of Historical Groundwater Analytical Results

Figures

Figure 1 – 2020 Reduced Sampling Plan - Potentiometric Surface Map

Figure 2 – 2020 Reduced Sampling Plan – Chloride Isoconcentration Map

Figure 3 – 2020 Reduced Sampling Plan – TDS Isoconcentration Map

Figure 4 – 2020 Reduced Sampling Plan – Sulfate Isoconcentration Map

TABLES



Table 1 - Groundwater Sampling and Analysis Plan
 Chevron Environmental Management Company
 Cooper Jal Unit South Injection Station (1R-289)
 Lea County, NM



Monitoring Well ID	First Semi-Annual Monitoring Event					Second Semi-Annual Monitoring Event					Rationale for Reduction
	Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300		Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300		
				Chloride	Sulfate				Chloride	Sulfate	
MW-1	X	X	X	X	--	X	--	X	X	--	
MW-2	X	X	X	X	--	X	--	X	X	--	
MW-2A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-3	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-4	X	X	X	X	--	X	--	X	X	--	
MW-4A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-5	X	X	X	X	--	X	--	X	X	--	
MW-5A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-6R	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-7	X	X	X	X	--	X	--	X	X	--	
MW-8	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-9	X	X	X	X	--	X	--	X	X	--	
MW-9A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-10	X	X	X	X	--	X	--	X	X	--	
MW-11	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-12	X	X	X	X	--	X	--	X	X	--	
MW-14	X	X	X	X	--	X	--	--	--	--	Stable Trend
RW-1	X	X	X	X	--	X	--	X	X	--	
RW-2	X	X	X	X	--	X	--	X	X	--	
RW-2R	X	X	X	X	--	X	--	X	X	--	

Notes:
 USEPA = United States Environmental Protection Agency
 X = Data will be collected at monitoring well during respective event.
 -- = Data will not be collected at monitoring well during semi-annual event

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.6	10	600					1,000	
MW-1	9/16/97	--	--	280	8,500	--	--	1,100	520.0	630.0	50.00	4,300	15,000	
	2/25/98	--	--	280	5,600	--	--	570	285.0	520.0	116.00	2,900	9,300	
	2/14/01	<1.0	306	306	11,000	4.40	7.70	1,000	374.0	780.0	236.00	5,236	20,000	
	5/17/02	<1.0	208	208	237	5.83	3.28	86.9	45.7	20.1	11.90	184	784	
	10/23/02	--	--	--	168	--	--	96.8	--	--	--	--	696	
	5/21/03	<1.0	290	290	6,600	<8.00	10.90	875	238.0	475.0	96.50	3,410	13,200	
	11/25/03	<1.0	250	250	402	7.03	2.72	125	19.2	22.0	18.50	294	1,158	
	5/12/04	<1.00	264	264	504	7.31	2.70	136	17.2	23.1	22.40	355	1,328	
	11/16/04	<1.00	232	232	384	4.94	3.30	103	29.2	22.7	25.40	373	952	
	11/16/05	<10.0	262	262	1,210	3	2.4	215 D1	85.4	92.6	23	847	2,640	
	11/14/06	<10	200	200	96	4.2	2	76	13.2	6.49	15.6	172	624	
	11/16/07	<10.0	255	255	4,250	3.7	3.90 D1	602 D1	154	187	54	2,100 D1	10,900	
	11/4/08	<5.0	190	190	110	6.3	1.6	83	10	5.8	7.9	180	590	
	11/3/09	<10	270	270	4,100	4.1	2.8	640	190	250	61	2,300	8,000	
	11/10/10	<10	223	223	2,670	1.92	2.62	373	138	196	21.5	1,480	5,020	
	11/10/11	<5.00	209	209	3,220	1.02	2.37	275	169	176	22.5	1,340	5,250	
	11/10/11	<5.00	213	213	2,930	1.05	2.35	240	183	197	22.6	1,480	4,640	
	10/11/12	<5.00	190	190	2,190	6.74	4.52	301	132	145	17.9	1,140	1,880	
	10/8/13	<6.00	211	211	1,890	1.46	2.39	247	131	114	15.3	914	2,380	
	10/7/14	<4.00	205	205	1,700	0.46	2.37	277	118	126	14.9	860	3,690	
	10/21/15	--	--	--	182	<4.00	--	78.1	--	--	--	--	--	559
10/18/16	--	--	--	1,320	0.827	--	221	--	--	--	--	--	2,700	
10/24/17	--	--	--	148	2.57	--	79.4	--	--	--	--	--	594	
10/18/18	--	--	--	1,290	0.788	--	215	--	--	--	--	--	2,360	
6/20/19	--	--	--	1,110	--	--	--	--	--	--	--	--	2,510	
11/24/19	--	--	--	1,110	--	--	--	222	--	--	--	--	2,190	
MW-2	2/25/98	--	--	210	5,900	--	--	760	840.0	380.0	30.00	2,650	9,400	
	4/9/98	--	--	290	8,200	--	--	990	1,100.0	490.0	29.00	3,430	15,000	
	2/14/01	<1.0	184	184	7,400	2.30	4.10	870	1,025.0	488.0	48.50	3,189	15,000	
	5/17/02	<1.0	160	160	3,200	1.72	3.18	483	587.0	239.0	35.60	1,160	6,040	
	10/23/02	--	--	--	2,920	--	--	451	--	--	--	--	6,770	
	5/22/03	<1.0	158	158	2,550	2.04	3.87	386	448.0	176.0	20.00	1,020	5,880	
	11/25/03	<1.0	160	160	3,330	<4.00	5.63	446	555.0	227.0	32.00	1,120	6,760	
	5/12/04	<1.00	146	146	1,750	<2.00	2.78	246	308.0	112.0	29.70	549	3,965	
	11/16/04	<1.00	120	120	430	<1.00	2.13	56.9	104.0	29.4	22.40	158	832	
	11/16/05	<10.0	171	171	4,720	0.72	2.6	645 D1	594	209	20.8	3,290	10,000	
	11/14/06	<10	160	160	3,500	0.78 N	2.1	470	535	212	21	15,400	8,260	
	11/14/07	<10.0	178	178	3,280	0.76	1.93	462 D1	449	152	16.2	1310 D1	9,110	
	11/4/08	<5.0	150	150	2,900	<1.0	1.1	430	380	160	26	1,200	5,600	
	11/16/09	<10	150	150	2,000	1.1	1.6	340	290	120	20	750	4,300	
	11/12/10	<10	186	186	1,890	0.726	1.86	327	326	120	9.8	795	3,680	
	11/10/11	<5.00	175	175	1,480	0.814	1.31	150	227	83.2	9.75	668	2,860	
	10/11/12	<5.00	149	149	524	0.546	1.92	231	119	31.7	8.78	286	1,090	
	10/8/13	<6.00	269	269	1,180	1.2	<0.100	169	178	64.7	8.16	505	2,520	
	10/7/14	<4.00	196	196	695	0.524	<0.0230	147	143	47.5	7.3	343	1,310	
	10/21/15	--	--	--	27	<2.00	--	58.6	--	--	--	--	--	388
	10/18/16	--	--	--	26.7	<0.500	--	34.4	--	--	--	--	--	352
10/25/17	--	--	--	35.8	0.995	--	36.3	--	--	--	--	--	331	
10/18/18	--	--	--	65.9	0.656	--	48.5	--	--	--	--	--	384	
6/20/19	--	--	--	283	--	--	--	--	--	--	--	--	960	
11/23/19	--	--	--	27.7	--	--	42	--	--	--	--	--	274	
MW-2A	2/26/98	--	--	190	280	--	--	330	144.0	36.0	5.70	215.0	1,200	
	2/14/01	<1.0	162	162	44	1.30	2.30	76	64.4	16.7	7.02	45.5	390	
	5/15/02	<1.0	176	176	36.6	<1.00	2.34	79.1	57.6	13.9	4.35	43.8	435	
	10/23/02	--	--	--	44.3	--	--	97	--	--	--	--	425	
	5/22/03	<1.0	168	168	40.5	<1.00	2.18	75.5	67.2	14.3	3.76	47.9	418	
	11/25/03	<1.0	166	166	43.1	1.00	2.23	77.4	51.7	14.4	3.98	43.8	452	
	5/12/04	<1.00	176	176	44.8	<1.00	2.24	76.5	62.9	15.0	3.66	43.6	440	
	11/16/04	<1.00	164	164	52.5	1.22	2.78	75.4	68.8	15.3	3.98	49.1	428	
	11/16/05	<10.0	151	151	56.8	0.6	2.3	75.1 D1	157	18	4.2	49.8	630 N	
	11/14/06	<10	180	180	49	0.55	1.6	76	69.8	15.6	3.47	49.9	488	
	11/14/07	<10.0	170	170	74.6	0.58	1.51	66.8 D1	666	15.3	<5.000	45.4	504	
	11/4/08	<5.0	220	220	68	0.49	1.4	74	67	15	3.2	42	470	
	11/3/09	<10	230	230	62	0.59	1.6	81	66	15	3.4	50	480	
	11/11/10	<10	158	158	86.1	0.453	1.73	74	53.9	14.9	2.86	42.8	474	
	11/10/11	<5.00	175	175	129	0.28	1.25	101	92.5	23.3	4.17	64.7	614	
	10/11/12	<5.00	173	173	76.5	0.455	1.6	79.4	69.2	15.7	3.62	45.3	500	
	10/8/13	<6.00	248	248	78.6	0.412	0.622	75.4	92.6	18.7	4.06	51.2	496	
	10/7/14	<4.00	188	188	72.5	0.202	1.55	79.4	77.1	17.2	3	44.3	496	
	10/21/15	--	--	--	76.7	<4.00	--	77.5	--	--	--	--	--	441
	10/18/16	--	--	--	84.6	<0.500	--	83.4	--	--	--	--	--	455
	10/25/17	--	--	--	83.1	1.23	--	77.3	--	--	--	--	--	512
10/18/18	--	--	--	103	0.667	--	88.3	--	--	--	--	--	491	
6/20/19	--	--	--	86.5	--	--	--	--	--	--	--	--	554	
11/23/19	--	--	--	88.0	--	--	--	76.5	--	--	--	--	414	

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.6	10	600					1,000	
MW-3	2/27/98	--	--	190	452	--	--	406	200.0	50.0	11.00	237.0	1,500	
	2/14/01	<1.0	158	158	34	1.60	2.40	100	54.5	19.0	7.61	48.6	440	
	5/17/02	<1.0	158	158	30.6	1.56	2.35	102	55.6	18.4	5.04	50.0	433	
	10/23/02	--	--	--	35.4	--	--	104	--	--	--	--	419	
	5/22/03	<1.0	156	156	30.6	1.17	2.25	96.3	53.2	17.8	5.39	54.6	435	
	11/25/03	<1.0	160	160	31.4	1.35	2.30	103	46.5	18.0	5.19	51.7	440	
	5/12/04	<1.00	164	164	32.3	1.20	2.38	101	52.2	16.8	4.77	47.5	448	
	11/16/04	<1.00	166	166	35.1	1.53	2.77	95.4	56.3	23.6	12.70	58.9	424	
	11/17/05	<10.0	171	171	96.3	0.97	2.2	108 D1	89.2	22.1	8.87	93.4	840	
	11/15/06	<10	170	170	30	0.92 N	1.7	96	51.3	17.3	4.3	57.2	505	
	11/16/07	<10.0	170	170	39.7	0.93	1.58	88.2 D1	50.8	16.3	<5.000	50.6	570	
	11/6/08	<5.0	150	150	36	1.1	1.4	97	50	17	4	48	430	
	11/3/09	<10	160	160	35	1.1	1.6	110	49	17	4.2	56	410	
	11/10/10	<10	164	164	35.4	0.836	1.77	99.9	48.8	15.2	3.42	45.1	380	
	11/10/11	<5.00	165	165	36.4	0.833	1.35	87.9	57.9	18	3.79	53	404	
	10/11/12	<5.00	162	162	36.6	1.01	1.74	100	51.2	16.9	4.11	51	438	
	10/8/13	<6.00	194	194	38.4	1.02	1.17	98.7	56.5	18.3	4.08	54.9	450	
	10/7/14	<4.00	187	187	19.5	0.369	1.39	62.8	44.3	9.82	22.4	38.8	332	
	10/21/15	--	--	--	25.6	<2.00	--	74.8	--	--	--	--	--	307
	10/18/16	--	--	--	37.1	0.66	--	109	--	--	--	--	--	464
10/24/17	--	--	--	35.9	1.5	--	98.7	--	--	--	--	--	442	
10/18/18	--	--	--	209	5.35	--	567	--	--	--	--	--	415	
6/20/19	--	--	--	40	--	--	--	--	--	--	--	--	448	
11/23/19	--	--	--	60	--	--	--	96.6	--	--	--	--	352	
MW-4	2/27/98	--	--	230	12,000	--	--	1,300	1,700.0	880.0	48.00	5,300	22,000	
	4/9/98	--	--	240	13,000	--	--	1,500	1,740.0	840.0	42.00	5,400	23,000	
	2/14/01	<1.0	232	232	15,000	1.80	6.80	1,500	--	--	--	--	29,000	
	5/17/02	<1.0	232	232	11,300	2.01	6.09	1,380	1,610.0	814.0	60.90	4,310	22,600	
	10/23/02	--	--	--	11,300	--	--	1,320	--	--	--	--	23,200	
	5/22/03	<1.0	220	220	11,300	<10.00	12.30	1,370	1,450.0	659.0	47.30	4,140	62,500	
	11/26/03	<1.0	218	218	12,100	<8.00	12.30	1,400	1,830.0	889.0	62.00	4,620	54,450	
	5/11/04	<1.00	214	214	14,200	<8.00	8.97	1,560	1,800.0	829.0	60.70	4,850	65,450	
	11/17/04	<1.00	222	222	13,600	<20.00	31.50	1,410	2,020.0	972.0	73.60	5,900	25,200	
	11/17/05	<10.0	181	181	9,440	0.82	0.2	45.8 D1	849	387	28.1	3,880	24,300	
	11/15/06	<10	260	260	14,000	<5.0 C	5.2	1,400	1,760.00	897	58.8	6,150	28,700	
	11/14/07	<10.0	255	255	14,800	0.54	7.15 D1	1,410 D1	1,170	382	48	4,760 D1	36,300	
	11/12/08	<5.0	200	200	12,000	1.2	0.33	1,300	1,500	840	82	4,800	22,000	
	11/4/09	<5.0	250	250	15,000	1.1	5.3	1,600	1,500	1,000	65	5,800	30,000	
	11/11/10	<5.0	294	294	15,500	<1.00	10	1,270	1,380	904	40	5,450	25,500	
	11/10/11	<5.00	277	277	16,900	0.112	6.16	1,060	1,680	1,110	40.0	6,490	28,900	
	10/11/12	<5.00	256	256	5,850	2.10	4.58	629	434	334	21.2	2,620	12,000	
	10/8/13	<6.00	294	294	16,200	0.72	6.79	1,460	1,690	1,180	40.8	7,370	36,300	
	10/7/14	<4.00	291	291	15,000	<100	7.15	1,740	1,350	1,060	44.1	4,250	32,400	
	10/20/15	--	--	--	3,200	<40.0	--	402	--	--	--	--	--	7,070
10/18/16	--	--	--	17,900	<1.00	--	1,890	--	--	--	--	--	35,300	
10/25/17	--	--	--	6,830	<5.00	--	754	--	--	--	--	--	12,300	
10/18/18	--	--	--	14,800	<0.100	--	1510	--	--	--	--	--	24,700	
6/20/19	--	--	--	2,760	--	--	--	--	--	--	--	--	7,830	
11/24/19	--	--	--	3,050	--	--	--	420	--	--	--	--	5,960	
MW-4A	2/27/98	--	--	180	1,600	--	--	410	470.0	130.0	11.00	620.0	3,300	
	2/14/01	<1.0	154	154	1,600	1.40	2.80	210	--	--	--	--	4,000	
	5/15/02	<1.0	156	156	577	<1.00	2.23	121	200.0	49.5	10.30	125.0	1,610	
	10/23/02	--	--	--	478	--	--	114	--	--	--	--	1,430	
	5/22/03	<1.0	154	154	844	<1.00	2.43	160	279.0	58.9	10.10	248.0	2,200	
	11/26/03	<1.0	158	158	1,060	<4.00	5.82	182	337.0	79.3	15.20	329.0	2,585	
	5/11/04	<1.00	156	156	984	<2.00	3.30	179	297.0	66.5	11.50	279.0	2,300	
	11/17/04	<1.00	164	164	1,110	<2.00	4.62	186	369.0	75.4	14.90	413.0	2,235	
	11/16/05	<10.0	181	181	827 D1	<0.5	2.2	160 D1	335	64.4	9.23	382	2,340 N	
	11/15/06	<10	620	620	960	<0.50	2.6	170	227	53.5	8.1	406	2,870	
	11/14/07	<10.0	311	311	845 D1	0.35	3.60 D1	167 D1	205	44.9	7.33	334	2,650	
	11/12/08	<5.0	640	640	650	0.32	2.2	170	160	37	9.9	290	1,700	
	11/4/09	<5.0	670	670	670	0.56	2.6	150	110	27	7.4	300	1,600	
	11/11/10	<5.0	217	217	663	0.505	2.58	125	65.9	15.6	4.42	317	1,760	
	11/10/11	<5.00	171	171	621	0.775	2.02	134	78.8	18.7	4.71	389	1,400	
	10/11/12	<5.00	169	169	516	1.12	2.6	100	48.7	11.3	4.45	359	1,200	
	10/8/13	<6.00	199	199	512	2.63	2.47	100	47.7	9.9	3.64	410	1,170	
	10/7/14	<4.00	186	186	387	1.69	2.54	102	37.1	7.8	3.17	276	962	
	10/20/15	--	--	--	328	<4.00	--	83.3	--	--	--	--	--	819
	10/18/16	--	--	--	440	1.49	--	97.6	--	--	--	--	--	1,150
10/25/17	--	--	--	341	2.83	--	93.4	--	--	--	--	--	960	
10/18/18	--	--	--	366	1.29	--	99.6	--	--	--	--	--	901	
6/20/19	--	--	--	336	--	--	--	--	--	--	--	--	1,040	
11/24/19	--	--	--	321	--	--	--	94.5	--	--	--	--	824	

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Lea County, NM



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.6	10	600					1,000	
MW-5	2/26/98	--	--	180	6,600	--	--	910	1,400.0	470.0	31.00	2,400.0	12,000	
	2/14/01	<1.0	166	166	7,700	1.80	4.10	910	--	--	--	--	18,000	
	5/17/02	<1.0	156	156	4,040	1.53	4.56	586	757.0	319.0	60.90	1,260.0	8,340	
	10/23/02	--	--	--	3,900	--	--	94.8	--	--	--	--	422	
	5/22/03	<1.0	158	158	3,170	<4.00	6.52	550	644.0	215.0	49.90	1,240.0	7,860	
	11/25/03	<1.0	168	168	5,120	<4.00	6.77	739	978.0	365.0	54.90	1,680.0	11,940	
	5/11/04	<1.00	160	160	6,760	<3.00	4.65	1,030	1,180.0	417.0	40.30	2,120.0	20,380	
	11/17/04	<1.00	172	172	6,750	<10	16.60	786	1,210.0	486.0	40.60	2,300.0	11,980	
	11/17/05	<10.0	161	161	2,140 D1	0.79	0.16	334 D1	339	126	10.8	791	7,120 N	
	11/14/06	<10	160	160	2,000	0.6	1.5	300	437	173	14.2	918	4,420	
	11/14/07	<10.0	161	161	5,790 D1	0.37	4.01 D1	668 D1	812	240	23.3	1,850 D1	16,300	
	11/6/08	<5.0	160	160	4,900	0.78	0.32	540	660	310	35	1,600	9,700	
	11/3/09	<10	160	160	5,100	0.51	2.3	710	860	320	<13	1,800	11,000	
	11/11/10	<5.0	176	176	4,200	0.159	2.37	554	687	250	17.3	1,400	8,890	
	11/10/11	<5.00	172	172	4,340	0.243	0.549	411	944	326	19.7	1,780	7,840	
	10/11/12	<5.00	164	164	3,630	0.376	2.26	474	671	239	17	1,360	8,300	
	10/8/13	<6.00	176	176	3,730	0.369	1.56	425	659	253	15.4	1,440	8,060	
	10/7/14	<4.00	172	172	2,830	<0.100	2.19	398	521	195	15.1	979	5,280	
	10/21/15	--	--	--	2,480	<40.0	--	362	--	--	--	--	--	5,510
	10/18/16	--	--	--	2,260	<0.500	--	326	--	--	--	--	--	5,380
10/25/17	--	--	--	2,090	<5.00	--	318	--	--	--	--	--	3,780	
Dup	10/25/17	--	--	--	2,010	<5.00	--	300	--	--	--	--	3,240	
	10/18/18	--	--	--	1,890	<0.100	--	323	--	--	--	--	3,420	
	6/20/19	--	--	--	1,700	--	--	--	--	--	--	--	4,280	
	11/23/19	--	--	--	1,530	--	--	250	--	--	--	--	3,900	
MW-5A	2/26/98	--	--	170	190	--	--	180	107.0	23.0	3.50	117.0	740	
	2/15/01	<1.0	164	164	140	1.20	2.10	130	90.2	27.9	8.70	74.6	670	
	5/15/02	<1.0	182	182	53.5	<1.00	2.23	84.4	63.2	16.1	4.69	43.6	475	
	10/23/02	--	--	--	50	--	--	616	--	--	--	--	8,670	
	5/22/03	<1.0	158	158	32.5	<1.00	2.10	69.9	55.5	13.8	3.41	41.5	416	
	11/25/03	<1.0	332	332	34.1	1.05	2.20	75.5	60.9	14.6	4.08	45.0	422	
	5/11/04	<1.00	164	164	38.8	<1.00	2.25	75.8	60.9	15.0	3.40	43.2	484	
	11/17/04	<1.00	152	152	39.6	1.37	2.66	74.3	58.1	13.6	3.83	48.5	430	
	11/16/05	<10.0	191	191	40.2	0.82	2.1	75.2 D1	176	17.8	4.22	45.3	570 N	
	11/14/06	<10	240	240	47	0.64	1.5	79	90.4	16.1	3.58	51.4	588	
	11/14/07	<10.0	227	227	54.4	0.66	1.45	68.7 D1	73.7	14	<5.000	44.2	528	
	11/6/08	<5.0	350	350	53	0.7	1.3	72	76	15	3.4	43	450	
	11/3/09	<10	710	710	47	0.72	1.5	79	65	14	3.3	50	440	
	11/11/10	<5.00	182	182	49.6	0.568	1.61	73.6	55.7	12.9	2.79	42	606	
	11/10/11	<5.00	170	170	131	0.492	1.15	116	83.8	29.9	5.16	85.7	594	
	10/11/12	<5.00	163	163	68	0.631	1.57	69.8	60.6	15.3	3.96	49.2	534	
	10/8/13	<6.00	182	182	80.2	0.568	1.6	67.5	69.3	16.2	3.29	53.4	462	
	10/7/14	<4.00	168	168	73.6	0.288	1.56	64.9	66.2	15.7	2.76	45.2	432	
	10/21/15	--	--	--	84.9	<4.00	--	65.6	--	--	--	--	--	499
	10/18/16	--	--	--	101	<0.500	--	65.4	--	--	--	--	--	466
10/25/17	--	--	--	99.6	1.14	--	59.3	--	--	--	--	--	537	
10/18/18	--	--	--	132	0.792	--	67.5	--	--	--	--	--	477	
6/20/19	--	--	--	118	--	--	--	--	--	--	--	--	650	
11/23/19	--	--	--	116	--	--	61.1	--	--	--	--	--	502	
MW-6	2/26/98	--	--	200	260	--	--	400	180.0	44.0	6.20	205.0	1,200	
	2/14/01	<1.0	158	158	59	1.70	2.20	99	67.5	22.1	7.67	52.3	470	
	5/17/02	<1.0	162	162	37.8	1.62	2.14	99.3	63.1	19.6	5.12	48.6	427	
	10/23/02	--	--	--	46.1	--	--	109	--	--	--	--	331	
	5/22/03	<1.0	162	162	40.3	1.24	2.13	94.4	61.7	17.4	4.23	51.9	464	
	11/25/03	<1.0	154	154	53.6	1.40	2.18	98	53.6	18.7	4.97	51.7	482	
	5/11/04	<1.00	156	156	54.4	1.23	2.19	97	59.0	18.1	4.22	47.8	506	
	11/16/04	<1.00	162	162	57.9	1.64	2.68	99.8	66.6	19.6	5.16	57.0	464	
	11/17/05	<10.0	201	201	101	0.97	0.35	97.8 D1	103	20.2	4.1	59.1	730	
	11/15/06	<10	750	750	68	0.99	1.5	93	64.6	20.4	4.23	57.1	507	
	11/15/07	<10.0	284	284	162	51.00	1.35	96.3 D1	84.1	25.2	<5.000	62.1	630	
	11/6/08	<5.0	220	220	84	1.20	1.2	95	67	21	4.3	53	490	
	11/3/09	<10	190	190	81	1.20	1.4	100	66	20	4.5	59	550	
	11/8/10	NS - Well Damaged												
	11/10/11	NS - Well Damaged												
	10/11/12	NS - Well Damaged												
	9/30/13	Well Plugged and Abandoned												

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹		
NMWQCC Groundwater Standard					250	1.6	10	600					1,000		
MW-6R	10/8/13	<6.00	225	225	110	1.91	<0.100	102	69.9	24.4	5.17	85.6	600		
	10/7/14	<4.00	182	182	39.7	0.546	0.675	93	59.2	18.2	3.1	48.2	402		
	10/21/15	--	--	--	40.7	<2.00	--	98.6	--	--	--	--	390		
	10/18/16	--	--	--	42.3	0.63	--	105 J	--	--	--	--	442		
	10/25/17	--	--	--	49.3	1.46	--	93.8	--	--	--	--	465		
	10/18/18	--	--	--	69.1	1.05	--	107	--	--	--	--	442		
	6/20/19	--	--	--	59.1	--	--	--	--	--	--	--	482		
Dup	6/20/19	--	--	--	64.4	--	--	--	--	--	--	--	592		
	11/23/19	--	--	--	69.4	--	--	95.2	--	--	--	--	384		
MW-7	5/14/98	--	--	230	430	--	--	340	214.0	66.0	13.00	165.0	1,200		
	2/14/01	<1.0	150	150	510	1.70	2.40	150	--	--	--	--	1,500		
	5/16/02	<1.0	150	150	75.7	1.59	2.27	97.4	68.6	23.2	6.63	54.3	501		
	10/22/02	--	--	--	88.6	--	--	109	--	--	--	--	490		
	5/22/03	<1.0	140	140	173	1.17	2.14	88.9	85.5	28.2	6.18	64.6	631		
	11/26/03	<1.0	136	136	189	1.29	2.23	93.5	95.7	31.0	7.91	63.6	704		
	5/13/04	<1.00	130	130	267	1.11	2.18	94.7	107.0	34.7	6.59	62.9	914		
	11/16/04	<1.00	130	130	367	1.49	2.72	97.3	142.0	49.3	8.61	87.9	870		
	11/17/05	<10.0	121	121	456 D1	0.53	0.28	106 D1	412	64.7	12.1	100	1,440		
	11/15/06	<10	240	240	550	0.63	1.5	110	202	70.3	7.4	102	2,100		
	11/15/07	<10.0	189	189	458 D1	1.2	1.39	176 D1	144	59.5	9.95	148	1,880		
	11/12/08	<5.0	110	110	650.00	0.84	1.2	140	210	76	12	120	1,600		
	11/4/09	<5.0	110	110	1100.00	0.63	1.5	160	310	120	11	130	2,800		
	11/10/10	<5.0	111	111	1,310	0.372	1.64	173	415	149	10	150	3,130		
	11/10/11	<5.00	106	109	1,710	0.296	1.45	147	662	203	12.3	198	3,660		
	10/11/12	<5.00	108	108	2,020	0.439	1.71	261	619	215	12.3	208	5,580		
	10/8/13	<6.00	142	142	2,840	0.445	2.11	331	916	258	13.3	265	7,530		
	10/7/14	<4.00	116	116	2,190	<0.100	2.03	317	682	238	12.2	227	7,920		
	10/20/15	--	--	--	1,420	<20.0	--	231	--	--	--	--	--	3,130	
	10/18/16	--	--	--	2,920	<0.500	--	385	--	--	--	--	--	7,160	
10/24/17	--	--	--	1,670	<2.00	--	249	--	--	--	--	--	2,660		
10/18/18	--	--	--	4,000	<0.100	--	482	--	--	--	--	--	6,450		
6/20/19	--	--	--	4,210	--	--	--	--	--	--	--	--	15,500		
11/24/19	--	--	--	2,080	--	--	272	--	--	--	--	--	6,300		
MW-8	5/13/98	--	--	200	270	--	--	390	190.0	60.0	12.00	170.0	1,200		
	2/14/01	<1.0	156	156	49	1.80	2.50	100	59.9	21.5	7.84	52.9	400		
	5/16/02	<1.0	158	158	32.9	1.57	2.33	101	56.6	19.2	5.20	49.5	432		
	10/22/02	--	--	--	40.8	--	--	104	--	--	--	--	392		
	5/22/03	8	160	168	33.2	1.40	2.32	98.3	53.9	18.3	9.31	46.4	410		
	11/26/03	<1.0	142	142	31.7	1.59	2.38	95.6	55.3	18.2	5.31	50.2	443		
	5/12/04	<1.00	154	154	36.3	1.39	2.38	101	53.0	17.3	4.56	48.1	435		
	11/16/04	<1.00	170	170	39.8	1.94	2.94	103	57.8	18.6	5.63	56.4	435		
	5/17/05	4	152	156	41	1.64	2.94	105	61.0	18.6	5.78	47.3	434		
	11/17/05	<10.0	171	171	113.0	1.1	<0.05	115 D1	83.4	21.7	5.74	102	750		
	5/9/06	<10	160	160	210.0	0.89	1.4	200	72.7	33.3	7.12	125	896		
	11/14/06	<10	150	150	230.0	1.1	1.2	200	74.2	38.3	9.61	162	912		
	5/30/07	<10	141	141	62.0	1.2	1.74	120	54.1	19.1	<5	59.3	500		
	11/15/07	<10.0	159	159	43.1	1.33	1.56	94.2 D1	52.1	17.2	<5.000	49.8	540		
	5/15/08	<1.53	151	151	40.7	1.4	1.78	99.6 D1	51.7	16.8	4.1	54.8 D1	427		
	11/12/08	<5.0	140	140	39	1.4	1.5	97	52	17	<2.6	46	350		
	5/20/09	<5.0	140	140	39	1.3	1.6	110	50	17	4.3	49	430		
	11/4/09	<5.0	150	150	41	1.4	1.7	110	46	16	3.3	47	450		
	Dup	5/7/10	<5.0	<5.00	172	34.9	1.09	1.7	97.8	49.5	15.7	3.52	45.5	426	
		5/7/10	<5.0	<5.00	157	34.9	1.09	1.71	98	51	14.5	3.21	43.6	466	
		11/12/10	<5.0	172	172	38.7	1.1	1.77	98.2	48.9	15.7	3.4	45.4	410	
		Dup	11/12/10	<5.0	160	160	38.7	1.1	1.76	98.3	50.5	15.3	3.44	44.8	398
			5/11/11	<5.0	170	170	185	1.2	1.6	93	73	28.4	5.68	165	692
		11/10/11	<5.0	161	161	36.9	1.06	1.41	87.4	57.1	17	3.46	48.6	406	
		5/17/12	<5.0	173	173	37.9	1.09	1.59	92.9	53.3	16.4	3.83	56.7	440	
		10/11/12	<5.0	158	158	39.9	1.29	1.83	103	49	16.6	4.3	49	444	
		5/17/13	<5.0	167	167	38.3	1.37	1.7	106	55.3	17.5	3.67	45.9	416	
		10/8/13	<6.00	182	182	39.5	1.17	1.78	96.2	57.4	19.7	4.35	57.6	446	
	5/1/14	<10.0	165	165	40.6	1.12 J	1.81	106	55.1	19.9	3.82	52.9	436		
	Dup	10/7/14	<4.00	176	176	8.1	0.159	1.07	30.5	40	4.98	7.81	35.1	259	
		5/22/15	--	--	--	10	<2.00	--	30.1	--	--	--	--	252	
		10/20/15	--	--	--	8.03	<2.00	--	32.5	--	--	--	--	146	
		5/25/16	--	--	--	30.0	0.847	--	88.7	--	--	--	--	434	
		10/18/16	--	--	--	4.28	<0.500	--	32.8	--	--	--	--	261	
05/11/17		--	--	--	9.1	<0.0222	--	32.2	--	--	--	--	214		
05/11/17		--	--	--	8.62	<0.0222	--	32.2	--	--	--	--	182		
10/24/17		--	--	--	3.69	0.228	--	18.3	--	--	--	--	286		
05/22/18		--	--	--	5.22	0.317	--	21.9	--	--	--	--	282		
10/18/18		--	--	--	5.41	0.608	--	19.1	--	--	--	--	258		
6/20/19	--	--	--	NS	--	--	--	--	--	--	--	NS			
11/24/19	--	--	--	12.9	--	--	27.6	--	--	--	--	239			

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.6	10	600					1,000	
MW-9	5/14/98	--	--	190	350	--	--	470	207.0	61.0	12.00	200.0	1,300	
	2/15/01	<1.0	156	156	35	2.60	2.40	110	60.4	19.8	7.47	47.0	430	
	5/16/02	<1.0	160	160	31.7	2.22	2.28	99.4	60.8	17.6	5.32	50.1	440	
	10/23/02	--	--	--	39	--	--	102	--	--	--	--	436	
	5/22/03	<1.0	160	160	31	1.75	2.19	93.3	52.2	15.8	4.75	50.2	455	
	11/26/03	<1.0	150	150	31.8	1.99	2.34	99.8	57.7	16.6	4.69	46.3	452	
	5/12/04	<1.00	164	164	33.6	1.79	2.29	99.2	54.8	16.0	4.27	43.5	467	
	11/16/04	8	154	162	367	1.49	2.72	97.3	63.2	17.8	5.59	55.5	433	
	5/17/05	4	154	154	44.2	2.43	3.05	117	58.8	16.7	5.94	44.1	434	
	11/17/05	<10.0	161	161	83.5	1.3	0.14	111 D1	149	26.2	7.43	80.4	790 N	
	5/9/06	<10	170	170	37	1.8	1.8	99	52.7	15	3.21	45.5	428	
	11/15/06	<10	150	150	210	1.1	1.2	190	70.5	35.8	8.64	152	905	
	5/30/07	<10	153	153	35	2.1	1.69	110	52.2	15.8	<5	44.7	464	
	11/14/07	<10.0	151	151	186	1.49	1.48	156 D1	74.1	39.4	8.73	141	808	
	5/15/08	<1.53	174	174	42.5	2.38	1.72	105 D1	55.6	17	3.99	54.1 D1	467	
	11/4/08	<5.0	160	160	39	2.1	1.4	98	54	16	3.7	47	440	
	5/20/09	<5.0	320	320	69	2.1	1.5	120	58	19	4.6	58	520	
	11/4/09	<5.0	160	160	42	2.2	1.6	110	50	15	3	43	460	
	5/7/10	<5.0	<5.00	162	50.2	2.02	1.66	97.5	53.6	15.7	3.32	43.5	442	
	11/9/10	<5.0	186	186	60.7	1.97	1.74	98	59.2	18.1	3.64	50	446	
	5/11/11	<5.0	160	160	80.3	1.71	1.72	75.7	73.9	25.8	4.61	67.9	518	
	11/10/11	<5.00	151	151	138	1.66	1.38	107	82.7	26.9	4.34	65.4	582	
	5/16/12	<5.00	162	162	137	1.75	1.61	93.5	83.8	23.2	4.39	60.3	584	
	10/11/12	<5.00	147	147	148	1.9	1.71	98.7	80.5	25.8	4.94	59.8	644	
	5/17/13	<5.00	144	144	246	1.86	1.61	99.3	107	30.2	4.43	60.2	1,010	
	10/8/13	<6.00	164	164	150	1.88	1.81	99.8	90	25.2	4.62	60.8	620	
	5/2/14	<10.0	143	143	382	1.56	1.77	103	132	35.7	5.74	73.7	906	
	10/7/14	<4.00	151	151	292	0.887	1.33	98.1	136	41	4.65	67.4	1,110	
	5/22/15	--	--	--	307	<8.00	--	87.7	--	--	--	--	--	1,170
	10/20/15	--	--	--	202	<4.00	--	93.7	--	--	--	--	--	593
	Dup	5/25/16	--	--	--	404	1.61	--	108	--	--	--	--	1,430
		5/26/16	--	--	--	418	1.60	--	111	--	--	--	--	1,430
		10/18/16	--	--	--	445	1.34	--	115	--	--	--	--	1,490
05/11/17		--	--	--	481	<0.222	--	118	--	--	--	--	1,090	
10/24/17		--	--	--	387	2.42	--	102	--	--	--	--	1,020	
05/22/18		--	--	--	460	1.28	--	119	--	--	--	--	1,010	
10/18/18		--	--	--	381	1.41	--	117	--	--	--	--	903	
6/20/19		--	--	--	621	--	--	--	--	--	--	--	2,930	
11/24/19		--	--	--	337	--	--	80.6	--	--	--	--	1,170	
MW-9A		5/14/98	--	--	280	600	--	--	770	338.0	96.0	12.00	334.0	2,200
	2/15/01	<1.0	142	142	85	1.40	2.20	71	71.6	19.2	6.94	46.0	400	
	5/15/02	<1.0	136	136	148	<1.00	2.18	65.3	62.9	16.1	4.62	46.8	445	
	10/23/02	--	--	--	168	--	--	75.5	--	--	--	--	651	
	5/22/03	<1.0	126	126	207	<1.00	2.09	62.1	102.0	25.2	4.80	55.7	672	
	11/26/03	<1.0	118	118	216	1.14	2.26	62.7	107.0	25.1	5.31	53.2	648	
	5/12/04	<1.00	122	122	242	<1.00	2.10	64.7	105.0	26.2	5.11	26.2	950	
	11/16/04	<1.00	114	114	296	1.24	2.74	67.5	130.0	33.1	6.24	70.3	826	
	5/17/05	<1.00	112	112	354	1.04	2.85	77.1	131.0	31.7	6.39	60.5	828	
	11/17/05	<10.0	121	121	310 D1	0.82	0.31	74.7 D1	337	41.4	8.08	74.5	1,520 N	
	5/9/06	<10	670	670	270	0.67	1.6	78	111	27.1	3.88	58.7	992	
	11/15/06	<10	1,600	1,600	290	0.62	1.6	72	126	33.4	4.74	68.4	1,280	
	5/30/07	<10	586	586	400	0.7	1.69	83	153	36.9	<5	71.8	1,450	
	11/14/07	<10.0	605	605	285 D1	0.62	1.52	64.7 D1	153	35.4	5.03	70.7	1,430	
	5/15/08	<1.53	738	738	380 D1	0.45	1.62	86.8 D1	146	35.5	5.45	77.2 D1	1,390	
	11/4/08	<5.0	370	370	330	<1.0	1.2	84	130	32	5.1	66	1,000	
	5/20/09	<5.0	600	600	480	0.49	1.5	86	170	43	6.4	76	1,600	
	11/4/09	<5.0	110	110	430	0.49	1.6	82	160	41	5.3	71	1,500	
	5/7/10	<5.0	<5.00	121	510	0.21	1.62	80.5	188	44.9	4.9	73.6	1,680	
	11/9/10	<5.0	115	115	529	0.328	1.72	86	159	44.3	5	76.1	1,660	
	5/11/11	<5.0	146	146	587	1.18	1.9	415	166	80.6	11.3	211	1,850	
	11/10/11	<5.0	115	115	841	0.189	1.56	125	280	84.8	7.51	117	2,160	
	5/16/12	<5.0	135	135	958	0.366	1.74	143	249	62.6	6.5	97.7	3,450	
	Dup	5/16/12	<5.0	128	128	882	0.308	1.7	134	270	65.7	6.72	92.3	3,050
		10/11/12	<5.0	125	125	628	0.366	1.7	121	235	60.4	6.72	94	1,810
		5/17/13	<5.0	137	137	754	0.337	1.67	145	224	53.9	5.49	86.8	1,930
		10/8/13	<6.00	153	153	534	0.37	1.69	118	185	43.1	5.23	81.3	1,210
		10/7/14	Not Sampled											
		10/20/2015	--	--	--	232	<4.00	--	95.4	--	--	--	--	599
		10/18/16	--	--	--	337	<0.500	--	113	--	--	--	--	1,250
		10/24/17	--	--	--	206	<0.500	--	96.6	--	--	--	--	681
		10/18/18	--	--	--	276	0.596	--	119	--	--	--	--	816
		06/20/19	--	--	--	268	--	--	--	--	--	--	--	1,220
11/24/19	--	--	--	231	--	--	83.2	--	--	--	--	838		

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.6	10	600					1,000	
MW-10	5/14/98	--	--	240	360	--	--	450	211.0	62.0	11.00	190.0	1,400	
	2/15/01	<1.0	140	140	190	2.00	2.30	97	108.0	32.3	8.20	61.0	660	
	5/17/02	<1.0	152	152	204	1.93	2.19	99.1	109.0	31.7	7.60	62.4	713	
	10/22/02	--	--	--	213	--	--	108	--	--	--	--	758	
	5/22/03	<1.0	152	152	213	1.45	2.17	96.6	109.0	29.9	8.65	74.2	764	
	11/26/03	<1.0	152	152	220	1.54	2.26	103	120.0	35.7	6.96	64.0	752	
	5/13/04	<1.00	158	158	232	1.39	2.23	102	114.0	31.6	5.95	57.2	802	
	11/17/04	<1.00	170	170	245	1.73	2.78	104	121.0	35.7	7.07	70.3	764	
	5/17/05	<1.00	150	150	233	1.77	2.80	106	113.0	32.3	6.83	60.2	776	
	11/17/05	<10.0	151	151	205 D1	1.2	0.26	111 D1	482	47.4	13.1	82.4	970 N	
	5/9/06	<10	190	190	180	1.4	1.6	98	93.3	27.1	4.31	60.4	724	
	11/16/06	<10	320	320	190	1.2	1.6	92	101	30	4.75	64.1	900	
	5/30/07	<10	340	340	200	1.4	1.68	110	101	28.6	<5	62.4	820	
	11/15/07	<10.0	189	189	251 D1	1.44	1.44	152 D1	104	33.4	6.01	84.7	1,010	
	5/15/08	<1.53	374	374	342 D1	1.47	1.28	257 D1	106	52.9	11.7	165 D1	1,140	
	11/6/08	<5.0	150	150	210	1.5	1.3	89	110	32	5.4	64	730	
	5/20/09	<5.0	240	240	270	1.3	1.5	120	110	35	6.2	72	960	
	11/4/09	<5.0	150	150	240	1.5	1.3	130	100	35	5.4	78	1,000	
	5/7/10	<5.0	<5.00	157	236	1.18	1.62	106	111	30.7	4.59	60.3	940	
	11/10/10	<5.0	166	166	280	1.16	1.61	112	98.4	36.9	5.63	81	812	
	5/11/11	<5.0	157	157	274	1.11	1.99	87.2	117	32.2	5.63	85	930	
	11/15/11	<5.0	150	150	266	1.03	6.93	94.9	128	32.3	4.58	62.8	1,450	
	5/16/12	<5.0	163	163	284	1.12	1.58	99.9	132	36.8	5.22	72.9	1,120	
	10/11/12	<5.0	151	151	255	1.32	1.75	98.7	113	34.3	5.68	67.6	1,010	
	5/17/13	<5.0	154	154	299	1.34	1.61	108	117	33.7	4.57	64.6	1,180	
	10/8/13	<6.00	165	165	324	1.14	1.62	103	154	41.6	5.36	78.1	1,240	
	5/1/14	<10.0	156	156	298	1.05 J	1.58	111	135	41.6	5.3	75.5	1,050	
	Dup	5/1/14	<10.0	158	158	301	<0.100 J	1.66	112	134	42.5	5.29	79.5	1,080
		10/7/14	<4.00	163	163	249	0.711	1.64	108	127	36.8	4.91	67.2	1,050
		5/22/15	--	--	--	298	<8.00	--	102	--	--	--	--	975
		10/20/15	--	--	--	250	<4.00	--	108	--	--	--	--	823
		5/25/16	--	--	--	307	1.44	--	107	--	--	--	--	1,080
		10/18/16	--	--	--	330	0.855	--	103	--	--	--	--	1,350
05/11/17		--	--	--	353	<0.222	--	112	--	--	--	--	1,080	
10/24/17		--	--	--	240	1.6	--	97	--	--	--	--	742	
05/22/18		--	--	--	346	0.965	--	113	--	--	--	--	1,070	
10/18/18		--	--	--	351	1.1	--	118	--	--	--	--	892	
6/20/19		--	--	--	NS	--	--	--	--	--	--	--	NS	
11/24/19		--	--	--	230.0	--	--	78	--	--	--	--	826	
MW-11		1/22/99	30	<1.0	30	46	2.30	4.20	94	33.0	7.0	9.10	58.0	370
		2/15/01	<1.0	156	156	37	2.40	2.40	120	64.0	19.1	7.83	50.1	360
		5/16/02	<1.0	160	160	31.9	2.13	2.33	98.8	63.5	17.2	4.83	47.0	444
	10/23/02	--	--	--	37.2	--	--	102	--	--	--	--	447	
	5/22/03	12	154	166	32.3	1.74	2.28	96.7	62.3	0.0	4.63	47.6	437	
	11/26/03	<1.0	160	160	32.4	1.83	2.23	96.4	59.2	16.6	4.67	48.6	448	
	5/12/04	<1.00	164	164	34.6	1.71	2.38	97.7	54.8	15.7	4.28	46.2	457	
	11/16/04	<1.00	160	160	39	2.17	2.81	100	65.2	16.8	5.14	54.3	454	
	5/17/05	4	158	162	43.1	1.87	2.82	94.6	68.4	16.9	6.45	44.0	429	
	11/17/05	<10.0	161	161	58.1	1.5	2.1	91.3 D1	75	17.7	4.55	64.7	700 N	
	5/9/06	<10	180	180	37	1.8	1.7	100	54.1	16.2	3.26	46.9	456	
	11/14/06	<10	170	170	34	1.8	1.8	110	58	18.2	4.13	53.4	532	
	5/30/07	<10	142	142	36	1.9	1.79	120	54	16.7	<5	50.8	456	
	11/14/07	<10.0	189	189	42.3	1.98	1.54	95.6 D1	57.2	17.4	<5.000	52.4	452	
	5/15/08	<1.53	177	177	72.4 D1	1.86	1.71	141	58	19.4	4.93	66.5 D1	544	
	11/4/08	<5.0	170	170	49	1.5	1.3	90	60	16	3.6	47	440	
	5/20/09	<5.0	360	360	40	2.2	1.7	130	51	17	4.5	53	450	
	11/4/09	<5.0	150	150	43	1.6	1.6	100	52	15	2.9	42	470	
	5/7/10	<5.0	<5.00	167	36.5	1.97	1.78	117	49.7	14.9	3.42	44.7	494	
	11/9/10	<5.0	269	269	52.5	1.45	1.79	95.4	61	16.7	3.56	50	438	
	5/11/11	<5.0	161	161	133	1.43	2.08	140	78.1	37	6.32	103	664	
	Dup	5/11/11	<5.0	161	161	130	1.44	2.01	137	77.4	37	6.29	104	706
		11/10/11	<5.0	162	162	38.8	1.86	1.49	97.1	66.2	17.9	3.62	52.3	420
		5/17/12	<5.0	176	176	45.8	1.29	1.62	88.5	63.6	16.3	3.66	53.4	456
		10/11/12	<5.0	166	166	44.6	1.49	1.74	95.1	55.8	15.8	3.8	49.3	440
		5/17/13	<5.0	171	171	43.6	1.87	1.67	106	57.7	14.8	3.18	42.9	428
		10/8/13	<6.00	178	178	45.2	1.55	1.74	95.5	60.9	16.1	3.33	52	450
		5/1/14	<10.0	173	173	63.3	<0.100	2.06	93.3	64.4	17.6	3.38	51.5	434
		10/7/14	<4.00	176	176	34.7	1.1	1.71	101	59.2	16.7	3.06	46.5	399
		5/22/15	--	--	--	40.4	<4.00	--	87.2	--	--	--	--	428
		10/20/15	--	--	--	37.6	<2.00	--	89.3	--	--	--	--	356
		5/25/16	--	--	--	34.3	1.87	--	103	--	--	--	--	475
		10/18/16	--	--	--	39.3	0.87	--	96.4	--	--	--	--	418
05/11/17		--	--	--	35.1	<0.111	--	110	--	--	--	--	416	
10/24/17		--	--	--	35.1	1.87	--	95.3	--	--	--	--	438	

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Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹	
NMWQCC Groundwater Standard					250	1.6	10	600					1,000	
Dup	05/22/18	--	--	--	34.6	1.58	--	110	--	--	--	--	421	
	05/22/18	--	--	--	34.5	1.64	--	110	--	--	--	--	415	
	10/18/18	--	--	--	36.9	1.69	--	114	--	--	--	--	413	
	06/20/19	--	--	--	34.4	--	--	--	--	--	--	--	407	
	11/24/19	--	--	--	45.8	--	--	113	--	--	--	--	364	
MW-12*	5/15/02	<1.0	160	160	58.3	1.09	2.44	91.3	53.5	15.9	5.52	50.3	462	
	10/23/02	--	--	--	65	--	--	102	--	--	--	--	477	
	5/22/03	<1.0	148	148	91.1	1.04	2.30	87.7	74.2	21.0	4.89	57.6	516	
	11/25/03	<1.0	142	142	93.1	1.18	2.36	90.9	74.7	20.9	5.41	52.5	548	
	5/12/04	<1.00	458	458	72.9	1.04	2.35	86.7	58.1	19.0	5.92	51.8	489	
	11/15/04	<1.00	184	184	79.8	1.39	2.83	88.8	59.7	21.5	16.50	77.4	512	
	11/17/05	<10.0	151	151	109	0.93	0.12	94.6 D1	193	26.6	13.4	87.5	700	
	11/16/06	<10	270	270	120	0.71	1.7	84	82.3	27	4.82	62.2	620	
	11/16/07	<10.0	170	170	258	1.21	1.55	191 D1	77.2	42.7	11	154	1270	
	11/6/08	<5.0	130	130	110	0.89	1.4	79	61	20	4.5	52	460	
	11/3/09	<25	2,000	2,000	120	0.87	1.6	98	68	24	6	79	600	
	11/9/10	<5.0	144	144	211	0.566	1.76	89.8	75.6	27.8	4.6	60.6	712	
	11/10/11	<5.00	134	134	179	0.464	1.37	92.8	93.8	27.8	4.53	64	594	
	10/11/12	<5.00	145	145	179	0.705	0.791	86.5	80.4	25.4	5.44	62.9	724	
	10/8/13	<6.00	160	160	246	0.621	1.64	84.5	110	30.4	4.92	67.8	944	
	10/7/14	<4.00	145	145	200	0.292	1.7	86.8	93.1	29.3	5.06	65	765	
	10/21/15	--	--	--	165	<4.00	--	72.6	--	--	--	--	--	487
	10/18/16	--	--	--	270	<0.500	--	95.0	--	--	--	--	--	888
	10/24/17	--	--	--	150	<0.500	--	64.9	--	--	--	--	--	579
	10/24/17	--	--	--	149	<0.500	--	64.8	--	--	--	--	--	565
10/18/18	--	--	--	290	0.738	--	106	--	--	--	--	--	790	
06/20/19	--	--	--	254	--	--	--	--	--	--	--	--	580	
11/23/19	--	--	--	337	--	--	140	--	--	--	--	--	1010	
MW-13*	5/13/02	<1.0	100	100	517	<1.00	1.61	437	116.0	76.0	19.40	269.0	1,596	
	10/23/02	--	--	--	549	--	--	370	--	--	--	--	1,740	
	5/22/03	<1.0	186	186	944	<2.00	2.33	361	289.0	101.0	15.30	458.0	3,060	
	11/25/03	<1.0	226	226	1,460	<2.00	2.22	372	369.0	117.0	20.00	478.0	3,445	
	5/12/04	<1.00	234	234	1,550	<4.00	4.58	369	384.0	114.0	18.60	485.0	4,240	
	11/15/04	<1.00	226	226	1,870	<2.00	4.92	384	510.0	164.0	16.50	627.0	3,600	
	11/17/05	<10.0	201	201	722	1	2.5	206 D1	786	91.6	19.7	276	2,350	
	11/16/06	<10	1,500	1,500	2,000	<0.50 N	2.7	500 N	529	176	14.2	493	5,060	
	11/16/07	<10.0	236	236	2,000	0.33	3.05 D1	312 D1	361	105	11.4	553 D1	6,320	
	11/6/08	<5.0	180	180	970	0.98	1.8	280	240	96	17	370	2,400	
	11/3/09	<25	15,000	15,000	2,200	<0.50	2.6	440	490	180	22	490	5,600	
	11/9/10	<5.0	267	267	1,680	0.217	2.82	405	400	120	10.4	540	4,270	
	11/10/11	<5.00	206	206	2,110	0.177	<0.500	273	690	223	13.2	472	4,870	
	10/11/12	<5.00	204	204	2,360	0.307	2.7	422	706	228	14.4	423	6,290	
	10/8/13	<6.00	1780	1780	2,710	0.303	2.59	448	768	225	14	457	7,320	
	10/7/14	<4.00	267	267	1,430	<0.100	1.91	379	355	109	11.3	612	3,940	
10/21/15	--	--	--	1,400	<40.0	--	353	--	--	--	--	--	3,260	
10/18/16	--	--	--	1,940	<0.500	--	440	--	--	--	--	--	5,310	
Well Plugged and Abandoned on 7/11/2017														
MW-14 Dup	10/8/13	<6.00	267	267	162	3.69	<0.100	127	74.4	32.3	8.42	145	854	
	10/8/13	<6.00	271	271	166	3.74	<0.100	130	60.7	26.3	7.97	145	848	
Dup	5/1/14	<10.0	199	199	64	1.19 J	<0.100	84.9	60.8	21.7	3.82	59.8	468	
	10/7/14	<4.00	227	2227	95.2	0.794	<0.0230	22.9	71.3	24.9	3.99	61.8	460	
Dup	10/7/14	<4.00	194	194	55.7	1.36	<0.0230	88.8	59.3	19.1	3.21	49.5	490	
	5/22/15	--	--	--	77.8	<4.00	--	45.4	--	--	--	--	468	
Dup	5/22/15	--	--	--	77.4	<4.00	--	49.0	--	--	--	--	470	
	10/20/15	--	--	--	29.1 J	<2.00	--	53.5 J	--	--	--	--	294	
Dup	10/21/15	--	--	--	58.9 J	<2.00	--	101 J	--	--	--	--	407	
	5/25/16	--	--	--	79.0	1.37	--	19.9	--	--	--	--	552	
Dup	10/18/16	--	--	--	51.8	1.07	--	104	--	--	--	--	422	
	10/18/16	--	--	--	61.2	1.25	--	108 J	--	--	--	--	459	
Dup	05/11/17	--	--	--	70.5	<0.111	--	17.7	--	--	--	--	412	
	10/24/17	--	--	--	57.4	1.77	--	42.2	--	--	--	--	423	
Dup	05/22/18	--	--	--	54.9	1.2	--	47.8	--	--	--	--	390	
	10/18/18	--	--	--	57.2	1.35	--	47.2	--	--	--	--	401	
Dup	06/20/19	--	--	--	42.1	--	--	--	--	--	--	--	481	
	11/24/19	--	--	--	37.1	--	--	94.5	--	--	--	--	328	
Dup	11/24/19	--	--	--	40.4	--	--	95.9	--	--	--	--	324	

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Lea County, NM



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹
NMWQCC Groundwater Standard					250	1.6	10	600					1,000
RW-1	5/27/99	0	224	224	8,700	2.70	7.00	840	679.0	521.0	34.00	3,290	14,000
	5/22/03	<1.0	190	190	2,410	2.46	4.23	345	162.0	145.0	25.40	1,180.0	5,260
	11/26/03	<1.0	184	184	1,990	<4.00	20.00	324	199.0	147.0	38.60	1,080.0	5,050
	5/11/04	<1.00	148	148	491	1.32	2.65	109	66.3	23.4	11.20	252.0	1,224
	11/17/04	<1.00	160	160	633	1.65	3.23	121	89.7	43.5	18.00	382.0	1,314
	11/17/05	<10.0	221	221	895	1	1.4	166 D1	122	70.9	8.4	493	2,380
	11/16/06	<10	380	380	11,000	<0.50	<20 HC	1,100	539	694	43.3	5,580	22,000
Dup	11/15/07	<10.0	359	359	2,380	1.26	3.74 D1	252 D1	141	137	16	1,100 D1	5,280
	11/15/07	<10.0	208	208	2,620	1.24	3.85 D1	316 D1	136	133	15.5	1,040 D1	5,360
	11/12/08	<5.0	210	210	370	0.82	1.9	97	66	34	5	190	920
	11/4/09	<5.0	170	170	1,700	1.1	2.6	250	110	120	22	750	3,800
	11/11/10	<5.0	192	192	1,340	0.716	2.72	204	95.5	104	12.6	792	2,830
	11/10/11	<5.00	396	396	14,000	3.32	9.16	1,540	942	1,260	44.6	8,720	32,200
Dup	10/11/12	<5.00	263	263	6,530	2.19	4.75	625	314	445	28	3,490	10,100
	10/11/12	<5.00	286	286	2,440	0.308	1.23	194	128	156	18.6	1,260	17,000**
Dup	10/8/13	<6.00	285	285	6,050	0.951	4.29	546	760	919	39	6,370	11,200
	10/8/13	<6.00	216	216	10,500	1.270	5.98	926	490	581	31.4	4,170	18,700**
Dup	10/7/14	<4.00	207	207	2,240	1.360	3.62	338	69.6	106	24	1,130	2,760
	10/7/14	<4.00	192	192	2,570	2.510	3.7	363	82	125	26.8	1,350	19,700**
Dup	10/21/15	--	--	--	9,110	<80.0	--	953 J	--	--	--	--	15,300
	10/20/15	--	--	--	10,200	<200	--	1120 J	--	--	--	--	21,600
	12/15/15	--	--	--	1,130	--	--	--	--	--	--	--	2,290
	12/16/15	--	--	--	1,190	--	--	--	--	--	--	--	2,580
	12/17/15	--	--	--	1,030	--	--	--	--	--	--	--	2,260
	12/18/15	--	--	--	988	--	--	--	--	--	--	--	2,350
	1/4/16	--	--	--	1,200	--	--	--	--	--	--	--	2,280
	1/5/16	--	--	--	1,080	--	--	--	--	--	--	--	2,190
	1/6/16	--	--	--	1,120	--	--	--	--	--	--	--	2,240
	1/7/16	--	--	--	1,080	--	--	--	--	--	--	--	2,200
	1/8/16	--	--	--	1,310	--	--	--	--	--	--	--	2,370
	1/11/16	--	--	--	1,030	--	--	--	--	--	--	--	2,210
	1/12/16	--	--	--	1,520	--	--	--	--	--	--	--	2,850
Dup	10/18/16	--	--	--	277	<0.500	--	87.5	--	--	--	--	715
	10/18/16	--	--	--	316	<0.500	--	88.9 J	--	--	--	--	922
	10/25/17	--	--	--	254	1.02	--	75.5	--	--	--	--	2,040
	10/16/18***	--	--	--	304	0.612	--	93.4	--	--	--	--	757
Dup	10/18/18	--	--	--	7,870	<0.100	--	807	--	--	--	--	15,400
	10/18/18	--	--	--	7,830	<0.100	--	873	--	--	--	--	12,700
Dup	6/20/19	--	--	--	9,290	--	--	--	--	--	--	--	22,100
	6/20/19	--	--	--	9,200	--	--	--	--	--	--	--	22,800
	11/24/19	--	--	--	5,780	--	--	722	--	--	--	--	12,200
RW-2	5/22/03	324	<4.00	780	1,580	<2.00	2.43	23.9	1,060.0	<0.500	20.20	258.0	4,310
	11/26/03	64	<4.00	704	1,480	<5.00	5.81	38.3	988.0	<0.500	23.80	240.0	3,535
	11/17/04	104.0	<4.00	692	2,280	<10.0	<10.0	116	1180.0	<0.500	18.50	415.0	3,915
	11/17/05	281	<10.0	422	1,770	0.89	0.6	175 D1	861	16.6	13.1	361	7,350
	11/16/06	49	150	199	2,500	0.57	1.9	370	978	48.8	18	437	5,270
	11/15/07	170	37.8	208	1,680	0.49	1.52	166 D1	586	<5.000	11.2	245	5,590
	11/12/08	150	<5.0	390	2,500	<0.50	0.24	250	1,200	<0.38	6	400	4,800
	11/4/09	34	<5.0	220	2,200	<0.50	1.7	240	940	0.18	16	420	6,300
	11/11/10	113	<5.0	172	2,100	<0.50	2.03	233	967	4.06	8.86	426	4,550
	11/10/11	36.9	<5.00	384	4,330	<10.0	2.13	305	2,040	1.12	18.7	711	8,300
Dup	10/11/12	27.1	<5.00	202	1,920	<0.50	1.93	223	842	0.464	9.3	385	6,680
	10/11/12	31.9	<5.00	206	2,310	<0.50	1.98	228	1,090	2.42	10.5	430	5,250
	10/8/13	66.3	<6.00	117	2,450	0.14	2.36	309	1,570	2.15	15.3	639	4,420
	10/7/14	35.2	<4.00	35.2	2,250	<0.10	2.52	378	995	21.6	10.3	408	3,090
	10/20/15	--	--	--	699	<20.0	--	118	--	--	--	--	2,190
	12/15/15	--	--	--	1,130	--	--	--	--	--	--	--	2,290
	12/16/15	--	--	--	1,190	--	--	--	--	--	--	--	2,580
	12/17/15	--	--	--	1,030	--	--	--	--	--	--	--	2,260
	12/18/15	--	--	--	988	--	--	--	--	--	--	--	2,350
	1/4/16	--	--	--	1,200	--	--	--	--	--	--	--	2,280
	1/5/16	--	--	--	1,080	--	--	--	--	--	--	--	2,190
	1/6/16	--	--	--	1,120	--	--	--	--	--	--	--	2,240
	1/7/16	--	--	--	1,080	--	--	--	--	--	--	--	2,200
	1/8/16	--	--	--	1,310	--	--	--	--	--	--	--	2,370
	1/11/16	--	--	--	1,030	--	--	--	--	--	--	--	2,210
	1/12/16	--	--	--	1,520	--	--	--	--	--	--	--	2,850
	10/18/16	--	--	--	1,450	<0.500	--	270	--	--	--	--	3,910
	10/25/17	--	--	--	1,760	<5.00	--	288	--	--	--	--	4,440
	10/18/18	--	--	--	3,640	<0.100	--	534	--	--	--	--	6,890
	6/20/19	--	--	--	3,180	--	--	--	--	--	--	--	10,200 H
	11/24/19	--	--	--	3,510	--	--	464	--	--	--	--	9,880

Table 2 - Summary of Historical Groundwater Analytical Results
Chevron Environmental Management Company
Cooper Jal Unit South Injection Station (1R-289)
Lea County, NM



Sample ID	Sample Date	Carbonate Alkalinity	Bicarbonate Alkalinity	Total Alkalinity	Chloride ¹	Fluoride ²	Nitrate - N ²	Sulfate ¹	Calcium	Magnesium	Potassium	Sodium	TDS ¹
NMWQCC Groundwater Standard					250	1.6	10	600					1,000
RW-2R	10/8/13	<6.00	146	146	6,550	0.452	1.79	762	1,850	616	25.5	1350	14,600
	10/7/14	<4.00	169	169	5,400	1.56	2.17	707	1,280	470	20.9	1170	13,200
	10/20/15	--	--	--	5,990	<80.0	--	806	--	--	--	--	16,200
	10/18/16	--	--	--	6,390	<0.500	--	797	--	--	--	--	15,200
	10/25/17	--	--	--	7,030	<5.00	--	872	--	--	--	--	12,300
Dup	10/16/18***	--	--	--	1,960	<0.100	--	467	--	--	--	--	3,380
	10/18/18	--	--	--	7,920	<0.100	--	891	--	--	--	--	13,700
	10/18/18	--	--	--	8,060	<0.100	--	815	--	--	--	--	13,300
	6/20/19	--	--	--	7,860	--	--	--	--	--	--	--	29,400
	11/24/19	--	--	--	7,720	--	--	943	--	--	--	--	21,000

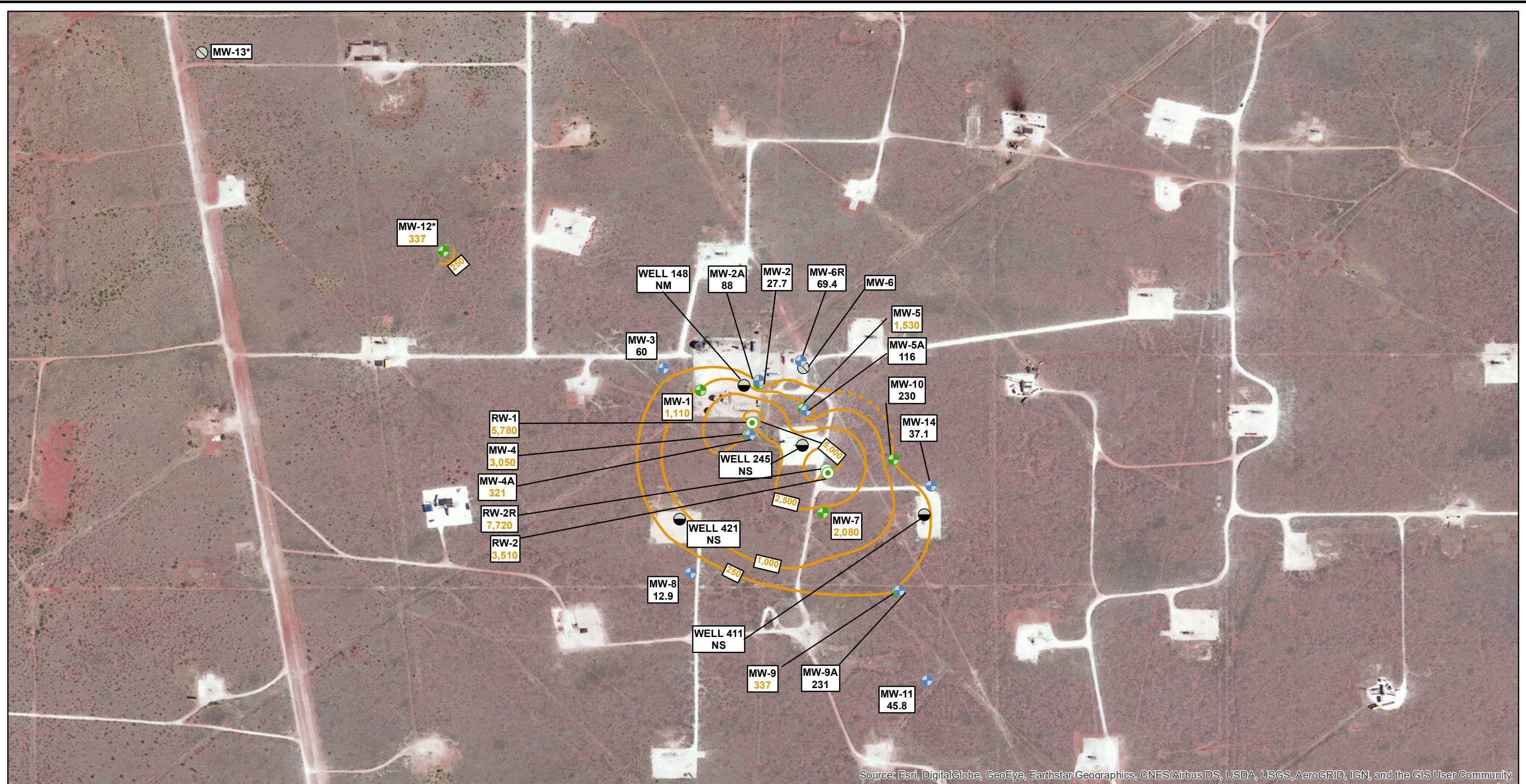
Notes:

1. Bold value indicates a laboratory detection.
2. Shaded cells indicate New Mexico Water Quality Control Commission (NMWQCC) exceedance.
3. Results shown in mg/L.
4. NS - Not Sampled
5. D1 - The analysis was performed at a dilution due to the high analyte concentration.
6. H - The analysis was performed past holding time.
7. C - Elevated detection limit due to matrix effect.
8. J - Estimated Concentration
9. < - Analyte detected below quantitation limit
10. ¹ Human Health Standards for Groundwater.
11. ² Other Standards for Domestic Water Supply.
12. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
13. ** - Reported TDS concentration includes a low bias. Not used in trend comparison.
14. *** - Indicates groundwater monitor well that was sampled prior to semiannual groundwater event via low-flow purge for internal use.

FIGURES



Document Path: \\arcadis-us\officedata\Houston-TX\ENV\ChevronTexaco-TX\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper-Jal\GIS - Cooper-Jal\Figure 4 Chloride Map Combined 01.08.2020



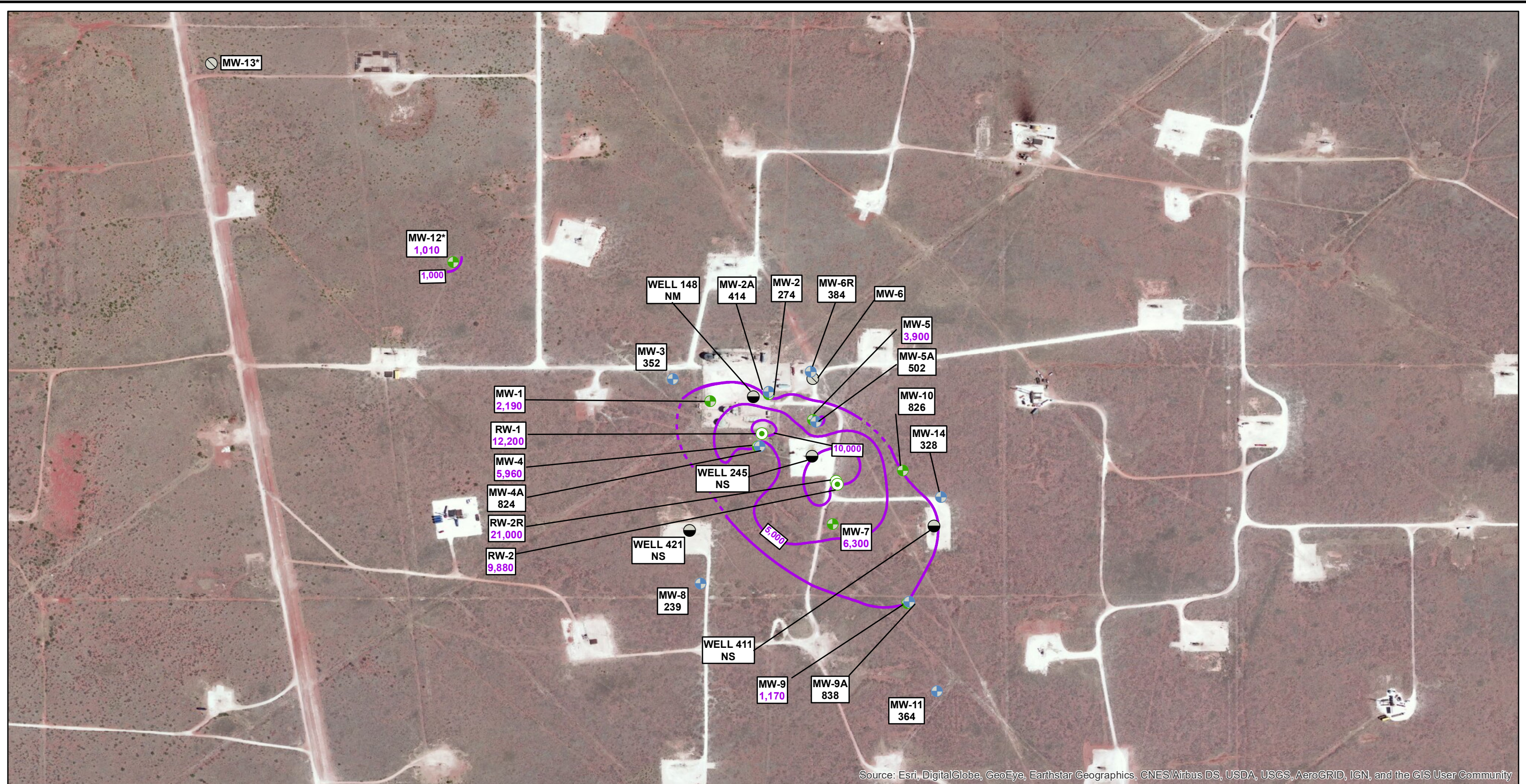
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend	
	Monitoring Well Location
	Monitoring Well Location to be Sampled During Reduced Event
	Recovery Well Location to be Sampled During Reduced Event
	Recovery Well
	Cooper Jal Oil Well
	Plugged & Abandoned Monitoring Well
	Chloride Isoconcentration Contour
	Chloride Concentration in milligrams per liter (mg/L)
	Chloride Concentration (mg/L) Exceeds NMWQCC Other Standards for Domestic Water Supply

Notes:
 1. Datum: D_WGS_1984
 2. Cooper Jal Oil Wells were not gauged
 3. Site Location: 32.19891, -103.21523
 4. NS: Not Sampled
 5. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
 6. Monitoring Wells Highlighted Green are Proposed to be Sampled During Reduced Sampling Event

Chevron Environmental Management Company Cooper-Jal Unit South Injection Site Lea County, New Mexico	
2020 REDUCED SAMPLING PLAN CHLORIDE ISOCONCENTRATION MAP NOVEMBER 2019	
	FIGURE 2

Document Path: \\arcadis-us\office\data\Houston-TX\ENV\ChevronTexaco-TX\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper-Jal\GIS - Cooper-Jal\Figure 5 TDS Map Combined 01.08.2020



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

	Monitoring Well Location		1,000	Total Dissolved Solids (TDS) Isoconcentration Contour
	Monitoring Well Location to be Sampled During Reduced Event		407	TDS Concentration in milligrams per liter (mg/L)
	Recovery Well Location to be Sampled During Reduced Event		1,040	TDS Concentration (mg/L) Exceeds NMWQCC Other Standards for Domestic Water Supply
	Recovery Well			
	Cooper Jal Oil Well			
	Plugged & Abandoned Monitoring Well			

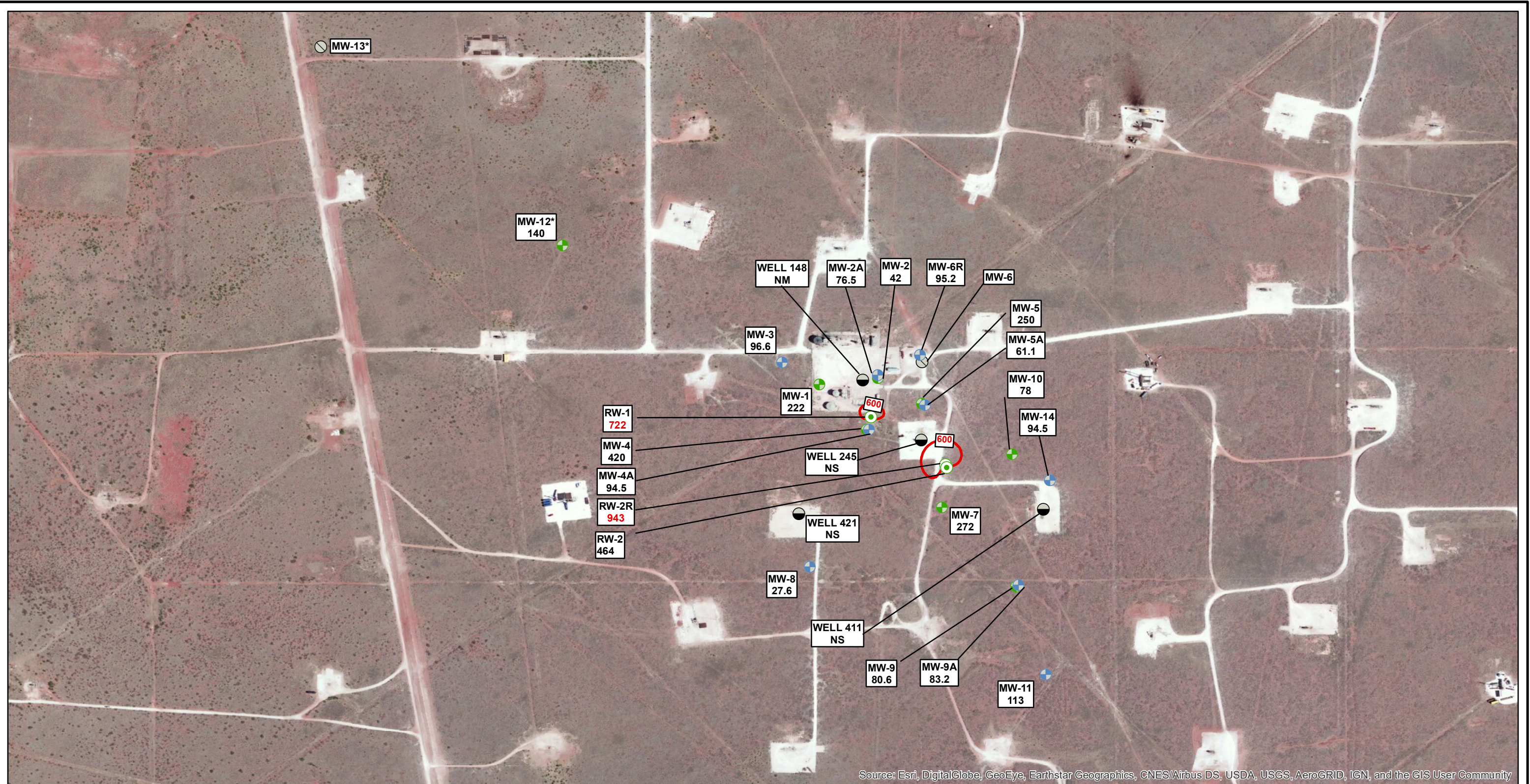
- Notes:
1. Datum: D_WGS_1984
 2. Cooper Jal Oil Wells were not gauged
 3. Site Location: 32.19891, -103.21523
 4. NS: Not Sampled
 5. * - Indicates groundwater monitor well installed off-site and upgradient of plume.
 6. Monitoring Wells Highlighted Green are Proposed to be Sampled During Reduced Sampling Event

Chevron Environmental Management Company
Cooper-Jal Unit South Injection Site
Lea County, New Mexico

**2020 REDUCED SAMPLING PLAN
TDS ISOCONCENTRATION MAP
NOVEMBER 2019**

ARCADIS | FIGURE 3

Document Path: \\arcadis-us\office\data\Houston-TX\ENV\ChevronTexaco-TX\HES Transfer\04 Field Investigations\2019\6 - Annual GWMR\Cooper Jal\GIS - Cooper Jal\Figure 6 Sulfate Map Combined 01.08.2020



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend	
	Monitoring Well Location
	Monitoring Well Location to be Sampled During Reduced Event
	Recovery Well Location to be Sampled During Reduced Event
	Recovery Well
	Cooper Jal Oil Well
	Plugged & Abandoned Monitoring Well
	Sulfate Isoconcentration Contour
	Sulfate Concentration in milligrams per liter (mg/L)
	Sulfate Concentration (mg/L) Exceeds NMWQCC Other Standards for Domestic Water Supply

Notes:
 1. Datum: D_WGS_1984
 2. Cooper Jal Oil Wells were not gauged
 3. Site Location: 32.19891, -103.21523
 4. * - Indicates groundwater monitor well installed off-Site and upgradient of plume.
 5. Monitoring Wells Highlighted Green are Proposed to be Sampled During Reduced Sampling Event

Chevron Environmental Management Company Cooper-Jal Unit South Injection Site Lea County, New Mexico	
2020 REDUCED SAMPLING PLAN SULFATE ISOCONCENTRATION MAP NOVEMBER 2019	
	FIGURE 4

APPENDIX C

2023 Revised Sample Analysis Plan with NMOCD approval email



Appendix E
 2023 Groundwater Sampling and Analysis Plan
 Chevron Environmental Management Company
 Cooper Jal Unit South Injection Station (1R-289)
 Lea County, NM



First Semi-Annual Monitoring Event						Second Semi-Annual Monitoring Event					Rationale for Reduction
Monitoring Well ID	Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300		Gauge Depth to Groundwater and Total Depth	Collect Conductivity Level every two (2) feet	Total Dissolved Solids by State Method 2540C	Inorganic Anions by USEPA Method 300		
				Chloride	Sulfate				Chloride	Sulfate	
MW-1	X	X	X	X	--	X	--	X	X	--	
MW-2	X	X	X	X	--	X	--	X	X	--	
MW-2A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-3	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-4	X	X	X	X	--	X	--	X	X	--	
MW-4A	X	X	X	X	X	X	--	--	--	--	Stable Trend
MW-5	X	X	X	X	--	X	--	X	X	--	
MW-5A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-6R	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-7	X	X	X	X	--	X	--	X	X	--	
MW-8	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-9	X	X	X	X	--	X	--	X	X	--	
MW-9A	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-10	X	X	X	X	--	X	--	X	X	--	
MW-11	X	X	X	X	--	X	--	--	--	--	Stable Trend
MW-12	X	X	X	X	--	X	--	X	X	--	
MW-14	X	X	X	X	--	X	--	--	--	--	Stable Trend
RW-1	X	X	X	X	--	X	--	X	X	--	
RW-2	X	X	X	X	--	X	--	X	X	--	
RW-2R	X	X	X	X	X	X	--	X	X	--	

Notes:
 USEPA = United States Environmental Protection Agency
 X = Data will be collected at monitoring well during respective event.
 -- = Data will not be collected at monitoring well during semi-annual event

Grant, Russell

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Sent: Friday, February 17, 2023 8:43 AM
To: Grant, Russell
Cc: Velez Gonzalez, Lydia
Subject: RE: [EXTERNAL] FW: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

Good morning Russell,

Thanks for your inquiries. The following addresses the request clarifications noted below;

Bullet #2 response: Both
Bullet #4 response: Annual sampling, so only once a yr.

Chevron may sample monitor wells more frequently if they choose to do so.

If you have any further questions, please reach out at your convenience.

Regards,

Nelson Velez • Environmental Specialist - Adv
Environmental Bureau | EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87410
(505) 469-6146 | nelson.velez@emnrd.nm.gov
<http://www.emnrd.state.nm.us/OCD/>



From: Grant, Russell <Russell.Grant@arcadis.com>
Sent: Thursday, February 16, 2023 2:03 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Velez Gonzalez, Lydia <Lydia.VelezGonzalez@arcadis.com>
Subject: [EXTERNAL] FW: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Hello Nelson-

In review of the comments provided for the Cooper Jal Proposed Groundwater Monitoring Reduction Work Plan, I have a few questions to ensure we amend our sampling analysis plan correctly.

1. Understood – Sulfate analysis will be collected from MW-4A and RW-2R, during first semi-annual event.

2. **Request clarification** – Is the OCD approving the termination of future sampling from; **MW-2A, MW-3, MW-5A, MW-6R, MW-8, and MW-14**; from both semi-annual monitoring events, or only the second semi-annual monitoring event?
3. Understood – MW-11 will only be sampled during the first semi-annual monitoring event.
4. **Request clarification** – Arcadis understands that monitoring and recovery wells with COCs concentrations above NMWQCC exceedance standards for Chloride and TDS will be sampled during both site groundwater monitoring events. Arcadis would appreciate the OCD's confirmation of this understanding.

Thank you,

Russell Grant PMP
Project Manager
Arcadis U.S., Inc.
10205 Westheimer Road, Suite 800| Houston, TX | 77042 | USA
T +1 432 217 2064
M +1 432 214 1542
www.arcadis.com



From: Johnson, Sarah <Sarah.Johnson@arcadis.com>
Sent: Monday, February 13, 2023 11:39 AM
To: Foord, Scott <William.Foord@arcadis.com>; Jordan, Morgan <Douglas.Jordan@arcadis.com>
Cc: Grant, Russell <Russell.Grant@arcadis.com>
Subject: RE: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

Cooper Jal actually

From: Foord, Scott <William.Foord@arcadis.com>
Sent: Monday, February 13, 2023 11:36 AM
To: Johnson, Sarah <Sarah.Johnson@arcadis.com>; Jordan, Morgan <Douglas.Jordan@arcadis.com>
Subject: FW: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

Which one is this? F-State maybe?

Thanks,
Scott
Direct 713-953-4853
Cell 281-725-7477

From: OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Sent: Monday, February 13, 2023 11:26 AM
To: Foord, Scott <William.Foord@arcadis.com>
Subject: The Oil Conservation Division (OCD) has approved the application, Application ID: 9290

To whom it may concern (c/o William Foord for Arcadis U.S., Inc),

The OCD has approved the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nAUTOfAB000105, with the following conditions:

- **Review of Proposed Groundwater Monitoring Reduction Workplan: Content satisfactory 1. OCD approves the sulfate analysis be discontinued from all site wells except MW-4A and RW-2R. These two identified wells will require only one annual sampling event for sulfate. 2. OCD approves the termination of future sampling from MW-2A, MW-3, MW-5A, MW-6R, MW-8, and MW-14. 3. OCD approves the second semi-annual sampling event elimination for MW-11. 4. OCD approves annual sampling for those monitoring and recovery wells with COC concentrations reported above the NMWQCC exceedance standards.**

The signed C-141 can be found in the OCD Online: Imaging under the incident ID (n#).

If you have any questions regarding this application, please contact me.

Thank you,
Nelson Velez
Environmental Specialist - Advanced
505-469-6146
Nelson.Velez@emnrd.nm.gov

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

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APPENDIX D

NMOSE Application to Divert Groundwater CP-884 and CP-885





STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

ROSWELL

JOHN R. D'ANTONIO, JR. P.E.
State Engineer

DISTRICT II
1900 West Second St.
Roswell, New Mexico 88201
(505) 622-6521

June 18, 2008

Texaco Exploration and Production, Inc.
% Mark Larson
P.O. Box 730
Hobbs, NM 88240-0730

REF: CP-884

Greetings:

Enclosed is your copy of the above numbered permit, which has been approved subject to the conditions set forth on the approval page thereof.

Proof of Completion of Well(s) will be filed in this office after completion and installation of equipment, but in no event later than 06/30/2010. Proof of Completion of Well forms shall be mailed upon request.

Your rights under this permit will expire on 06/30/2010, unless Proof of Completion of Well(s) is filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,

AM
for

Andy Morley
(575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

SPECIFIC CONDITIONS OF APPROVAL

PCW Proof of Completion of Works must be filed on or before 6/30/2010

1. This application is approved as follows:

Permit Number: CP-884

Water Source: Capitan Shallow Groundwater

Point(s) of Diversion:

Well No.	Subdivision	Section	Township	Range
CP-884	NW1/4NW1/4SE1/4	24	24 S.	36 E.

Purpose of Use: Environmental Remediation

Place of Use:

Subdivision	Section	Township	Range
NW1/4NW1/4SE1/4	24	24 S.	36 E.

Amount of Water: Up to 32.5 acre-feet per annum (consumptive use)

2. The diversion of water under this permit shall be limited to a maximum of 32.5 acre-feet per annum, consumptive use, for Environmental Remediation purposes measured at the well.

3. Depth of well shall not exceed the thickness of the Capitan Reef formation.

4. The proposed new well CP-884 shall be drilled at least 660 feet from all wells of other ownership.

5. A totalizing meter of a type approved by and installed in a manner and at a location acceptable to the Office of the State Engineer shall be installed before the first branch of the discharge line from well CP-884. The District II Office shall be advised of the make, model, serial number, installation date and initial reading of the meter prior to any appropriation of water under this permit.

6. Records of the total amount of water diverted from all wells shall be submitted to the State Engineer Office in Roswell on or before the 10th day of January, April, July and October of each year.

File Number: CP-884

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

7. Upon completion of the remediation or monitoring operation purposes, the well shall be plugged (Article 4) or otherwise maintained so that no water may be diverted from said well unless a permit authorizing the use of the well is approved by the State Engineer in accordance with the other articles of these Rules and Regulations.

8. A driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon Request.

9. The permittee shall utilize the highest technology available to ensure conservation of water to the maximum extent practical.

10. The diversion of water specified under this permit for pollution control shall not establish a water right or relieve the permittee of any liability for detriment to or impairment of existing water rights.

11. This permit shall not be exercised to the detriment of valid existing water rights, shall not be contrary to the conservation of water within the State of New Mexico, and shall not be detrimental to the public welfare of the State of New Mexico.

File Number: CP-884

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

ACTION OF STATE ENGINEER

Notice of Intention Rcvd:	Date Rcvd. Corrected:
Formal Application Rcvd: 11/09/1999	Pub. of Notice Ordered: 01/19/2000
Date Returned - Correction:	Affidavit of Pub. Filed: 03/14/2000

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 18th day of Jun A.D., 2008

John R. D Antonio, Jr., P.E., State Engineer

By: Ken M. Fresquez
Ken Fresquez, District II Supervisor

IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

2-09704
75.

APPLICATION FOR PERMIT

To ^{Divert} ~~Appropriate~~ the Underground Waters of the State of New Mexico

- Date Received 11-9-99 File No. CP-884
- Name of applicant Texaco Exploration and Production, Inc.
Mailing address P. O. Box 730
City and State Hobbs, NM 88240-0370
 - Source of water supply Shallow Water Aquifer, located in Capitan
(artesian or shallow water aquifer) (name of underground basin)
 - The well is to be located in the NW 1/4 NW 1/4 SE 1/4, Section 24 Township 24 South
Range 36 East N.M.P.M., or Tract No. _____ of Map No. _____ of the _____ District,
on land owned by ~~XXXXXXXXXXXX~~ Ludean Cantrell
 - Description of well: name of driller RW-2, Scarborough Drilling, Inc., Lamesa, Texas ;
Outside Diameter of casing 5" inches; Approximate depth to be drilled 175' feet;
 - Quantity of water to be appropriated and beneficially used 32.5 acre feet,
(consumptive use, diversion)
for Environmental Remediation purposes.
 - Acreage to be irrigated or place of use _____ acres.

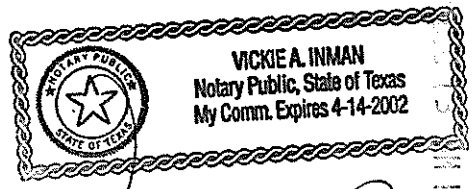
Subdivision	Section	Township	Range	Acres	Owner

7. Additional statements or explanations Pursuant to New Mexico Oil Conservation Division (NMOCD), Environmental Bureau direction, and after correspondence between applicant and the Bureau, a plan has been approved to initiate corrective action. The action will include recovering water from said well, equipped with pumping equipment, and disposal of produced water in applicant's disposal system.

STATE OF NEW MEXICO
 NOTARY PUBLIC OFFICE
 1999 NOV -9 AM 11:42

I, Mark J. Larson (for Applicant), affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Texaco Exploration and Production, Inc.
By: [Signature]



Subscribed and sworn to before me this 26th day of October, A.D., 1999
My commission expires 4-14-2002
[Signature]
Notary Public

172258



STATE OF NEW MEXICO

OFFICE OF THE STATE ENGINEER

ROSWELL

JOHN R. D'ANTONIO, JR. P.E.
State Engineer

DISTRICT II
1900 West Second St.
Roswell, New Mexico 88201
(505) 622-6521

June 18, 2008

Texaco Exploration and Production, Inc.
% Mark Larson
P.O. Box 730
Hobbs, NM 88240-0730

REF: CP-885


Greetings:

Enclosed is your copy of the above numbered permit, which has been approved subject to the conditions set forth on the approval page thereof.

Proof of Completion of Well(s) will be filed in this office after completion and installation of equipment, but in no event later than 06/30/2010. Proof of Completion of Well forms shall be mailed upon request.

Your rights under this permit will expire on 06/30/2010, unless Proof of Completion of Well(s) is filed or an Application for Extension of Time is received in this office on or before that date.

Sincerely,


for Andy Morley
(575) 622-6521, ext 113

Enclosure

cc: Santa Fe Office

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

SPECIFIC CONDITIONS OF APPROVAL

PCW Proof of Completion of Works must be filed on or before 6/30/2010

1. This application is approved as follows:

Permit Number: CP-885

Water Source: Capitan Shallow Groundwater

Point(s) of Diversion:

Well No.	Subdivision	Section	Township	Range
CP-885	NW1/4NW1/4SE1/4	24	24 S.	36 E.

Purpose of Use: Environmental Remediation

Place of Use:

Subdivision	Section	Township	Range
NW1/4NW1/4SE1/4	24	24 S.	36 E.

Amount of Water: Up to 32.5 acre-feet per annum (consumptive use)

2. The diversion of water under this permit shall be limited to a maximum of 32.5 acre-feet per annum, consumptive use, for Environmental Remediation purposes measured at the well.

3. Depth of well shall not exceed the thickness of the Capitan Reef formation.

4. The proposed new well CP-885 shall be drilled at least 660 feet from all wells of other ownership.

5. A totalizing meter of a type approved by and installed in a manner and at a location acceptable to the Office of the State Engineer shall be installed before the first branch of the discharge line from well CP-885. The District II Office shall be advised of the make, model, serial number, installation date and initial reading of the meter prior to any appropriation of water under this permit.

6. Records of the total amount of water diverted from all wells shall be submitted to the State Engineer Office in Roswell on or before the 10th day of January, April, July and October of each year.

File Number: CP-885

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

7. Upon completion of the remediation or monitoring operation purposes, the well shall be plugged (Article 4) or otherwise maintained so that no water may be diverted from said well unless a permit authorizing the use of the well is approved by the State Engineer in accordance with the other articles of these Rules and Regulations.

8. A driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon Request.

9. The permittee shall utilize the highest technology available to ensure conservation of water to the maximum extent practical.

10. The diversion of water specified under this permit for pollution control shall not establish a water right or relieve the permittee of any liability for detriment to or impairment of existing water rights.

11. This permit shall not be exercised to the detriment of valid existing water rights, shall not be contrary to the conservation of water within the State of New Mexico, and shall not be detrimental to the public welfare of the State of New Mexico.

File Number: CP-885

NEW MEXICO STATE ENGINEER
APPLICATION TO DIVERT (GROUND)

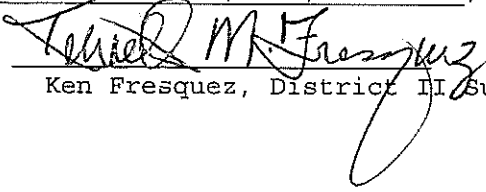
ACTION OF STATE ENGINEER

Notice of Intention Rcvd:	Date Rcvd. Corrected:
Formal Application Rcvd: 11/09/1999	Pub. of Notice Ordered: 01/19/2000
Date Returned - Correction:	Affidavit of Pub. Filed: 03/14/2000

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 16th day of Jun A.D., 2008

John R. D Antonio, Jr., P.E., State Engineer

By: 
Ken Fresquez, District II Supervisor

IMPORTANT-READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

2-09704
75.

APPLICATION FOR PERMIT

To Divert
~~To appropriate~~ the Underground Waters of the State of New Mexico

Date Received 11-9-99 File No. CP-885

- Name of applicant Texaco Exploration and Production, Inc.
Mailing address P. O. Box 730
City and State Hobbs, NM 88240-0730
- Source of water supply Shallow Water Aquifer, located in Capitan
(artesian or shallow water aquifer) (name of underground basin)
- The well is to be located in the NW 1/4 NW 1/4 SE 1/4, Section 24 Township 24 South
Range 36 East N.M.P.M., or Tract No. _____ of Map No. _____ of the Capitan District,
on land owned by ~~XXXXXXXXXXXX~~ Ludean Cantrell
- Description of well: name of driller RW-1, Scarborough Drilling, Inc., Lamesa, Texas;
Outside Diameter of casing 5" inches; Approximate depth to be drilled 175' feet;
- Quantity of water to be appropriated and beneficially used 32.5 acre feet,
(consumptive use, diversion)
for Environmental Remediation purposes.
- Acreage to be irrigated or place of use _____ acres.

Subdivision	Section	Township	Range	Acres	Owner

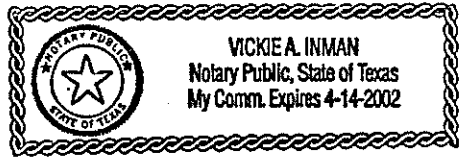
STATE DEPARTMENT OF AGRICULTURE
POSTAL SERVICE
1999 OCT 13 AM 11:10

7. Additional statements or explanations Pursuant to New Mexico Oil Conservation Division (NMOCD), Environmental Bureau direction and after correspondence between applicant and the Bureau, a plan has been approved to initiate corrective action. The action will include recovering water from said well, equipped with pumping equipment, and disposal of produced water in applicant's injection system.

STATE DEPARTMENT OF AGRICULTURE
POSTAL SERVICE
1999 NOV 9 AM 11:41

I, Mark J. Larson (for Applicant), affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Texaco Exploration and Production, Inc., Permittee,
By: [Signature]



Subscribed and sworn to before me this 26th day of October, A.D., 19 99
My commission expires 4-14-2002
[Signature]
Notary Public

#172263

Number of this permit _____

ACTION OF STATE ENGINEER

After notice pursuant to statute and by authority vested in me, this application is approved provided it is not exercised to the detriment of any others having existing rights; further provided that all rules and regulations of the State Engineer pertaining to the drilling of shallow wells be complied with; and further subject to the following conditions: _____

see attached conditions of approval

Proof of completion of well shall be filed on or before June 30, 2010, ~~XX~~

Proof of application of water to beneficial use shall be filed on or before N/A, ~~XX~~

Witness my hand and seal this 16th day of June, A.D., ~~XX~~ 2008.

John R. D'Antonio, Jr., P.E., State Engineer

By: Kenneth M. Fresquez
Kenneth M. Fresquez, District II Manager

INSTRUCTIONS

This form shall be executed, preferably typewritten, in triplicate and shall be accompanied by a filing fee of \$25.00. Each of triplicate copies must be properly signed and attested.

A separate application for permit must be filed for each well used.

Secs. 1-4—Fill out all blanks fully and accurately.

Sec. 5—Irrigation use shall be stated in acre feet of water per acre per annum to be applied on the land. If for municipal or other purposes, state total quantity in acre feet to be used annually.

Sec. 6—Describe only the lands to be irrigated or where water will be used. If on unsurveyed lands describe by legal subdivision "as projected" from the nearest government survey corners, or describe by metes and bounds and tie survey to some permanent, easily located natural object.

Sec. 7—If lands are irrigated from any other source, explain in this section. Give any other data necessary to fully describe water right sought.

APPENDIX E

WR-07 Application for Permit to Drill



File No. **CP-884**

NEW MEXICO OFFICE OF THE STATE ENGINEER



**WR-07 APPLICATION FOR PERMIT TO DRILL
A WELL WITH NO WATER RIGHT**



(check applicable box):

For fees, see State Engineer website: <http://www.ose.state.nm.us/>

Purpose:	<input type="checkbox"/> Pollution Control And/Or Recovery	<input type="checkbox"/> Ground Source Heat Pump
<input type="checkbox"/> Exploratory Well (Pump test)	<input type="checkbox"/> Construction Site/Public Works Dewatering	<input type="checkbox"/> Other(Describe):
<input checked="" type="checkbox"/> Monitoring Well	<input type="checkbox"/> Mine Dewatering	

A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive.

<input type="checkbox"/> Temporary Request - Requested Start Date:	Requested End Date:
--	---------------------

Plugging Plan of Operations Submitted? Yes No

1. APPLICANT(S)

Name: Chevron Environmental Management Company	Name: GHD Services Inc.
Contact or Agent: check here if Agent <input type="checkbox"/> Kegan Boyer	Contact or Agent: check here if Agent <input checked="" type="checkbox"/> Janie Smith
Mailing Address: 1400 Smith Street, Room 07076	Mailing Address: 5551 Corporate Blvd, Ste 200
City: Houston	City: Baton Rouge
State: Texas Zip Code: 77002	State: Louisiana Zip Code: 70808
Phone: <input type="checkbox"/> Home <input type="checkbox"/> Cell Phone (Work): 713-372-7705	Phone: <input type="checkbox"/> Home <input type="checkbox"/> Cell Phone (Work): 225-292-9007
E-mail (optional): kegan.boyer@chevron.com	E-mail (optional): janie.smith@ghd.com

FOR OSE INTERNAL USE

Application for Permit, Form WR-07, Rev 11/17/16

File No.: CP-884	Trn. No.:	Receipt No.: 2-37772
Trans Description (optional): POD2		
Sub-Basin: CP	PCW/LOG Due Date: 1-31-18	

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

NM State Plane (NAD83) (Feet) UTM (NAD83) (Meters) Lat/Long (WGS84) (to the nearest 1/10th of second)
 NM West Zone Zone 12N
 NM East Zone Zone 13N
 NM Central Zone

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (Quarters or Halves, Section, Township, Range) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
CP-884 POD 2 RW-2	-103.216239	32.200676	NE1/4 SW1/4, Section 24, 24S 36E

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 -- POD Descriptions)
 Additional well descriptions are attached: Yes No If yes, how many _____

Other description relating well to common landmarks, streets, or other:
 Included in the Cooper Jal Unit South Injection Station

Well is on land owned by: James R. Pruett, et al.

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? Yes No
 If yes, how many _____

Approximate depth of well (feet): 174.0 Outside diameter of well casing (inches): 5.0

Driller Name: Driller License Number:

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

Currently, well RW-2 is registered under NMOSE Well Permit CP-884 as a Recovery Well. The well casing was damaged in circa 2013 to the extent that a pump can no longer be fitted in the well. However, the well still has utility as a monitoring location. We request that the well classification be changed from Recovery Well to Monitoring Well. This Monitoring Well will be utilized as a monitoring point for ongoing remedial activities at the Cooper Jal Unit South Injection Station. Monitoring will continue until closure for this site is granted by the NMOCD.

FOR OSE INTERNAL USE

Application for Permit, Form WR-07

File No.: CP-884	Trn No.:
------------------	----------

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory: <input type="checkbox"/> Include a description of any proposed pump test, if applicable.	Pollution Control and/or Recovery: <input type="checkbox"/> Include a plan for pollution control/recovery, that includes the following: <input type="checkbox"/> A description of the need for the pollution control or recovery operation. <input type="checkbox"/> The estimated maximum period of time for completion of the operation. <input type="checkbox"/> The annual diversion amount. <input type="checkbox"/> The annual consumptive use amount. <input type="checkbox"/> The maximum amount of water to be diverted and injected for the duration of the operation. <input type="checkbox"/> The method and place of discharge.	Construction De-Watering: <input type="checkbox"/> Include a description of the proposed dewatering operation, <input type="checkbox"/> The estimated duration of the operation, <input type="checkbox"/> The maximum amount of water to be diverted, <input type="checkbox"/> A description of the need for the dewatering operation, and, <input type="checkbox"/> A description of how the diverted water will be disposed of.	Mine De-Watering: <input type="checkbox"/> Include a plan for pollution control/recovery, that includes the following: <input type="checkbox"/> A description of the need for mine dewatering. <input type="checkbox"/> The estimated maximum period of time for completion of the operation. <input type="checkbox"/> The source(s) of the water to be diverted. <input type="checkbox"/> The geohydrologic characteristics of the aquifer(s). <input type="checkbox"/> The maximum amount of water to be diverted per annum. <input type="checkbox"/> The maximum amount of water to be diverted for the duration of the operation. <input type="checkbox"/> The quality of the water. <input type="checkbox"/> The method of measurement of water diverted.
Monitoring: <input checked="" type="checkbox"/> Include the reason for the monitoring well, and, <input checked="" type="checkbox"/> The duration of the planned monitoring.	<input type="checkbox"/> The method of measurement of water produced and discharged. <input type="checkbox"/> The source of water to be injected. <input type="checkbox"/> The method of measurement of water injected. <input type="checkbox"/> The characteristics of the aquifer. <input type="checkbox"/> The method of determining the resulting annual consumptive use of water and depletion from any related stream system. <input type="checkbox"/> Proof of any permit required from the New Mexico Environment Department. <input type="checkbox"/> An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	Ground Source Heat Pump: <input type="checkbox"/> Include a description of the geothermal heat exchange project, <input type="checkbox"/> The number of boreholes for the completed project and required depths. <input type="checkbox"/> The time frame for constructing the geothermal heat exchange project, and, <input type="checkbox"/> The duration of the project. <input type="checkbox"/> Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	<input type="checkbox"/> The recharge of water to the aquifer. <input type="checkbox"/> Description of the estimated area of hydrologic effect of the project. <input type="checkbox"/> The method and place of discharge. <input type="checkbox"/> An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. <input type="checkbox"/> A description of the methods employed to estimate effects on surface water rights and underground water rights. <input type="checkbox"/> Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Janie Smith (GHD), on behalf on Chevron Environmental Management Company
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

Janie Smith
Applicant Signature

Applicant Signature

ACTION OF THE STATE ENGINEER

This application is:

approved partially approved denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 12th day of January 20 17, for the State Engineer,

Tom Blaine, P.E., State Engineer

By: Tim Williams
Signature

Print

Title: Tim Williams, Supervisor/Pecos River Watermaster
Print

FOR OSE INTERNAL USE

Application for Permit, Form WR-07

File No.: <u>CP-884</u>	Trn No.: _____
-------------------------	----------------

**NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO MONITOR**

SPECIFIC CONDITIONS OF APPROVAL

- 1A** Depth of the well shall not exceed the thickness of the valley fill.
- 4** No water shall be appropriated and beneficially used under this permit.
- B** The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.
- C** Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.
- C2** No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days, unless a permit to use water from this well is acquired from the Office of the State Engineer.
- 6** The well shall be plugged upon completion of the permitted use, and a plugging report shall be filed with the State Engineer within 10 days.
- 7** The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.
- P** The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between geologic zones.
- Q** The State Engineer retains jurisdiction over this permit.
- R** Pursuant to section 72-8-1 NMSA, the permittee shall allow the State Engineer and his representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

IT IS THE PERMITTEES RESPONSIBILITY TO OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

SHOULD THE PERMITTEE CHANGE THE PURPOSE OF USE TO OTHER THAN MONITORING PURPOSES, AN APPLICATION SHALL BE ACQUIRED FROM THE OFFICE OF THE STATE ENGINEER.

THE PERMITTEE SHALL CONFIRM THE WELL ANNULAR SEAL CONFORMS TO N.M.A.C. 19.27.4.30 REGULATIONS BY *MARCH 31, 2017*.

LOG The Point of Diversion **CP-884 POD2** must be completed and the Well Log filed on or before **01/31/18**.

File Nbr: CP-884 POD2

**NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO MONITOR**

ACTION OF STATE ENGINEER

Notice of Intention Rcvd:		Date Rcvd. Corrected:
Formal Application Rcvd:	12/19/16	Pub. Of Notice Ordered:
Date Returned – Correction:		Affidavit of Pub. Filed:

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 13th day of January A.D., 2017.

Tom Blaine, P.E., State Engineer

By: 
Tim Williams, Supervisor/Pecos River Watermaster

File Nbr: CP-884 POD2

Tom Blaine, P.E.
State Engineer



1900 W Second Street
Roswell, NM 88201
575-622-6521
Fax: 575-623-8559

**STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER**

File Nbr: CP-884 POD2

January 12, 2017

GHD SERVICES INC
JANIE SMITH
5551 CORPORATE BLVD STE 200
BATON ROUGE, LA 70808

RE: CHEVRON ENVIRO MGMT CO, KEGAN BOYER

Greetings:

Enclosed is your copy of the above numbered permit that has been approved subject to the conditions set forth on the approval page. In accordance with the conditions of approval, the well can only be tested for 10 cumulative days, and the well is to be plugged on or before **01/31/18**, unless a permit to use the water is acquired from this office.

A Well Record & Log (OSE Form wr-20) shall be filed in this office within twenty (20) days after completion of drilling, but no later than **01/31/18**.

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us or will be mailed upon request.

Sincerely,

A handwritten signature in cursive script, appearing to read "T Williams".

 Tim Williams
Supervisor/Pecos River Watermaster
575-622-6521

Enclosure
cc: Santa Fe Office

Goetz, Catherine, OSE

From: Smith, Janie [Janie.Smith@ghd.com]
Sent: Friday, January 06, 2017 4:05 PM
To: Goetz, Catherine, OSE
Cc: Gilliam, Stefanie
Subject: Cooper Jal Site - RW-2

Hi Catherine,

I'm sorry that I have not gotten back to you until now about RW-2 at the Cooper Jal Site in NM. I've been trying to track down someone who was involved in the project when the well got damaged to try to determine the nature of the damage. I have not had any luck. All I know is that in 2013, some of our field samplers put a sampling pump down it and the pump got stuck and took them quite a while to get out. They have been successful since then at sampling the well using a bailer or a hydrasleeve, but as far as the nature of the damage, no one that I've spoken to knows. I know there is no surficial damage – ie: the stick-up well was not hit by a truck, etc. Anyway, we would like to get one of our techs out there to take a closer look at some point, so let's hold off for now on the re-classification application if you don't mind. Thank you for your patience.

Have a great weekend!

Janie Tarman Smith
GHD

T: +1 225 292 9007 | M: +1 919 260 8533 | E: janie.smith@ghd.com
5551 Corporate Blvd. Baton Rouge, LA 70808 United States

[WATER](#) | [ENERGY & RESOURCES](#) | [ENVIRONMENT](#) | [PROPERTY & BUILDINGS](#) | [TRANSPORTATION](#)

Please consider our environment before printing this email

CONFIDENTIALITY NOTICE: This email, including any attachments, is confidential and may be privileged. If you are not the intended recipient please notify the sender immediately, and please delete it; you should not copy it or use it for any purpose or disclose its contents to any other person. GHD and its affiliates reserve the right to monitor and modify all email communications through their networks.

Mendiola, Yolanda L., OSE

From: Lucero, Roxanne E., OSE
Sent: Tuesday, December 27, 2016 3:07 PM
To: Mendiola, Yolanda L., OSE
Subject: RE: CP-884

Hi Yolanda,
Sorry for the delay, but I had to sort through this file to see what was going on with it. So based on what we have here for CP-884, it looks like the current pod being used for this file would be CP-884 POD2. So this permit will keep the same file number of CP-884 and will be using pod CP-884 POD2. Thank you! Hope you have a great day too! :)

Thanks,
Roxanne Lucero

-----Original Message-----

From: Mendiola, Yolanda L., OSE
Sent: Tuesday, December 27, 2016 2:14 PM
To: Lucero, Roxanne E., OSE
Subject: RE: CP-884

Yes mam

-----Original Message-----

From: Lucero, Roxanne E., OSE
Sent: Tuesday, December 27, 2016 2:03 PM
To: Mendiola, Yolanda L., OSE
Subject: RE: CP-884

So are the applicant's ONLY wanting to change the use from a recovery well to monitoring use for a well that has already been drilled?

-----Original Message-----

From: Mendiola, Yolanda L., OSE
Sent: Tuesday, December 27, 2016 1:48 PM
To: Lucero, Roxanne E., OSE
Subject: CP-884

Hi Roxanne,

I have the attached app/pmt for a monitoring well. As stated in the explanations it was an recovery well. Do we want to give it the same file number and POD? I see that there was an app for APPRO and it is still in REC/AOP status. Please let me know how to proceed,

Thanks
Have a great day
Yolanda

-----Original Message-----

From: d2xerox7545@state.nm.us [mailto:d2xerox7545@state.nm.us]
Sent: Tuesday, December 27, 2016 2:15 PM
To: Mendiola, Yolanda L., OSE
Subject: Scanned from a Xerox multifunction device

APPENDIX F

Groundwater Analytical Reports (2016 through 2023)



Analytical Report 530715

for
GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper-Jal

039123

02-JUN-16

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534-15-1)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)



02-JUN-16

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **530715**
CEMC Cooper-Jal
Project Address: Lea County, NM

Chris Knight:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 530715. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 530715 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

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Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America



Sample Cross Reference 530715

GHD Services, INC- Midland, Midland, TX

CEMC Cooper-Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-08-052516	W	05-25-16 12:00		530715-001
MW-11-052516	W	05-25-16 11:00		530715-002
MW-09-052516	W	05-25-16 11:20		530715-003
MW-14-052516	W	05-25-16 12:55		530715-004
MW-10-052516	W	05-25-16 13:15		530715-005
DUP-01-052516	W	05-25-16 00:00		530715-006



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper-Jal

Project ID: 039123
Work Order Number(s): 530715

Report Date: 02-JUN-16
Date Received: 05/25/2016

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper-Jal

Project ID: 039123
Work Order Number(s): 530715

Report Date: 02-JUN-16
Date Received: 05/25/2016

Batch: LBA-995405 Inorganic Anions by EPA 300/300.1

Lab Sample ID 530883-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Fluoride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 530715-001, -002, -003, -004, -005, -006.

The Laboratory Control Sample for Chloride , Fluoride, Sulfate is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX
CEMC Cooper-Jal

Sample Id: **MW-08-052516** Matrix: Ground Water Date Received: 05.25.16 16.20
 Lab Sample Id: 530715-001 Date Collected: 05.25.16 12.00
 Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
 Tech: DEP % Moisture:
 Analyst: DHE Date Prep: 05.31.16 10.23
 Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	30.0	5.00	mg/L	05.31.16 12.11		10
Fluoride	16984-48-8	0.847	0.500	mg/L	05.31.16 14.45		1
Sulfate	14808-79-8	88.7	5.00	mg/L	05.31.16 12.11		10

Analytical Method: TDS by SM2540C
 Tech: YAV % Moisture:
 Analyst: YAV
 Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	434	5.00	mg/L	05.27.16 11.46		1



Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX
CEMC Cooper-Jal

Sample Id: **MW-11-052516** Matrix: Ground Water Date Received: 05.25.16 16.20
 Lab Sample Id: 530715-002 Date Collected: 05.25.16 11.00
 Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
 Tech: DEP % Moisture:
 Analyst: DHE Date Prep: 05.31.16 10.23
 Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.3	5.00	mg/L	05.31.16 13.27		10
Fluoride	16984-48-8	1.87	0.500	mg/L	05.31.16 15.00		1
Sulfate	14808-79-8	103	5.00	mg/L	05.31.16 13.27		10

Analytical Method: TDS by SM2540C
 Tech: YAV % Moisture:
 Analyst: YAV
 Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	475	5.00	mg/L	05.27.16 11.46		1



Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX
CEMC Cooper-Jal

Sample Id: **MW-09-052516** Matrix: Ground Water Date Received: 05.25.16 16.20
 Lab Sample Id: 530715-003 Date Collected: 05.25.16 11.20
 Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
 Tech: DEP % Moisture:
 Analyst: DHE Date Prep: 05.31.16 10.23
 Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	404	5.00	mg/L	05.31.16 13.43		10
Fluoride	16984-48-8	1.61	0.500	mg/L	05.31.16 15.15		1
Sulfate	14808-79-8	108	5.00	mg/L	05.31.16 13.43		10

Analytical Method: TDS by SM2540C
 Tech: YAV % Moisture:
 Analyst: YAV
 Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	1430	5.00	mg/L	05.27.16 11.46		1



Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX
CEMC Cooper-Jal

Sample Id: **MW-14-052516** Matrix: Ground Water Date Received: 05.25.16 16.20
 Lab Sample Id: 530715-004 Date Collected: 05.25.16 12.55
 Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
 Tech: DEP % Moisture:
 Analyst: DHE Date Prep: 05.31.16 10.23
 Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	79.0	5.00	mg/L	05.31.16 13.59		10
Fluoride	16984-48-8	1.37	0.500	mg/L	05.31.16 15.31		1
Sulfate	14808-79-8	19.9	5.00	mg/L	05.31.16 13.59		10

Analytical Method: TDS by SM2540C
 Tech: YAV % Moisture:
 Analyst: YAV
 Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	552	5.00	mg/L	05.27.16 11.46		1



Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX
CEMC Cooper-Jal

Sample Id: **MW-10-052516** Matrix: Ground Water Date Received: 05.25.16 16.20
 Lab Sample Id: 530715-005 Date Collected: 05.25.16 13.15
 Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
 Tech: DEP % Moisture:
 Analyst: DHE Date Prep: 05.31.16 10.23
 Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	307	5.00	mg/L	05.31.16 14.14		10
Fluoride	16984-48-8	1.44	0.500	mg/L	05.31.16 15.46		1
Sulfate	14808-79-8	107	5.00	mg/L	05.31.16 14.14		10

Analytical Method: TDS by SM2540C
 Tech: YAV % Moisture:
 Analyst: YAV
 Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	1080	5.00	mg/L	05.27.16 11.46		1



Certificate of Analytical Results 530715

GHD Services, INC- Midland, Midland, TX
CEMC Cooper-Jal

Sample Id: **DUP-01-052516** Matrix: Ground Water Date Received: 05.25.16 16.20
 Lab Sample Id: 530715-006 Date Collected: 05.25.16 00.00
 Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
 Tech: DEP % Moisture:
 Analyst: DHE Date Prep: 05.31.16 10.23
 Seq Number: 995405 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	418	5.00	mg/L	05.31.16 14.29		10
Fluoride	16984-48-8	1.60	0.500	mg/L	05.31.16 16.32		1
Sulfate	14808-79-8	111	5.00	mg/L	05.31.16 14.29		10

Analytical Method: TDS by SM2540C
 Tech: YAV % Moisture:
 Analyst: YAV
 Seq Number: 995176 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	1430	5.00	mg/L	05.27.16 11.46		1



CHRONOLOGY OF HOLDING TIMES



Analytical Method : Inorganic Anions by EPA 300/300.1

Client : GHD Services, INC- Midland

Work Order #: **530715**

Project ID: 039123

Date Received: 05/25/16

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-08-052516	530715-001	05/25/16				05/31/16	28	6	P
MW-11-052516	530715-002	05/25/16				05/31/16	28	6	P
MW-09-052516	530715-003	05/25/16				05/31/16	28	6	P
MW-14-052516	530715-004	05/25/16				05/31/16	28	6	P
MW-10-052516	530715-005	05/25/16				05/31/16	28	6	P
DUP-01-052516	530715-006	05/25/16				05/31/16	28	6	P



CHRONOLOGY OF HOLDING TIMES



Analytical Method : TDS by SM2540C

Client : GHD Services, INC- Midland

Work Order #: **530715**

Project ID: 039123

Date Received: 05/25/16

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-08-052516	530715-001	05/25/16				05/27/16	7	2	P
MW-11-052516	530715-002	05/25/16				05/27/16	7	2	P
MW-09-052516	530715-003	05/25/16				05/27/16	7	2	P
MW-14-052516	530715-004	05/25/16				05/27/16	7	2	P
MW-10-052516	530715-005	05/25/16				05/27/16	7	2	P
DUP-01-052516	530715-006	05/25/16				05/27/16	7	2	P

F = These samples were analyzed outside the recommended holding time.

P = Samples analyzed within the recommended holding time.



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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9701 Harry Hines Blvd , Dallas, TX 75220	(281) 240-4200	(281) 240-4280
5332 Blackberry Drive, San Antonio TX 78238	(214) 902 0300	(214) 351-9139
1211 W Florida Ave, Midland, TX 79701	(210) 509-3334	(210) 509-3335
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(432) 563-1800	(432) 563-1713
	(602) 437-0330	



GHD Services, INC- Midland
 CEMC Cooper-Jal

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 995405

Matrix: Water

Prep Method: E300P

MB Sample Id: 709466-1-BLK

LCS Sample Id: 709466-1-BKS

Date Prep: 05.31.16

LCSD Sample Id: 709466-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	9.73	97	9.78	98	90-110	1	20	mg/L	05.31.16 10:39	
Fluoride	<0.500	10.0	10.2	102	10.1	101	90-110	1	20	mg/L	05.31.16 10:39	
Sulfate	<0.500	10.0	9.69	97	9.75	98	90-110	1	20	mg/L	05.31.16 10:39	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 995405

Matrix: Ground Water

Prep Method: E300P

Parent Sample Id: 530715-001

MS Sample Id: 530715-001 S

Date Prep: 05.31.16

MSD Sample Id: 530715-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	31.8	100	131	99	131	99	80-120	0	20	mg/L	05.31.16 12:26	
Sulfate	90.8	100	189	98	188	97	80-120	1	20	mg/L	05.31.16 12:26	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 995405

Matrix: Water

Prep Method: E300P

Parent Sample Id: 530883-002

MS Sample Id: 530883-002 S

Date Prep: 05.31.16

MSD Sample Id: 530883-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	120	50.0	128	16	128	16	80-120	0	20	mg/L	05.31.16 17:03	X
Fluoride	1.30	10.0	11.3	100	12.4	111	80-120	9	20	mg/L	05.31.16 17:03	
Sulfate	260	50.0	263	6	262	4	80-120	0	20	mg/L	05.31.16 17:03	X

Analytical Method: TDS by SM2540C

Seq Number: 995176

Matrix: Water

MB Sample Id: 995176-1-BLK

LCS Sample Id: 995176-1-BKS

LCSD Sample Id: 995176-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	1020	102	1060	106	80-120	4	10	mg/L	05.27.16 11:46	

Analytical Method: TDS by SM2540C

Seq Number: 995176

Matrix: Water

Parent Sample Id: 530576-001

MD Sample Id: 530576-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	477	448	6	10	mg/L	05.27.16 11:46	



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 05/25/2016 04:20:00 PM

Work Order #: 530715

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	3.9	
#2 *Shipping container in good condition?	N/A	
#3 *Samples received on ice?	Yes	
#4 *Custody Seal present on shipping container/ cooler?	N/A	
#5 *Custody Seals intact on shipping container/ cooler?	N/A	
#6 Custody Seals intact on sample bottles?	N/A	
#7 *Custody Seals Signed and dated?	N/A	
#8 *Chain of Custody present?	Yes	
#9 Sample instructions complete on Chain of Custody?	Yes	
#10 Any missing/extra samples?	No	
#11 Chain of Custody signed when relinquished/ received?	Yes	
#12 Chain of Custody agrees with sample label(s)?	Yes	
#13 Container label(s) legible and intact?	Yes	
#14 Sample matrix/ properties agree with Chain of Custody?	Yes	
#15 Samples in proper container/ bottle?	Yes	
#16 Samples properly preserved?	Yes	
#17 Sample container(s) intact?	Yes	
#18 Sufficient sample amount for indicated test(s)?	Yes	
#19 All samples received within hold time?	Yes	
#20 Subcontract of sample(s)?	Yes	Subcontract Houston
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	N/A	
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A	
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A	

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst: MAN

PH Device/Lot#: 225810

Checklist completed by: Mary Alexis Negrón
Mary Negrón

Date: 05/25/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks

Date: 05/26/2016

Analytical Report 552972

for
GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper Jal

039123

22-MAY-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)

Xenco-San Antonio: Texas (T104704534)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



22-MAY-17

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **552972**
CEMC Cooper Jal
Project Address: Lea County, New M

Chris Knight:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 552972. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 552972 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

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Sample Cross Reference 552972

GHD Services, INC- Midland, Midland, TX

CEMC Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-9-W-171105	W	05-11-17 09:40		552972-001
MW-8-W-171105	W	05-11-17 10:05		552972-002
MW-11-W-171105	W	05-11-17 10:30		552972-003
MW-14-W-171105	W	05-11-17 10:50		552972-004
MW-10-W-171105	W	05-11-17 11:10		552972-005
DUP-1-W-171105	W	05-11-17 00:00		552972-006
Rblk-W-171105	W	05-11-17 00:00		552972-007



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper Jal

Project ID: 039123
Work Order Number(s): 552972

Report Date: 22-MAY-17
Date Received: 05/11/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3017798 Inorganic Anions by EPA 300/300.1

Lab Sample ID 552972-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride , Fluoride, Sulfate recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 552972-001, -002, -003, -004, -005, -006, -007.

The Laboratory Control Sample for Chloride , Fluoride, Sulfate is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analysis Summary 552972

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea County, New M

Date Received in Lab: Thu May-11-17 04:20 pm
Report Date: 22-MAY-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	552972-001	552972-002	552972-003	552972-004	552972-005	552972-006
	<i>Field Id:</i>	MW-9-W-171105	MW-8-W-171105	MW-11-W-171105	MW-14-W-171105	MW-10-W-171105	DUP-1-W-171105
	<i>Depth:</i>						
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
<i>Sampled:</i>	May-11-17 09:40	May-11-17 10:05	May-11-17 10:30	May-11-17 10:50	May-11-17 11:10	May-11-17 00:00	
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	May-19-17 13:00	May-19-17 13:00	May-19-17 13:00	May-19-17 13:00	May-19-17 13:00	May-19-17 13:00
	<i>Analyzed:</i>	May-19-17 15:09	May-19-17 15:32	May-19-17 15:40	May-19-17 15:47	May-19-17 15:55	May-19-17 16:18
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		481 5.00	9.10 0.500	35.1 2.50	70.5 2.50	353 5.00	8.62 0.500
Fluoride		ND 1.00	ND 0.100	ND 0.500	ND 0.500	ND 1.00	ND 0.100
Sulfate		118 5.00	32.2 0.500	110 2.50	17.7 2.50	112 5.00	32.2 0.500
TDS by SM2540C	<i>Extracted:</i>						
	<i>Analyzed:</i>	May-17-17 09:00	May-17-17 09:00	May-17-17 09:00	May-17-17 09:00	May-17-17 09:00	May-17-17 09:00
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		1090 5.00	214 5.00	416 5.00	412 5.00	1080 5.00	182 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 552972

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea County, New M

Date Received in Lab: Thu May-11-17 04:20 pm
Report Date: 22-MAY-17
Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	552972-007					
	Field Id:	Rblk-W-171105					
	Depth:						
	Matrix:	GROUND WATER					
	Sampled:	May-11-17 00:00					
Inorganic Anions by EPA 300/300.1	Extracted:	May-19-17 13:00					
	Analyzed:	May-19-17 16:25					
	Units/RL:	mg/L	RL				
		Chloride	ND	0.500			
Fluoride	ND	0.100					
Sulfate	ND	0.500					
TDS by SM2540C	Extracted:						
	Analyzed:	May-17-17 09:00					
	Units/RL:	mg/L	RL				
Total Dissolved Solids		ND	5.00				

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks
 Project Manager



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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5332 Blackberry Drive, San Antonio TX 78238	(214) 902 0300	(214) 351-9139
1211 W Florida Ave, Midland, TX 79701	(210) 509-3334	(210) 509-3335
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(432) 563-1800	(432) 563-1713
	(602) 437-0330	



Blank Spike Recovery

Project Name: CEMC Cooper Jal

Work Order #: 552972

Project ID:

039123

Lab Batch #: 3017564

Sample: 3017564-1-BKS

Matrix: Water

Date Analyzed: 05/17/2017

Date Prepared: 05/17/2017

Analyst: MAN

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

TDS by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Dissolved Solids	<5.00	1000	980	98	80-120	

Blank Spike Recovery [D] = 100*[C]/[B]

All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit



BS / BSD Recoveries



Project Name: CEMC Cooper Jal

Work Order #: 552972

Project ID: 039123

Analyst: MGO

Date Prepared: 05/19/2017

Date Analyzed: 05/19/2017

Lab Batch ID: 3017798

Sample: 724914-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.500	25.0	25.5	102	25.0	25.7	103	1	90-110	20	
Fluoride	<0.100	5.00	5.39	108	5.00	5.50	110	2	90-110	20	
Sulfate	<0.500	25.0	26.1	104	25.0	26.2	105	0	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: CEMC Cooper Jal

Work Order # : 552972

Project ID: 039123

Lab Batch ID: 3017798

QC- Sample ID: 552972-001 S

Batch #: 1 **Matrix:** Ground Water

Date Analyzed: 05/19/2017

Date Prepared: 05/19/2017

Analyst: MGO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	481	250	602	48	250	601	48	0	90-110	20	X
Fluoride	<1.00	50.0	22.1	44	50.0	22.2	44	0	90-110	20	X
Sulfate	118	250	235	47	250	234	46	0	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery



Project Name: CEMC Cooper Jal

Work Order #: 552972

Lab Batch #: 3017564

Project ID: 039123

Date Analyzed: 05/17/2017 09:00

Date Prepared: 05/17/2017

Analyst: MAN

QC- Sample ID: 552972-001 D

Batch #: 1

Matrix: Ground Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total Dissolved Solids	1090	1190	9	10	

Spike Relative Difference RPD $200 * |(B-A)/(B+A)|$
 All Results are based on MDL and validated for QC purposes.
 BRL - Below Reporting Limit



Client: GHD Services, INC- Midland

Date/ Time Received: 05/11/2017 04:20:00 PM

Work Order #: 552972

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R(

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	3.3	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seal present on shipping container/ cooler?	N/A	
#5 *Custody Seals intact on shipping container/ cooler?	N/A	
#6 Custody Seals intact on sample bottles?	N/A	
#7 *Custody Seals Signed and dated?	N/A	
#8 *Chain of Custody present?	Yes	
#9 Sample instructions complete on Chain of Custody?	Yes	
#10 Any missing/extra samples?	No	
#11 Chain of Custody signed when relinquished/ received?	Yes	
#12 Chain of Custody agrees with sample label(s)?	Yes	
#13 Container label(s) legible and intact?	Yes	
#14 Sample matrix/ properties agree with Chain of Custody?	Yes	
#15 Samples in proper container/ bottle?	Yes	
#16 Samples properly preserved?	Yes	
#17 Sample container(s) intact?	Yes	
#18 Sufficient sample amount for indicated test(s)?	Yes	
#19 All samples received within hold time?	Yes	
#20 Subcontract of sample(s)?	Yes	houston
#21 VOC samples have zero headspace?	N/A	
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A	
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A	

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst: ma

PH Device/Lot#: HC563720

Checklist completed by:

Marithza Anaya

Marithza Anaya

Date: 05/12/2017

Checklist reviewed by:

Kelsey Brooks

Kelsey Brooks

Date: 05/12/2017



Memorandum

June 6, 2017

To: Janie Tarman Smith Ref. No.: 039123

From: ^{ck} Chris G. Knight/eew/7-NF Tel: 512-506-8803

CC: Stefanie Gilliam

**Subject: Analytical Results and Reduced Validation
Semiannual Groundwater Monitoring Event
Chevron Environmental Management Company (CEMC) – Cooper Jal
Lea County, New Mexico
May 2017**

1. Introduction

The following document details a reduced validation of analytical results for groundwater samples collected in support of the Semiannual Groundwater Monitoring Event at the Cooper Jal site in Lea County, New Mexico during May 2017. Samples were submitted to Xenco Laboratories in Midland, Texas. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report form, method blank data, duplicate data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS), and field QA/QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the document entitled:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010.

Item i) will subsequently be referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and the analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were delivered on ice and stored by the laboratory at the required temperature (0-6°C).



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Blank Spike Sample (BS) Analyses

BS or BS/ blank spike sample duplicates (BSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the BS/BSD recoveries is used to evaluate analytical precision.

For this study, BS or BS/BSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The BS or BS/BSD contained all analytes of interest. BS recoveries were assessed per the "Guidelines". All BS recoveries and/or RPDs were within the control limits, demonstrating acceptable analytical accuracy and/or precision.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the distillation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision.

MS/MSD analyses were performed as specified in Table 1. The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision with the following exception (see Table 4):

- i) One MS/MSD was reported with low recoveries for chloride, fluoride, and sulfate analyses due to matrix interferences and ~~were~~ was not assessed. No further action was required.

6. Duplicate Sample Analyses

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate



results were evaluated per the "Guidelines". All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

7. Field QA/QC Samples

The field QA/QC consisted of one rinse blank sample and one field duplicate sample sets.

Rinse Blank Sample Analysis

To assess field decontamination procedures and cleanliness of sample containers, one rinse blank sample was submitted for analysis, as identified in Table 1. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, ~~two-one~~ field duplicate sample ~~set was-were~~ collected and submitted to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's RL for each analyte.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable without qualification.

Table 1

**Sample Collection and Analysis Summary
Semiannual Groundwater Monitoring Event
Chevron Environmental Management Company (CEMC) - Cooper Jal
Lea County, New Mexico
May 2017**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	<u>Analysis/Parameters</u>				Comments
					Chloride	Fluoride	Sulfate	TDS	
MW-9-W-171105	MW-9	Water	05/11/2017	09:40	X	X	X	X	MS/MSD; DUP
MW-8-W-171105	MW-8	Water	05/11/2017	10:05	X	X	X	X	
DUP-1-W-171105	MW-8	Water	05/11/2017	10:05	X	X	X	X	File duplicate of MW-8
MW-11-W-171105	MW-11	Water	05/11/2017	10:30	X	X	X	X	
MW-14-W-171105	MW-14	Water	05/11/2017	10:50	X	X	X	X	
MW-10-W-171105	MW-10	Water	05/11/2017	11:10	X	X	X	X	
Rblk-W-171105	-	Water	05/11/2017	-	X	X	X	X	Rinse Blank

Notes:

- TDS - Total Dissolved Solids
- MS/MSD - Matrix Spike/ Matrix Spike Duplicate
- DUP - Laboratory Duplicate Sample
- "-" - Not Applicable

Table 2
Analytical Results Summary
Semiannual Groundwater Monitoring Event
Chevron Environmental Management Company (CEMC) - Cooper Jal
Lea County, New Mexico
May 2017

Location ID:	MW-8	MW-8	MW-9	MW-10	MW-11	MW-14	RINSE BLANK	
Sample Name:	MW-8-W-171105	DUP-1-W-171105	MW-9-W-171105	MW-10-W-171105	MW-11-W-171105	MW-14-W-171105	RBlk-W-171105	
Sample Date:	05/11/2017	05/11/2017 Duplicate	05/11/2017	05/11/2017	05/11/2017	05/11/2017	05/11/2017	
Parameters	Unit							
General Chemistry								
Chloride	mg/L	9.10	8.62	481	353	35.1	70.5	<0.500
Fluoride	mg/L	<0.100	<0.100	<1.00	<1.00	<0.500	<0.500	<0.100
Sulfate	mg/L	32.2	32.2	118	112	110	17.7	<0.500
TDS	mg/L	214	182	1090	1080	416	412	<5.00

Notes:

TDS - Total Dissolved Solids
 < - Not detected at the associated reporting limit

Table 3
Analytical Methods
Semiannual Groundwater Monitoring Event
Chevron Environmental Management Company (CEMC) - Cooper Jal
Lea County, New Mexico
May 2017

Parameter	Method	Matrix	Holding Time Collection to Analysis (Days)
Chloride	EPA 300/300.1	Water	28
Fluoride	EPA 300	Water	28
Sulfate	EPA 300/300.1	Water	28
TDS	SM 2540C	Water	7

Notes:

TDS - Total Dissolved Solids

Method References:

EPA - "Methods for Chemical Analysis of Water and Wastes", USEPA-600/4-79-020, March 1983, with subsequent revisions

SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions

Analytical Report 566441

for
GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper Jal

039123

03-NOV-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



03-NOV-17

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **566441**
CEMC Cooper Jal
Project Address: Lea Co, NM

Chris Knight:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 566441. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 566441 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Kelsey Brooks'.

Kelsey Brooks

Project Manager

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Sample Cross Reference 566441

GHD Services, INC- Midland, Midland, TX

CEMC Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-14-W-20171024	W	10-24-17 13:25		566441-001
MW-9A-W-20171024	W	10-24-17 13:25		566441-002
MW-9-W-20171024	W	10-24-17 13:25		566441-003
MW-10-W-20171024	W	10-24-17 13:25		566441-004
MW-11-W-20171024	W	10-24-17 13:25		566441-005
MW-8-W-20171024	W	10-24-17 13:25		566441-006
MW-7-W-20171024	W	10-24-17 13:25		566441-007
MW-1-W-20171024	W	10-24-17 13:25		566441-008
MW-3-W-20171024	W	10-24-17 13:25		566441-009
MW-12-W-20171024	W	10-24-17 13:25		566441-010
MW-12-WD-20171024	W	10-24-17 13:25		566441-011



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper Jal

Project ID: 039123
Work Order Number(s): 566441

Report Date: 03-NOV-17
Date Received: 10/25/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3031948 Inorganic Anions by EPA 300/300.1

Lab Sample ID 566441-006 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride , Fluoride, Sulfate recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 566441-001, -002, -003, -004, -005, -006, -007.

The Laboratory Control Sample for Chloride , Fluoride, Sulfate is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analysis Summary 566441

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea Co, NM

Date Received in Lab: Wed Oct-25-17 08:09 am
Report Date: 03-NOV-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	566441-001	566441-002	566441-003	566441-004	566441-005	566441-006					
	<i>Field Id:</i>	MW-14-W-20171024	MW-9A-W-20171024	MW-9-W-20171024	MW-10-W-20171024	MW-11-W-20171024	MW-8-W-20171024					
	<i>Depth:</i>											
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER					
<i>Sampled:</i>	Oct-24-17 13:25	Oct-24-17 13:25	Oct-24-17 13:25	Oct-24-17 13:25	Oct-24-17 13:25	Oct-24-17 13:25	Oct-24-17 13:25					
Inorganic Anions by EPA 300/300.1 SUB: E871002	<i>Extracted:</i>	Oct-30-17 15:05	Oct-30-17 15:05	Oct-30-17 15:05	Oct-30-17 15:05	Oct-30-17 15:05	Oct-30-17 15:05					
	<i>Analyzed:</i>	Oct-30-17 19:37	Oct-30-17 19:43	Oct-30-17 19:50	Oct-30-17 19:56	Oct-30-17 18:40	Oct-30-17 17:10					
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL					
Chloride	57.4	2.50	206	2.50	387	5.00	240	2.50	35.1	2.50	3.69	0.500
Fluoride	1.77	0.500	ND	0.500	2.42	1.00	1.60	0.500	1.87	0.500	0.228	0.100
Sulfate	42.2	2.50	96.6	2.50	102	5.00	97.0	2.50	95.3	2.50	18.3	0.500
TDS by SM2540C	<i>Extracted:</i>											
	<i>Analyzed:</i>	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids	423	5.00	681	5.00	1020	5.00	742	5.00	438	5.00	286	5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 566441

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea Co, NM

Date Received in Lab: Wed Oct-25-17 08:09 am
Report Date: 03-NOV-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	566441-007	566441-008	566441-009	566441-010	566441-011	
	<i>Field Id:</i>	MW-7-W-20171024	MW-1-W-20171024	MW-3-W-20171024	MW-12-W-20171024	MW-12-WD-20171024	
	<i>Depth:</i>						
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	
	<i>Sampled:</i>	Oct-24-17 13:25	Oct-24-17 13:25	Oct-24-17 13:25	Oct-24-17 13:25	Oct-24-17 13:25	
Inorganic Anions by EPA 300/300.1 SUB: E871002	<i>Extracted:</i>	Oct-30-17 15:05	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05	
	<i>Analyzed:</i>	Oct-30-17 20:02	Oct-31-17 14:34	Oct-30-17 21:00	Oct-30-17 21:06	Oct-30-17 21:13	
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
	Chloride	1670 10.0	148 2.50	35.9 2.50	150 2.50	149 2.50	
Fluoride	ND 2.00	2.57 0.500	1.50 0.500	ND 0.500	ND 0.500		
Sulfate	249 10.0	79.4 2.50	98.7 2.50	64.9 2.50	64.8 2.50		
TDS by SM2540C	<i>Extracted:</i>						
	<i>Analyzed:</i>	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	Oct-26-17 14:00	
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	
Total Dissolved Solids	2660 5.00	594 5.00	442 5.00	579 5.00	565 5.00		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks
Project Manager



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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 1211 W Florida Ave, Midland, TX 79701
 2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282

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(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(432) 563-1800	(432) 563-1713
(602) 437-0330	



Blank Spike Recovery

Project Name: CEMC Cooper Jal

Work Order #: 566441

Project ID:

039123

Lab Batch #: 3031652

Sample: 3031652-1-BKS

Matrix: Water

Date Analyzed: 10/26/2017

Date Prepared: 10/26/2017

Analyst: LRI

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

TDS by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Dissolved Solids	<5.00	1000	957	96	80-120	

Blank Spike Recovery [D] = 100*[C]/[B]

All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit



BS / BSD Recoveries



Project Name: CEMC Cooper Jal

Work Order #: 566441

Project ID: 039123

Analyst: MNV

Date Prepared: 10/30/2017

Date Analyzed: 10/30/2017

Lab Batch ID: 3031948

Sample: 7633459-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	24.2	97	25.0	24.2	97	0	90-110	20	
Fluoride	<0.100	5.00	4.86	97	5.00	4.86	97	0	90-110	20	
Sulfate	<0.500	25.0	24.1	96	25.0	23.9	96	1	90-110	20	

Analyst: MNV

Date Prepared: 10/30/2017

Date Analyzed: 10/30/2017

Lab Batch ID: 3031955

Sample: 7633464-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.5	102	25.0	24.8	99	3	90-110	20	
Fluoride	<0.100	5.00	5.11	102	5.00	5.02	100	2	90-110	20	
Sulfate	<0.500	25.0	25.3	101	25.0	24.7	99	2	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: CEMC Cooper Jal

Work Order # : 566441

Project ID: 039123

Lab Batch ID: 3031948

QC- Sample ID: 566441-005 S

Batch #: 1 **Matrix:** Ground Water

Date Analyzed: 10/30/2017

Date Prepared: 10/30/2017

Analyst: MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	35.1	125	280	196	125	278	194	1	90-110	20	X
Fluoride	1.87	25.0	31.9	120	25.0	31.9	120	0	90-110	20	X
Sulfate	95.3	125	539	355	125	539	355	0	90-110	20	X

Lab Batch ID: 3031948

QC- Sample ID: 566441-006 S

Batch #: 1 **Matrix:** Ground Water

Date Analyzed: 10/30/2017

Date Prepared: 10/30/2017

Analyst: MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	3.69	25.0	27.9	97	25.0	28.4	99	2	90-110	20	
Fluoride	0.228	5.00	5.18	99	5.00	5.31	102	2	90-110	20	
Sulfate	18.3	25.0	40.8	90	25.0	41.6	93	2	90-110	20	

Lab Batch ID: 3031955

QC- Sample ID: 566441-008 S

Batch #: 1 **Matrix:** Ground Water

Date Analyzed: 10/31/2017

Date Prepared: 10/30/2017

Analyst: MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	148	125	265	94	125	271	98	2	90-110	20	
Fluoride	2.57	25.0	26.4	95	25.0	27.0	98	2	90-110	20	
Sulfate	79.4	125	196	93	125	200	96	2	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: CEMC Cooper Jal

Work Order # : 566441

Project ID: 039123

Lab Batch ID: 3031955

QC- Sample ID: 566519-008 S

Batch #: 1 **Matrix:** Ground Water

Date Analyzed: 10/31/2017

Date Prepared: 10/30/2017

Analyst: MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	254	125	373	95	125	372	94	0	90-110	20	
Fluoride	1.02	25.0	24.5	94	25.0	24.5	94	0	90-110	20	
Sulfate	75.5	125	194	95	125	193	94	1	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery



Project Name: CEMC Cooper Jal

Work Order #: 566441

Lab Batch #: 3031652

Project ID: 039123

Date Analyzed: 10/26/2017 14:00

Date Prepared: 10/26/2017

Analyst: LRI

QC- Sample ID: 566441-001 D

Batch #: 1

Matrix: Ground Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total Dissolved Solids	423	466	10	10	

Spike Relative Difference RPD $200 * |(B-A)/(B+A)|$
 All Results are based on MDL and validated for QC purposes.
 BRL - Below Reporting Limit



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 Tampa, Florida (813-620-2000)

Client / Reporting Information		Project Information		Analytical Information		Matrix Codes											
Company Name / Branch: GHD-Midland		Project Name/Number: CEMC Cooper-Jal / 039133		Xenco Quote #		Xenco Job #											
Company Address: 2135 S Loop 250 W, Midland, TX 79703		Project Location: Lea County, New Mexico		50641		50641											
Email: christopher.knight@ghd.com		Invoice To:															
Phone No: 512-506-8803		PO Number:															
Project contact: Christopher Knight		Sampler's Name: Justin Nixon															
Field ID / Point of Collection: Matthew Laughlin																	
No.	Turnaround Time (Business days)	Sample Depth	Collection Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Anions: Cl, F, SO4	TDS	Field Comments
1		MW-14-W-20171024	NA	10/24	1325	6W	2								X	X	
2		MW-9A-W-20171024	NA	10/24	1340	6W	2								X	X	
3		MW-9-W-20171024	NA	10/24	1355	6W	2								X	X	
4		MW-10-W-20171024	NA	10/24	1305	6W	2								X	X	
5		MW-11-W-20171024	NA	10/24	1415	6W	2								X	X	
6		MW-8-W-20171024	NA	10/24	1425	6W	2								X	X	
7		MW-7-W-20171024	NA	10/24	1440	6W	2								X	X	
8		MW-1-W-20171024	NA	10/24	1450	6W	2								X	X	
9		MW-3-W-20171024	NA	10/24	1500	6W	2								X	X	
10		MW-12-W-20171024	NA	10/24	1515	6W	2								X	X	
TAT Starts Day received by Lab, if received by 5:00 pm		Same Day TAT		<input checked="" type="checkbox"/> 5 Day TAT		Level II Std QC		<input type="checkbox"/> Level IV (Full Data Pkg /raw data)		Temp: -0.3		IR ID: R-8					
Next Day EMERGENCY		<input type="checkbox"/> 7 Day TAT		Level III Std QC+ Forms		TRRP Level IV		CF: (0.6: -0.2°C)									
2 Day EMERGENCY		<input type="checkbox"/> Contract TAT		Level 3 (CLP Forms)		UST / RG -411		Corrected Temp: -0.1									
3 Day EMERGENCY		<input type="checkbox"/> TRRP Checklist		TRRP Checklist													
Relinquished by Sampler:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:	
1		10/25/17		Matthew Laughlin		Justin Nixon		10/25/17 8:10		Matthew Laughlin		Justin Nixon		10/25/17 8:09		Matthew Laughlin	
3		10/25/17		Matthew Laughlin		Justin Nixon		10/25/17 8:10		Matthew Laughlin		Justin Nixon		10/25/17 8:09		Matthew Laughlin	
5		10/25/17		Matthew Laughlin		Justin Nixon		10/25/17 8:10		Matthew Laughlin		Justin Nixon		10/25/17 8:09		Matthew Laughlin	



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Client / Reporting Information		Project Information		Analytical Information		Matrix Codes	
Company Name / Branch: GHD-Midland		Project Name/Number: CEMC Cooper-Jal 1039123		Xenco Quote #		Xenco Job #	
Company Address: 2135 S Loop 250 W, Midland, TX 79703		Project Location: Lea County, New Mexico		Date Time:		Date Time:	
Email: christopher.knight@ghd.com		Invoice To:		Date Time:		Date Time:	
Phone No: 512-506-8803		PO Number:		Date Time:		Date Time:	
Project Contact: Christopher Knight		Sample Depth		Date		Time	
Sampler's Name		Date		Time		Matrix	
No.		Field ID / Point of Collection		Date		Time	
1		MW-13-WP-20171024		NA		10/24	
2							
3							
4							
5							
6							
7							
8							
9							
10							
Turnaround Time (Business days)		Collection		Date Deliverable Information		Notes:	
<input type="checkbox"/> Same Day TAT		<input checked="" type="checkbox"/> 5 Day TAT		<input type="checkbox"/> Level II Std QIC		<input type="checkbox"/> Level IV (Full Data Pkg/raw data)	
<input type="checkbox"/> Next Day EMERGENCY		<input type="checkbox"/> 7 Day TAT		<input type="checkbox"/> Level III Std QC+ Forms		Temp: -0.3 IR ID:R-8	
<input type="checkbox"/> 2 Day EMERGENCY		<input type="checkbox"/> Contract TAT		<input type="checkbox"/> Level 3 (CLP Forms)		CF:(0-6: -0.2°C)	
<input type="checkbox"/> 3 Day EMERGENCY				<input type="checkbox"/> TRRP Checklist		(6-23: +0.2°C)	
TAT Starts Day received by Lab, if received by 5:00 pm				<input type="checkbox"/> TRRP Checklist		Corrected Temp: -0.1	
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY		FED-EX / UPS: Tracking #		Date Time:		Date Time:	
Relinquished by Sampler:		Received By:		Date Time:		Date Time:	
1		10/25/17		10/25/17		10/25/17	
Relinquished by:		Received By:		Date Time:		Date Time:	
3		10/25/17		10/25/17		10/25/17	
Relinquished by:		Received By:		Date Time:		Date Time:	
5		10/25/17		10/25/17		10/25/17	
Custody Seal #		Preserved where applicable		On Ice		Cooler Temp.	
5						Thermo. Corr. Factor	

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negotiated under a fully executed client contract.



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10/25/2017 08:09:00 AM

Work Order #: 566441

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	-1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6*Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst: ch

PH Device/Lot#: 213315

Checklist completed by: Connie Hernandez
Connie Hernandez

Date: 10/25/2017

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks

Date: 10/25/2017

Analytical Report 566519

for
GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper Jal

039123

01-NOV-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



01-NOV-17

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **566519**
CEMC Cooper Jal
Project Address: Lea Co, NM

Chris Knight:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 566519. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 566519 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

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Sample Cross Reference 566519

GHD Services, INC- Midland, Midland, TX

CEMC Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-2-W-171025	W	10-25-17 11:05		566519-001
MW-2A-W-171025	W	10-25-17 11:20		566519-002
MW-6R-W-171025	W	10-25-17 11:50		566519-003
RW-2-W-171025	W	10-25-17 12:05		566519-004
RW-2R-W-171025	W	10-25-17 12:25		566519-005
MW-4-W-171025	W	10-25-17 12:35		566519-006
MW-4A-W-171025	W	10-25-17 12:45		566519-007
RW-1-W-171025	W	10-25-17 13:00		566519-008
MW-5-W-171025	W	10-25-17 13:10		566519-009
MW-5A-W-171025	W	10-25-17 13:20		566519-010
MW-5-WD-171025	W	10-25-17 00:00		566519-011



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper Jal

Project ID: 039123
Work Order Number(s): 566519

Report Date: 01-NOV-17
Date Received: 10/25/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 566519

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea Co, NM

Date Received in Lab: Wed Oct-25-17 02:45 pm
Report Date: 01-NOV-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	566519-001	566519-002	566519-003	566519-004	566519-005	566519-006
	<i>Field Id:</i>	MW-2-W-171025	MW-2A-W-171025	MW-6R-W-171025	RW-2-W-171025	RW-2R-W-171025	MW-4-W-171025
	<i>Depth:</i>						
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
<i>Sampled:</i>	Oct-25-17 11:05	Oct-25-17 11:20	Oct-25-17 11:50	Oct-25-17 12:05	Oct-25-17 12:25	Oct-25-17 12:35	
Inorganic Anions by EPA 300/300.1 SUB: E871002	<i>Extracted:</i>	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05
	<i>Analyzed:</i>	Oct-30-17 21:19	Oct-30-17 21:38	Oct-30-17 21:44	Oct-30-17 21:51	Oct-30-17 21:57	Oct-30-17 22:04
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		35.8 2.50	83.1 2.50	49.3 2.50	1760 25.0	7030 25.0	6830 25.0
Fluoride		0.995 0.500	1.23 0.500	1.46 0.500	ND 5.00	ND 5.00	ND 5.00
Sulfate		36.3 2.50	77.3 2.50	93.8 2.50	288 25.0	872 25.0	754 25.0
TDS by SM2540C	<i>Extracted:</i>						
	<i>Analyzed:</i>	Oct-30-17 10:00	Oct-30-17 10:00	Oct-30-17 10:00	Oct-30-17 10:00	Oct-30-17 10:00	Oct-30-17 10:00
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		331 5.00	512 5.00	465 5.00	4440 5.00	12300 5.00	12300 5.00

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Version: 1.9%

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 566519

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea Co, NM

Date Received in Lab: Wed Oct-25-17 02:45 pm
Report Date: 01-NOV-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	566519-007	566519-008	566519-009	566519-010	566519-011		
	<i>Field Id:</i>	MW-4A-W-171025	RW-1-W-171025	MW-5-W-171025	MW-5A-W-171025	MW-5-WD-171025		
	<i>Depth:</i>							
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER		
	<i>Sampled:</i>	Oct-25-17 12:45	Oct-25-17 13:00	Oct-25-17 13:10	Oct-25-17 13:20	Oct-25-17 00:00		
Inorganic Anions by EPA 300/300.1 SUB: E871002	<i>Extracted:</i>	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05	Oct-30-17 17:05		
	<i>Analyzed:</i>	Oct-30-17 22:29	Oct-31-17 14:53	Oct-30-17 22:35	Oct-30-17 22:55	Oct-30-17 23:01		
	<i>Units/RL:</i>	mg/L	RL	mg/L	RL	mg/L	RL	
Chloride		341 5.00	254 2.50	2090 25.0	99.6 2.50	2010 25.0		
Fluoride		2.83 1.00	1.02 0.500	ND 5.00	1.14 0.500	ND 5.00		
Sulfate		93.4 5.00	75.5 2.50	318 25.0	59.3 2.50	300 25.0		
TDS by SM2540C	<i>Extracted:</i>							
	<i>Analyzed:</i>	Oct-30-17 10:00	Oct-30-17 10:00	Oct-30-17 10:00	Oct-30-17 10:00	Oct-30-17 10:00		
	<i>Units/RL:</i>	mg/L	RL	mg/L	RL	mg/L	RL	
Total Dissolved Solids		960 5.00	2040 5.00	3780 5.00	537 5.00	3240 5.00		

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Version: 1.9%

Kelsey Brooks
Project Manager



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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5332 Blackberry Drive, San Antonio TX 78238	(214) 902 0300	(214) 351-9139
1211 W Florida Ave, Midland, TX 79701	(210) 509-3334	(210) 509-3335
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(432) 563-1800	(432) 563-1713
	(602) 437-0330	



Blank Spike Recovery

Project Name: CEMC Cooper Jal

Work Order #: 566519

Project ID:

039123

Lab Batch #: 3031875

Sample: 3031875-1-BKS

Matrix: Water

Date Analyzed: 10/30/2017

Date Prepared: 10/30/2017

Analyst: LRI

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

TDS by SM2540C Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Total Dissolved Solids	<5.00	1000	938	94	80-120	

Blank Spike Recovery [D] = 100*[C]/[B]

All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit



BS / BSD Recoveries



Project Name: CEMC Cooper Jal

Work Order #: 566519

Project ID: 039123

Analyst: MNV

Date Prepared: 10/30/2017

Date Analyzed: 10/30/2017

Lab Batch ID: 3031955

Sample: 7633464-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.500	25.0	25.5	102	25.0	24.8	99	3	90-110	20	
Fluoride	<0.100	5.00	5.11	102	5.00	5.02	100	2	90-110	20	
Sulfate	<0.500	25.0	25.3	101	25.0	24.7	99	2	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: CEMC Cooper Jal

Work Order # : 566519

Project ID: 039123

Lab Batch ID: 3031955

QC- Sample ID: 566441-008 S

Batch #: 1 **Matrix:** Ground Water

Date Analyzed: 10/31/2017

Date Prepared: 10/30/2017

Analyst: MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	148	125	265	94	125	271	98	2	90-110	20	
Fluoride	2.57	25.0	26.4	95	25.0	27.0	98	2	90-110	20	
Sulfate	79.4	125	196	93	125	200	96	2	90-110	20	

Lab Batch ID: 3031955

QC- Sample ID: 566519-008 S

Batch #: 1 **Matrix:** Ground Water

Date Analyzed: 10/31/2017

Date Prepared: 10/30/2017

Analyst: MNV

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	254	125	373	95	125	372	94	0	90-110	20	
Fluoride	1.02	25.0	24.5	94	25.0	24.5	94	0	90-110	20	
Sulfate	75.5	125	194	95	125	193	94	1	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery



Project Name: CEMC Cooper Jal

Work Order #: 566519

Lab Batch #: 3031875

Project ID: 039123

Date Analyzed: 10/30/2017 10:00

Date Prepared: 10/30/2017

Analyst: LRI

QC- Sample ID: 566519-001 D

Batch #: 1

Matrix: Ground Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Total Dissolved Solids	331	356	7	10	

Spike Relative Difference RPD $200 * |(B-A)/(B+A)|$
 All Results are based on MDL and validated for QC purposes.
 BRL - Below Reporting Limit

Version: 1.0%



XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10/25/2017 02:45:00 PM

Work Order #: 566519

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	8.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6*Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst: ch

PH Device/Lot#: 213315

Checklist completed by: Connie Hernandez Date: 10/25/2017

Checklist reviewed by: Kelsey Brooks Date: 10/26/2017

Analytical Report 586876

for
GHD Services, INC- Midland

Project Manager: Chris Knight

CEMC Cooper Jal

039123

30-MAY-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-25), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)



30-MAY-18

Project Manager: **Chris Knight**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **586876**
CEMC Cooper Jal
Project Address: Lea County, NM

Chris Knight:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 586876. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

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Respectfully,

Kelsey Brooks

Project Manager

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Sample Cross Reference 586876

GHD Services, INC- Midland, Midland, TX

CEMC Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-8-W-182205	W	05-22-18 14:15		586876-001
MW-11-W-182205	W	05-22-18 14:25		586876-002
MW-9-W-182205	W	05-22-18 14:40		586876-003
MW-14-W-182205	W	05-22-18 14:50		586876-004
MW-10-W-182205	W	05-22-18 14:55		586876-005
MW-11-WD-182205	W	05-22-18 00:00		586876-006



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: CEMC Cooper Jal

Project ID: 039123
Work Order Number(s): 586876

Report Date: 30-MAY-18
Date Received: 05/22/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 586876

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC Cooper Jal

Project Id: 039123
Contact: Chris Knight
Project Location: Lea County, NM

Date Received in Lab: Tue May-22-18 04:57 pm
Report Date: 30-MAY-18
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	586876-001	586876-002	586876-003	586876-004	586876-005	586876-006					
	<i>Field Id:</i>	MW-8-W-182205	MW-11-W-182205	MW-9-W-182205	MW-14-W-182205	MW-10-W-182205	MW-11-WD-182205					
	<i>Depth:</i>											
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER					
<i>Sampled:</i>	May-22-18 14:15	May-22-18 14:25	May-22-18 14:40	May-22-18 14:50	May-22-18 14:55	May-22-18 00:00						
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	May-23-18 16:00	May-23-18 16:00	May-23-18 16:00	May-23-18 16:00	May-23-18 16:00	May-24-18 15:00					
	<i>Analyzed:</i>	May-23-18 21:02	May-23-18 21:13	May-23-18 21:23	May-23-18 21:33	May-23-18 21:44	May-24-18 18:08					
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL					
Chloride	5.22	0.500	34.6	0.500	460 D	5.00	54.9	0.500	346 D	5.00	34.5	0.500
Fluoride	0.317	0.100	1.58	0.100	1.28	0.100	1.20	0.100	0.965	0.100	1.64	0.100
Sulfate	21.9	0.500	110	0.500	119	0.500	47.8	0.500	113	0.500	110	0.500
TDS by SM2540C	<i>Extracted:</i>											
	<i>Analyzed:</i>	May-24-18 07:30	May-24-18 07:30	May-24-18 07:30	May-24-18 07:30	May-24-18 07:30	May-24-18 07:30					
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL					
Total Dissolved Solids	282	5.00	421	5.00	1010	5.00	390	5.00	1070	5.00	415	5.00

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Kelsey Brooks
 Project Manager



Blank Spike Recovery

Project Name: CEMC Cooper Jal

Work Order #: 586876

Project ID:

039123

Lab Batch #: 3051379

Sample: 3051379-1-BKS

Matrix: Water

Date Analyzed: 05/24/2018

Date Prepared: 05/24/2018

Analyst: OJS

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

<p>TDS by SM2540C</p> <p>Analytes</p>	<p>Blank Result [A]</p>	<p>Spike Added [B]</p>	<p>Blank Spike Result [C]</p>	<p>Blank Spike %R [D]</p>	<p>Control Limits %R</p>	<p>Flags</p>
<p>Total Dissolved Solids</p>	<p><5.00</p>	<p>1000</p>	<p>991</p>	<p>99</p>	<p>80-120</p>	

Blank Spike Recovery [D] = 100*[C]/[B]
 All results are based on MDL and validated for QC purposes.
 BRL - Below Reporting Limit



BS / BSD Recoveries



Project Name: CEMC Cooper Jal

Work Order #: 586876

Project ID: 039123

Analyst: SCM

Date Prepared: 05/23/2018

Date Analyzed: 05/23/2018

Lab Batch ID: 3051204

Sample: 7645333-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.0	100	25.0	25.1	100	0	90-110	20	
Fluoride	<0.100	5.00	5.08	102	5.00	5.09	102	0	90-110	20	
Sulfate	<0.500	25.0	25.7	103	25.0	25.7	103	0	90-110	20	

Analyst: SCM

Date Prepared: 05/24/2018

Date Analyzed: 05/24/2018

Lab Batch ID: 3051386

Sample: 7655438-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.0	100	25.0	25.1	100	0	90-110	20	
Fluoride	<0.100	5.00	4.93	99	5.00	4.92	98	0	90-110	20	
Sulfate	<0.500	25.0	25.6	102	25.0	25.8	103	1	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: CEMC Cooper Jal

Work Order # : 586876

Project ID: 039123

Lab Batch ID: 3051204

QC- Sample ID: 586805-001 S

Batch #: 1 **Matrix:** Drinking Water

Date Analyzed: 05/23/2018

Date Prepared: 05/23/2018

Analyst: SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	27.7	25.0	54.4	107	25.0	54.4	107	0	90-110	20	
Fluoride	<0.100	5.00	5.12	102	5.00	5.12	102	0	90-110	20	
Sulfate	0.698	25.0	26.9	105	25.0	26.9	105	0	90-110	20	

Lab Batch ID: 3051204

QC- Sample ID: 586806-001 S

Batch #: 1 **Matrix:** Drinking Water

Date Analyzed: 05/23/2018

Date Prepared: 05/23/2018

Analyst: SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	38.2	25.0	64.2	104	25.0	64.4	105	0	90-110	20	
Fluoride	0.110	5.00	4.98	97	5.00	5.01	98	1	90-110	20	
Sulfate	0.677	25.0	26.7	104	25.0	26.7	104	0	90-110	20	

Lab Batch ID: 3051386

QC- Sample ID: 587048-001 S

Batch #: 1 **Matrix:** Drinking Water

Date Analyzed: 05/24/2018

Date Prepared: 05/24/2018

Analyst: SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	13.1	25.0	39.6	106	25.0	39.7	106	0	90-110	20	
Fluoride	0.207	5.00	5.32	102	5.00	5.34	103	0	90-110	20	
Sulfate	3.99	25.0	30.8	107	25.0	30.9	108	0	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: CEMC Cooper Jal

Work Order # : 586876

Project ID: 039123

Lab Batch ID: 3051386

QC- Sample ID: 587050-001 S

Batch #: 1 **Matrix:** Drinking Water

Date Analyzed: 05/24/2018

Date Prepared: 05/24/2018

Analyst: SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	9.24	25.0	35.3	104	25.0	35.2	104	0	90-110	20	
Fluoride	<0.100	5.00	5.10	102	5.00	5.11	102	0	90-110	20	
Sulfate	0.632	25.0	26.1	102	25.0	26.1	102	0	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
 Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Project Name: CEMC Cooper Jal

Work Order #: 586876

Lab Batch #: 3051379

Project ID: 039123

Date Analyzed: 05/24/2018 07:30

Date Prepared: 05/24/2018

Analyst: OJS

QC- Sample ID: 586876-001 D

Batch #: 1

Matrix: Ground Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Total Dissolved Solids	282	274	3	10	

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)
 Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
 All Results are based on MDL and validated for QC purposes.
 BRL - Below Reporting Limit



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CHAIN OF CUSTODY

Page 1 of 1

Odessa, Texas (432-563-1800)

Norcross, Georgia (770-449-8800)

Lakeland, Florida (863-646-8526)

Tampa, Florida (813-620-2000)

58108716

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes				
Company Name / Branch: GHD-Midland		Project Name/Number: CEMC Cooper-Jal		Xenco Quote #										Xenco Job #				
Company Address: 2135 S Loop 250 W, Midland, TX 79703		Project Location: Lea County, New Mexico		Xenco Job #										Matrix Codes				
Email: christopher.knight@ghd.com		Invoice To:		Xenco Job #										Matrix Codes				
Phone No: 512-506-8803		Po Number:		Xenco Job #										Matrix Codes				
Project Contact: Christopher Knight		Sampler's Name: Joshua Sharkey - Joe Whittles		Xenco Job #										Matrix Codes				
No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Anions: Cl, F, SO4	TDS	Notes:	Field Comments
1	MW-8-W-182205	-	5/22	1415	GW 1	1									X	X		
2	MW-11-W-182205	-	5/22	1445	GW 1	1									X	X		
3	MW-9-W-182205	-	5/22	1440	GW 1	1									X	X		
4	MW-14-W-182205	-	5/22	1450	GW 1	1									X	X		
5	MW-10-W-182205	-	5/22	1455	GW 1	1									X	X		
6	MW-11-W-182205	-	5/22	-	GW 1	1									X	X		
7																		
8																		
9																		
10	Turnaround Time (Business days)																	



Client: GHD Services, INC- Midland

Date/ Time Received: 05/22/2018 04:57:00 PM

Work Order #: 586876

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	-.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6*Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst: BT

PH Device/Lot#: 213315

Checklist completed by: Brianna Teel Date: 05/22/2018
Brianna Teel

Checklist reviewed by: Kelsey Brooks Date: 05/24/2018
Kelsey Brooks

Analytical Report 602865

for

GHD Services, INC- Midland

Project Manager: Janie Smith

Cooper Jal

039123-2018-001

25-OCT-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



25-OCT-18

Project Manager: **Janie Smith**
GHD Services, INC- Midland
 2135 S Loop 250 W
 Midland, TX 79703

Reference: XENCO Report No(s): **602865**
Cooper Jal
 Project Address: Jal,NM

Janie Smith:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 602865. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 602865 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Debbie Simmons

Project Manager

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Sample Cross Reference 602865

GHD Services, INC- Midland, Midland, TX

Cooper Jal

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-12-W-181810	W	10-18-18 09:50		602865-001
MW-3-W-181810	W	10-18-18 10:00		602865-002
MW-1-W-181810	W	10-18-18 10:15		602865-003
MW-2A-W-181810	W	10-18-18 10:20		602865-004
MW-2-W-181810	W	10-18-18 10:25		602865-005
MW-6R-W-181810	W	10-18-18 10:45		602865-006
MW-5A-W-181810	W	10-18-18 10:55		602865-007
MW-5-W-181810	W	10-18-18 11:00		602865-008
RW-1-W-181810	W	10-18-18 11:10		602865-009
MW-4A-W-181810	W	10-18-18 11:25		602865-010
MW-4-W-181810	W	10-18-18 11:30		602865-011
RW-2-W-181810	W	10-18-18 11:40		602865-012
RW-2R-W-181810	W	10-18-18 11:45		602865-013
MW-7-W-181810	W	10-18-18 11:55		602865-014
MW-8-W-181810	W	10-18-18 12:10		602865-015
MW-11-W-181810	W	10-18-18 12:30		602865-016
MW-9A-W-181810	W	10-18-18 12:40		602865-017
MW-9-W-181810	W	10-18-18 12:45		602865-018
RW-1-WD-181810	W	10-18-18 00:00		602865-019
RW-2R-WD-181810	W	10-18-18 00:00		602865-020
MW-14-W-181810	W	10-18-18 12:50		602865-021
MW-10-W-181810	W	10-18-18 13:00		602865-022



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: Cooper Jal

Project ID: 039123-2018-001
Work Order Number(s): 602865

Report Date: 25-OCT-18
Date Received: 10/19/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 602865

GHD Services, INC- Midland, Midland, TX

Project Name: Cooper Jal

Project Id: 039123-2018-001
Contact: Janie Smith
Project Location: Jal,NM

Date Received in Lab: Fri Oct-19-18 09:35 am
Report Date: 25-OCT-18
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	602865-001		602865-002		602865-003		602865-004		602865-005		602865-006	
	<i>Field Id:</i>	MW-12-W-181810		MW-3-W-181810		MW-1-W-181810		MW-2A-W-181810		MW-2-W-181810		MW-6R-W-181810	
	<i>Depth:</i>												
	<i>Matrix:</i>	GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER		GROUND WATER	
	<i>Sampled:</i>	Oct-18-18 09:50		Oct-18-18 10:00		Oct-18-18 10:15		Oct-18-18 10:20		Oct-18-18 10:25		Oct-18-18 10:45	
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30		Oct-19-18 15:30	
	<i>Analyzed:</i>	Oct-19-18 17:37		Oct-20-18 21:35		Oct-19-18 18:19		Oct-19-18 18:29		Oct-19-18 18:40		Oct-19-18 18:50	
	<i>Units/RL:</i>	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		290 D	2.50	209	2.50	1290 D	10.0	103	0.500	65.9	0.500	69.1	0.500
Fluoride		0.738	0.100	5.35	0.500	0.788	0.100	0.667	0.100	0.656	0.100	1.05	0.100
Sulfate		106	0.500	567	2.50	215 D	10.0	88.3	0.500	48.5	0.500	107	0.500
TDS by SM2540C	<i>Extracted:</i>	Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25	
	<i>Analyzed:</i>	Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25		Oct-22-18 15:25	
	<i>Units/RL:</i>	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total Dissolved Solids		790	5.00	415	5.00	2360	5.00	491	5.00	384	5.00	442	5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Debbie Simmons
 Project Manager



Certificate of Analysis Summary 602865

GHD Services, INC- Midland, Midland, TX

Project Name: Cooper Jal

Project Id: 039123-2018-001
Contact: Janie Smith
Project Location: Jal,NM

Date Received in Lab: Fri Oct-19-18 09:35 am
Report Date: 25-OCT-18
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	602865-007	602865-008	602865-009	602865-010	602865-011	602865-012
	<i>Field Id:</i>	MW-5A-W-181810	MW-5-W-181810	RW-1-W-181810	MW-4A-W-181810	MW-4-W-181810	RW-2-W-181810
	<i>Depth:</i>						
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
<i>Sampled:</i>	Oct-18-18 10:55	Oct-18-18 11:00	Oct-18-18 11:10	Oct-18-18 11:25	Oct-18-18 11:30	Oct-18-18 11:40	
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Oct-19-18 15:30	Oct-19-18 15:30	Oct-19-18 15:30	Oct-19-18 15:30	Oct-19-18 15:30	Oct-19-18 15:30
	<i>Analyzed:</i>	Oct-19-18 19:31	Oct-19-18 19:42	Oct-19-18 20:13	Oct-19-18 20:23	Oct-19-18 20:33	Oct-19-18 20:44
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		132 0.500	1890 D 25.0	7870 D 50.0	366 D 5.00	14800 D 100	3640 D 25.0
Fluoride		0.792 0.100	ND 0.100	ND 0.100	1.29 0.100	ND 0.100	ND 0.100
Sulfate		67.5 0.500	323 D 25.0	807 D 50.0	99.6 0.500	1510 D 100	534 D 25.0
TDS by SM2540C	<i>Extracted:</i>						
	<i>Analyzed:</i>	Oct-22-18 15:25	Oct-22-18 15:25	Oct-22-18 15:25	Oct-22-18 15:25	Oct-22-18 15:25	Oct-22-18 15:25
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		477 5.00	3420 5.00	15400 5.00	901 5.00	24700 5.00	6890 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Debbie Simmons
 Project Manager



Certificate of Analysis Summary 602865

GHD Services, INC- Midland, Midland, TX

Project Name: Cooper Jal

Project Id: 039123-2018-001
Contact: Janie Smith
Project Location: Jal,NM

Date Received in Lab: Fri Oct-19-18 09:35 am
Report Date: 25-OCT-18
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	602865-013	602865-014	602865-015	602865-016	602865-017	602865-018
	<i>Field Id:</i>	RW-2R-W-181810	MW-7-W-181810	MW-8-W-181810	MW-11-W-181810	MW-9A-W-181810	MW-9-W-181810
	<i>Depth:</i>						
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER
	<i>Sampled:</i>	Oct-18-18 11:45	Oct-18-18 11:55	Oct-18-18 12:10	Oct-18-18 12:30	Oct-18-18 12:40	Oct-18-18 12:45
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Oct-19-18 15:30	Oct-19-18 15:30	Oct-19-18 15:30	Oct-19-18 17:15	Oct-19-18 17:15	Oct-19-18 17:15
	<i>Analyzed:</i>	Oct-19-18 20:54	Oct-19-18 21:04	Oct-19-18 21:15	Oct-20-18 17:16	Oct-20-18 17:26	Oct-20-18 17:37
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Chloride		7920 D 50.0	4000 D 25.0	5.41 0.500	36.9 0.500	276 D 2.50	381 D 5.00
Fluoride		ND 0.100	ND 0.100	0.608 0.100	1.69 0.100	0.596 0.100	1.41 0.100
Sulfate		891 D 50.0	482 D 25.0	19.1 0.500	114 0.500	119 0.500	117 0.500
TDS by SM2540C	<i>Extracted:</i>						
	<i>Analyzed:</i>	Oct-22-18 15:25	Oct-22-18 15:50	Oct-22-18 15:50	Oct-22-18 15:50	Oct-22-18 15:50	Oct-22-18 15:50
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Total Dissolved Solids		13700 5.00	6450 5.00	258 5.00	413 5.00	816 5.00	903 5.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Debbie Simmons
 Project Manager



Certificate of Analysis Summary 602865

GHD Services, INC- Midland, Midland, TX

Project Name: Cooper Jal

Project Id: 039123-2018-001
Contact: Janie Smith
Project Location: Jal,NM

Date Received in Lab: Fri Oct-19-18 09:35 am
Report Date: 25-OCT-18
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	602865-019	602865-020	602865-021	602865-022		
	<i>Field Id:</i>	RW-1-WD-181810	RW-2R-WD-181810	MW-14-W-181810	MW-10-W-181810		
	<i>Depth:</i>						
	<i>Matrix:</i>	GROUND WATER	GROUND WATER	GROUND WATER	GROUND WATER		
	<i>Sampled:</i>	Oct-18-18 00:00	Oct-18-18 00:00	Oct-18-18 12:50	Oct-18-18 13:00		
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Oct-19-18 17:15	Oct-19-18 17:15	Oct-19-18 17:15	Oct-19-18 17:15		
	<i>Analyzed:</i>	Oct-20-18 17:47	Oct-20-18 17:57	Oct-20-18 18:08	Oct-20-18 18:18		
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
	Chloride	7830 D 50.0	8060 D 50.0	57.2 0.500	351 D 5.00		
Fluoride	ND 0.100	ND 0.100	1.35 0.100	1.10 0.100			
Sulfate	873 D 50.0	815 D 50.0	47.2 0.500	118 0.500			
TDS by SM2540C	<i>Extracted:</i>						
	<i>Analyzed:</i>	Oct-22-18 15:50	Oct-22-18 15:50	Oct-22-18 15:50	Oct-22-18 15:50		
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL		
Total Dissolved Solids		12700 5.00	13300 5.00	401 5.00	892 5.00		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Debbie Simmons
 Project Manager



BS / BSD Recoveries



Project Name: Cooper Jal

Work Order #: 602865

Project ID: 039123-2018-001

Analyst: SCM

Date Prepared: 10/19/2018

Date Analyzed: 10/19/2018

Lab Batch ID: 3067058

Sample: 7664557-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	26.6	106	25.0	26.6	106	0	90-110	20	
Fluoride	<0.100	5.00	5.22	104	5.00	5.25	105	1	90-110	20	
Sulfate	<0.500	25.0	25.1	100	25.0	25.1	100	0	90-110	20	

Analyst: CHE

Date Prepared: 10/19/2018

Date Analyzed: 10/20/2018

Lab Batch ID: 3067066

Sample: 7664558-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	26.5	106	25.0	26.6	106	0	90-110	20	
Fluoride	<0.100	5.00	5.49	110	5.00	5.44	109	1	90-110	20	
Sulfate	<0.500	25.0	24.8	99	25.0	24.9	100	0	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Cooper Jal

Work Order #: 602865

Project ID: 039123-2018-001

Analyst: OJS

Date Prepared: 10/22/2018

Date Analyzed: 10/22/2018

Lab Batch ID: 3067244

Sample: 3067244-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TDS by SM2540C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Total Dissolved Solids	<5.00	1000	961	96	1000	955	96	1	80-120	10	

Analyst: OJS

Date Prepared: 10/22/2018

Date Analyzed: 10/22/2018

Lab Batch ID: 3067246

Sample: 3067246-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TDS by SM2540C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Total Dissolved Solids	<5.00	1000	930	93	1000	948	95	2	80-120	10	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Cooper Jal

Work Order # : 602865

Project ID: 039123-2018-001

Lab Batch ID: 3067058

QC- Sample ID: 602822-001 S

Batch #: 1 **Matrix:** Drinking Water

Date Analyzed: 10/19/2018

Date Prepared: 10/19/2018

Analyst: SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	9.53	25.0	38.8	117	25.0	37.4	111	4	90-110	20	X
Fluoride	<0.100	5.00	5.35	107	5.00	5.47	109	2	90-110	20	
Sulfate	3.02	25.0	26.3	93	25.0	25.1	88	5	90-110	20	X

Lab Batch ID: 3067058

QC- Sample ID: 602825-001 S

Batch #: 1 **Matrix:** Drinking Water

Date Analyzed: 10/19/2018

Date Prepared: 10/19/2018

Analyst: SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	2.52	25.0	27.8	101	25.0	28.1	102	1	90-110	20	
Fluoride	<0.100	5.00	5.36	107	5.00	5.34	107	0	90-110	20	
Sulfate	2.11	25.0	25.0	92	25.0	25.1	92	0	90-110	20	

Lab Batch ID: 3067066

QC- Sample ID: 602823-001 S

Batch #: 1 **Matrix:** Drinking Water

Date Analyzed: 10/20/2018

Date Prepared: 10/19/2018

Analyst: CHE

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	3.72	25.0	29.0	101	25.0	29.1	102	0	90-110	20	
Fluoride	<0.100	5.00	5.36	107	5.00	5.43	109	1	90-110	20	
Sulfate	2.48	25.0	24.3	87	25.0	24.5	88	1	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Cooper Jal

Work Order # : 602865

Project ID: 039123-2018-001

Lab Batch ID: 3067066

QC- Sample ID: 602826-001 S

Batch #: 1 **Matrix:** Drinking Water

Date Analyzed: 10/20/2018

Date Prepared: 10/19/2018

Analyst: SCM

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	8.64	25.0	35.2	106	25.0	35.3	107	0	90-110	20	
Fluoride	<0.100	5.00	5.39	108	5.00	5.45	109	1	90-110	20	
Sulfate	2.24	25.0	24.2	88	25.0	24.3	88	0	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
 Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Project Name: Cooper Jal

Work Order #: 602865

Lab Batch #: 3067244

Project ID: 039123-2018-001

Date Analyzed: 10/22/2018 15:25

Date Prepared: 10/22/2018

Analyst: OJS

QC- Sample ID: 602681-001 D

Batch #: 1

Matrix: Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Total Dissolved Solids	3080	3270	6	10	

Lab Batch #: 3067244

Date Analyzed: 10/22/2018 15:25

Date Prepared: 10/22/2018

Analyst: OJS

QC- Sample ID: 602865-013 D

Batch #: 1

Matrix: Ground Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Total Dissolved Solids	13700	13800	1	10	

Lab Batch #: 3067246

Date Analyzed: 10/22/2018 15:50

Date Prepared: 10/22/2018

Analyst: OJS

QC- Sample ID: 602865-014 D

Batch #: 1

Matrix: Ground Water

Reporting Units: mg/L

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Analyte					
Total Dissolved Solids	6450	6240	3	10	

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)
 Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
 All Results are based on MDL and validated for QC purposes.
 BRL - Below Reporting Limit



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

Chain of Custody

Work Order No:

16022105

Project Manager: Janie Smith
 Company Name: GHD
 Address: 2135 S. Loop 250 West
 City, State ZIP: Midland, TX 79703
 Phone: 225-292-9007

Bill to: (if different) Kegan Boyer
 Company Name: Upstream Business Unit (CEMC)
 Address: 1400 Smith Street, Room 07076
 City, State ZIP: Houston, TX 77002

Project Name: CEMC Cooper Jal
 Project Number: SSOV: 039123-2018-001
 P.O. Number: Rush:
 Sampler's Name: *Joshua Sparkley Job M. Miller* Due Date:

Email: Janie.Smith@ghd.com & Christopher.Knight@ghd.com

Program: UST/PST PRP Brownfields RRC Superfund
 State of Project:
 Reporting Level: Level II Level III PST/UST TRRP Level IV
 Deliverables: EDD ADaPT Other:

Turn Around
 Routine
 Rush

Temp Blank: Yes No
 Temperature (°C): 0.3
 Received Inact: Yes No
 Cooler Custody Seals: Yes No
 Sample Custody Seals: Yes No

Correction Factor: *0.0*
 Thermometer ID: *0.0*
 Total Containers: *0.0*

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers		Anions: F, SO4, Cl
					TDS		
MW-12-W-181810	GW	10-18	0950	-	1	X	X
MW-3-W-181810	GW	10-18	1000	-	1	X	X
MW-1-W-181810	GW	10-18	1015	-	1	X	X
MW-2-W-181810	GW	10-18	1020	-	1	X	X
MW-2-W-181810	GW	10-18	1025	-	1	X	X
MW-GR-W-181810	GW	10-18	1045	-	1	X	X
MW-SA-W-181810	GW	10-18	1055	-	1	X	X
MW-5-W-181810	GW	10-18	1100	-	1	X	X
RW-1-W-181810	GW	10-18	1110	-	1	X	X
MW-4-W-181810	GW	10-18	1125	-	1	X	X

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 AI Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
 Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>Joshua Sparkley</i>	<i>Janie Smith</i>	10-18-18 0935			



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10/19/2018 09:35:00 AM

Work Order #: 602865

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6*Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by:
Katie Lowe

Date: 10/19/2018

Checklist reviewed by:
Debbie Simmons

Date: 10/19/2018



Environment Testing
TestAmerica

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ANALYTICAL REPORT

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

Laboratory Job ID: 600-187419-1
Client Project/Site: Midland - Cooper Jal
Revision: 1

For:
ARCADIS U.S., Inc.
1004 North Big Spring
Suite 121
Midland, Texas 79701

Attn: Mr. Brett Krehbiel

Authorized for release by:
1/9/2020 6:00:05 PM

Sachin Kudchadkar, Senior Project Manager
(713)690-4444
sachin.kudchadkar@testamericainc.com



LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Laboratory Job ID: 600-187419-1

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Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Job ID: 600-187419-1

Laboratory: Eurofins TestAmerica, Houston

Narrative

**Job Narrative
600-187419-1**

Comments

The report was revised on 01/09/20 to correct the sample ID for sample 600-189419-14 per the COC.

Receipt

The samples were received on 6/21/2019 10:19 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.5° C and 1.7° C.

General Chemistry

Method SM 2540C: Reanalysis of the following sample was performed outside of the analytical holding time due to constant weight for method criteria. : RW - 2 (600-187419-15).

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

Lab Admin

sample ID changed per client request

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

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL HOU
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL HOU

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
600-187419-1	MW - 12	Water	06/20/19 08:52	06/21/19 10:19	
600-187419-2	MW - 3	Water	06/20/19 09:32	06/21/19 10:19	
600-187419-3	MW - 1	Water	06/20/19 09:38	06/21/19 10:19	
600-187419-4	MW - 2A	Water	06/20/19 09:44	06/21/19 10:19	
600-187419-5	MW - 2	Water	06/20/19 09:47	06/21/19 10:19	
600-187419-6	MW - 6R	Water	06/20/19 09:53	06/21/19 10:19	
600-187419-7	DUP - 1	Water	06/20/19 00:00	06/21/19 10:19	
600-187419-8	MW - 5	Water	06/20/19 10:05	06/21/19 10:19	
600-187419-9	MW - 5A	Water	06/20/19 10:08	06/21/19 10:19	
600-187419-10	RW - 1	Water	06/20/19 10:14	06/21/19 10:19	
600-187419-11	DUP -2	Water	06/20/19 00:00	06/21/19 10:19	
600-187419-12	MW - 4	Water	06/20/19 10:22	06/21/19 10:19	
600-187419-13	MW - 4A	Water	06/20/19 10:24	06/21/19 10:19	
600-187419-14	RW - 2R	Water	06/20/19 10:49	06/21/19 10:19	
600-187419-15	RW - 2	Water	06/20/19 10:51	06/21/19 10:19	
600-187419-16	MW - 14	Water	06/20/19 11:05	06/21/19 10:19	
600-187419-17	MW - 7	Water	06/20/19 11:20	06/21/19 10:19	
600-187419-18	MW - 9	Water	06/20/19 11:30	06/21/19 10:19	
600-187419-19	MW - 9A	Water	06/20/19 11:34	06/21/19 10:19	
600-187419-20	MW - 11	Water	06/20/19 11:41	06/21/19 10:19	
600-187419-21	EB - 1	Water	06/20/19 12:50	06/21/19 10:19	

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: MW - 12
 Date Collected: 06/20/19 08:52
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-1
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	254		0.400	0.0534	mg/L	-		06/28/19 22:18	20

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	580		10.0	10.0	mg/L	-		06/26/19 15:14	1

Client Sample ID: MW - 3
 Date Collected: 06/20/19 09:32
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-2
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.0		0.400	0.0534	mg/L	-		06/28/19 22:38	5

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	448		10.0	10.0	mg/L	-		06/26/19 15:14	1

Client Sample ID: MW - 1
 Date Collected: 06/20/19 09:38
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-3
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1110		0.400	0.0534	mg/L	-		06/28/19 22:58	100

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2510		10.0	10.0	mg/L	-		06/26/19 15:14	1

Client Sample ID: MW - 2A
 Date Collected: 06/20/19 09:44
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-4
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	86.5		0.400	0.0534	mg/L	-		06/28/19 23:58	10

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	554		10.0	10.0	mg/L	-		06/26/19 15:14	1

Client Sample ID: MW - 2
 Date Collected: 06/20/19 09:47
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-5
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	283		0.400	0.0534	mg/L	-		06/29/19 00:58	20

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	960		10.0	10.0	mg/L	-		06/26/19 15:14	1

Eurofins TestAmerica, Houston

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: MW - 6R
 Date Collected: 06/20/19 09:53
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-6
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	59.1		0.400	0.0534	mg/L	-		06/29/19 01:58	10

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	482		10.0	10.0	mg/L	-		06/26/19 15:14	1

Client Sample ID: DUP - 1
 Date Collected: 06/20/19 00:00
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-7
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	64.4		0.400	0.0534	mg/L	-		06/29/19 02:18	2

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	592		10.0	10.0	mg/L	-		06/27/19 12:49	1

Client Sample ID: MW - 5
 Date Collected: 06/20/19 10:05
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-8
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1700		0.400	0.0534	mg/L	-		06/29/19 02:38	100

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	4280		10.0	10.0	mg/L	-		06/27/19 12:49	1

Client Sample ID: MW - 5A
 Date Collected: 06/20/19 10:08
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-9
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	118		0.400	0.0534	mg/L	-		06/29/19 02:58	5

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	650		10.0	10.0	mg/L	-		06/27/19 12:49	1

Client Sample ID: RW - 1
 Date Collected: 06/20/19 10:14
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-10
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9290		0.400	0.0534	mg/L	-		06/29/19 03:18	500

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	22100		10.0	10.0	mg/L	-		06/27/19 12:49	1

Eurofins TestAmerica, Houston

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: DUP -2
 Date Collected: 06/20/19 00:00
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-11
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9200		0.400	0.0534	mg/L	-		06/29/19 03:38	500

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	22800		10.0	10.0	mg/L	-		06/27/19 12:49	1

Client Sample ID: MW - 4
 Date Collected: 06/20/19 10:22
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-12
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2760		0.400	0.0534	mg/L	-		06/29/19 03:58	200

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	7830		10.0	10.0	mg/L	-		06/27/19 12:49	1

Client Sample ID: MW - 4A
 Date Collected: 06/20/19 10:24
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-13
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	336		0.400	0.0534	mg/L	-		06/29/19 04:58	10

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1040		10.0	10.0	mg/L	-		06/27/19 12:49	1

Client Sample ID: RW - 2R
 Date Collected: 06/20/19 10:49
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-14
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7860		0.400	0.0534	mg/L	-		06/29/19 05:18	500

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	29400		10.0	10.0	mg/L	-		06/27/19 12:49	1

Client Sample ID: RW - 2
 Date Collected: 06/20/19 10:51
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-15
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3180		0.400	0.0534	mg/L	-		06/29/19 06:18	200

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10200	H	10.0	10.0	mg/L	-		07/01/19 11:28	1

Eurofins TestAmerica, Houston

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: MW - 14
 Date Collected: 06/20/19 11:05
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-16
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	42.1		0.400	0.0534	mg/L			06/29/19 06:38	2

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	481		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 7
 Date Collected: 06/20/19 11:20
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-17
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4210		0.400	0.0534	mg/L			06/29/19 06:58	200

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	15500		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 9
 Date Collected: 06/20/19 11:30
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-18
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	621		0.400	0.0534	mg/L			06/29/19 07:18	50

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2930		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 9A
 Date Collected: 06/20/19 11:34
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-19
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	268		0.400	0.0534	mg/L			06/29/19 07:38	10

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1220		10.0	10.0	mg/L			06/27/19 12:49	1

Client Sample ID: MW - 11
 Date Collected: 06/20/19 11:41
 Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-20
 Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	34.4		0.400	0.0534	mg/L			06/29/19 07:58	2

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	407		10.0	10.0	mg/L			06/27/19 12:49	1

Eurofins TestAmerica, Houston

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: EB - 1

Lab Sample ID: 600-187419-21

Date Collected: 06/20/19 12:50

Matrix: Water

Date Received: 06/21/19 10:19

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L	-		07/01/19 16:21	1

General Chemistry

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	70.0		10.0	10.0	mg/L	-		06/27/19 12:49	1

- 1
- 2
- 3
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- 12
- 13
- 14

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
N1	MS, MSD: Spike recovery exceeds upper or lower control limits.
U	Analyte was not detected at or above the SDL.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Analyte was not detected at or above the SDL.

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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-268268/35
 Matrix: Water
 Analysis Batch: 268268

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L	-		06/28/19 23:18	1

Lab Sample ID: MB 600-268268/4
 Matrix: Water
 Analysis Batch: 268268

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L	-		06/28/19 12:57	1

Lab Sample ID: LCS 600-268268/36
 Matrix: Water
 Analysis Batch: 268268

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.05		mg/L	-	95	90 - 110

Lab Sample ID: LCS 600-268268/5
 Matrix: Water
 Analysis Batch: 268268

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.60		mg/L	-	98	90 - 110

Lab Sample ID: 600-187419-5 MS
 Matrix: Water
 Analysis Batch: 268268

Client Sample ID: MW - 2
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	283		200	439.7	N1	mg/L	-	79	80 - 120

Lab Sample ID: 600-187419-5 MSD
 Matrix: Water
 Analysis Batch: 268268

Client Sample ID: MW - 2
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	283		200	444.5		mg/L	-	81	80 - 120	1	20

Lab Sample ID: 600-187419-14 MS
 Matrix: Water
 Analysis Batch: 268268

Client Sample ID: RW - 2R
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7860		5000	11760	N1	mg/L	-	78	80 - 120

Lab Sample ID: 600-187419-14 MSD
 Matrix: Water
 Analysis Batch: 268268

Client Sample ID: RW - 2R
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7860		5000	11760	N1	mg/L	-	78	80 - 120	0	20

Eurofins TestAmerica, Houston

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-268404/4
 Matrix: Water
 Analysis Batch: 268404

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.0534	U	0.400	0.0534	mg/L	-		07/01/19 14:01	1

Lab Sample ID: LCS 600-268404/5
 Matrix: Water
 Analysis Batch: 268404

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.30		mg/L	-	96	90 - 110

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

Lab Sample ID: MB 600-268092/1
 Matrix: Water
 Analysis Batch: 268092

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L	-		06/26/19 15:14	1

Lab Sample ID: LCS 600-268092/2
 Matrix: Water
 Analysis Batch: 268092

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	1800	1789		mg/L	-	99	90 - 110

Lab Sample ID: 600-187419-5 DU
 Matrix: Water
 Analysis Batch: 268092

Client Sample ID: MW - 2
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	960		934.0		mg/L	-	3	10

Lab Sample ID: MB 600-268191/1
 Matrix: Water
 Analysis Batch: 268191

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L	-		06/27/19 12:49	1

Lab Sample ID: LCS 600-268191/2
 Matrix: Water
 Analysis Batch: 268191

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	1800	1834		mg/L	-	102	90 - 110

Eurofins TestAmerica, Houston

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

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

Lab Sample ID: 600-187419-13 DU
 Matrix: Water
 Analysis Batch: 268191

Client Sample ID: MW - 4A
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1040		1072		mg/L		3	10

Lab Sample ID: 600-187419-18 DU
 Matrix: Water
 Analysis Batch: 268191

Client Sample ID: MW - 9
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	2930		2976		mg/L		2	10

Lab Sample ID: MB 600-268421/1
 Matrix: Water
 Analysis Batch: 268421

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			07/01/19 11:28	1

Lab Sample ID: LCS 600-268421/2
 Matrix: Water
 Analysis Batch: 268421

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	1800	1721		mg/L		96	90 - 110

Default Detection Limits

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units
Chloride	0.400	0.0534	mg/L

General Chemistry

Analyte	MQL	MDL	Units
Total Dissolved Solids	10.0	10.0	mg/L

- 1
- 2
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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

HPLC/IC

Analysis Batch: 268268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-1	MW - 12	Total/NA	Water	300.0	
600-187419-2	MW - 3	Total/NA	Water	300.0	
600-187419-3	MW - 1	Total/NA	Water	300.0	
600-187419-4	MW - 2A	Total/NA	Water	300.0	
600-187419-5	MW - 2	Total/NA	Water	300.0	
600-187419-6	MW - 6R	Total/NA	Water	300.0	
600-187419-7	DUP - 1	Total/NA	Water	300.0	
600-187419-8	MW - 5	Total/NA	Water	300.0	
600-187419-9	MW - 5A	Total/NA	Water	300.0	
600-187419-10	RW - 1	Total/NA	Water	300.0	
600-187419-11	DUP - 2	Total/NA	Water	300.0	
600-187419-12	MW - 4	Total/NA	Water	300.0	
600-187419-13	MW - 4A	Total/NA	Water	300.0	
600-187419-14	RW - 2R	Total/NA	Water	300.0	
600-187419-15	RW - 2	Total/NA	Water	300.0	
600-187419-16	MW - 14	Total/NA	Water	300.0	
600-187419-17	MW - 7	Total/NA	Water	300.0	
600-187419-18	MW - 9	Total/NA	Water	300.0	
600-187419-19	MW - 9A	Total/NA	Water	300.0	
600-187419-20	MW - 11	Total/NA	Water	300.0	
MB 600-268268/35	Method Blank	Total/NA	Water	300.0	
MB 600-268268/4	Method Blank	Total/NA	Water	300.0	
LCS 600-268268/36	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-268268/5	Lab Control Sample	Total/NA	Water	300.0	
600-187419-5 MS	MW - 2	Total/NA	Water	300.0	
600-187419-5 MSD	MW - 2	Total/NA	Water	300.0	
600-187419-14 MS	RW - 2R	Total/NA	Water	300.0	
600-187419-14 MSD	RW - 2R	Total/NA	Water	300.0	

Analysis Batch: 268404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-21	EB - 1	Total/NA	Water	300.0	
MB 600-268404/4	Method Blank	Total/NA	Water	300.0	
LCS 600-268404/5	Lab Control Sample	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 268092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-1	MW - 12	Total/NA	Water	SM 2540C	
600-187419-2	MW - 3	Total/NA	Water	SM 2540C	
600-187419-3	MW - 1	Total/NA	Water	SM 2540C	
600-187419-4	MW - 2A	Total/NA	Water	SM 2540C	
600-187419-5	MW - 2	Total/NA	Water	SM 2540C	
600-187419-6	MW - 6R	Total/NA	Water	SM 2540C	
MB 600-268092/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-268092/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-187419-5 DU	MW - 2	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Houston

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

General Chemistry

Analysis Batch: 268191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-7	DUP - 1	Total/NA	Water	SM 2540C	
600-187419-8	MW - 5	Total/NA	Water	SM 2540C	
600-187419-9	MW - 5A	Total/NA	Water	SM 2540C	
600-187419-10	RW - 1	Total/NA	Water	SM 2540C	
600-187419-11	DUP - 2	Total/NA	Water	SM 2540C	
600-187419-12	MW - 4	Total/NA	Water	SM 2540C	
600-187419-13	MW - 4A	Total/NA	Water	SM 2540C	
600-187419-14	RW - 2R	Total/NA	Water	SM 2540C	
600-187419-16	MW - 14	Total/NA	Water	SM 2540C	
600-187419-17	MW - 7	Total/NA	Water	SM 2540C	
600-187419-18	MW - 9	Total/NA	Water	SM 2540C	
600-187419-19	MW - 9A	Total/NA	Water	SM 2540C	
600-187419-20	MW - 11	Total/NA	Water	SM 2540C	
600-187419-21	EB - 1	Total/NA	Water	SM 2540C	
MB 600-268191/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-268191/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-187419-13 DU	MW - 4A	Total/NA	Water	SM 2540C	
600-187419-18 DU	MW - 9	Total/NA	Water	SM 2540C	

Analysis Batch: 268421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-187419-15	RW - 2	Total/NA	Water	SM 2540C	
MB 600-268421/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-268421/2	Lab Control Sample	Total/NA	Water	SM 2540C	

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Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: MW - 12

Date Collected: 06/20/19 08:52

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			268268	06/28/19 22:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 3

Date Collected: 06/20/19 09:32

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5			268268	06/28/19 22:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 1

Date Collected: 06/20/19 09:38

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			268268	06/28/19 22:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 2A

Date Collected: 06/20/19 09:44

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			268268	06/28/19 23:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 2

Date Collected: 06/20/19 09:47

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			268268	06/29/19 00:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Client Sample ID: MW - 6R

Date Collected: 06/20/19 09:53

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			268268	06/29/19 01:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268092	06/26/19 15:14	DTN	TAL HOU

Eurofins TestAmerica, Houston

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: DUP - 1

Lab Sample ID: 600-187419-7

Date Collected: 06/20/19 00:00

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			268268	06/29/19 02:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 5

Lab Sample ID: 600-187419-8

Date Collected: 06/20/19 10:05

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			268268	06/29/19 02:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 5A

Lab Sample ID: 600-187419-9

Date Collected: 06/20/19 10:08

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5			268268	06/29/19 02:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: RW - 1

Lab Sample ID: 600-187419-10

Date Collected: 06/20/19 10:14

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			268268	06/29/19 03:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: DUP - 2

Lab Sample ID: 600-187419-11

Date Collected: 06/20/19 00:00

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			268268	06/29/19 03:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 4

Lab Sample ID: 600-187419-12

Date Collected: 06/20/19 10:22

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			268268	06/29/19 03:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Eurofins TestAmerica, Houston

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: MW - 4A

Lab Sample ID: 600-187419-13

Date Collected: 06/20/19 10:24

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			268268	06/29/19 04:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: RW - 2R

Lab Sample ID: 600-187419-14

Date Collected: 06/20/19 10:49

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			268268	06/29/19 05:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: RW - 2

Lab Sample ID: 600-187419-15

Date Collected: 06/20/19 10:51

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			268268	06/29/19 06:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	268421	07/01/19 11:28	DTN	TAL HOU

Client Sample ID: MW - 14

Lab Sample ID: 600-187419-16

Date Collected: 06/20/19 11:05

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			268268	06/29/19 06:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 7

Lab Sample ID: 600-187419-17

Date Collected: 06/20/19 11:20

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			268268	06/29/19 06:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 9

Lab Sample ID: 600-187419-18

Date Collected: 06/20/19 11:30

Matrix: Water

Date Received: 06/21/19 10:19

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			268268	06/29/19 07:18	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Eurofins TestAmerica, Houston

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Client Sample ID: MW - 9A

Date Collected: 06/20/19 11:34

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-19

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			268268	06/29/19 07:38	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: MW - 11

Date Collected: 06/20/19 11:41

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-20

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			268268	06/29/19 07:58	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Client Sample ID: EB - 1

Date Collected: 06/20/19 12:50

Date Received: 06/21/19 10:19

Lab Sample ID: 600-187419-21

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			268404	07/01/19 16:21	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	268191	06/27/19 12:49	DTN	TAL HOU

Laboratory References:

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Eurofins TestAmerica, Houston

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Midland - Cooper Jal

Job ID: 600-187419-1

Laboratory: Eurofins TestAmerica, Houston

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

Authority	Program	Identification Number	Expiration Date
Louisiana	NELAP	01967	06-30-20
Texas	NELAP	T104704223-19-25	10-31-19 *
USDA	US Federal Programs	P330-18-00130	04-30-21

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

Midland #264

Chain of Custody Record

Eurofins TestAmerica, Houston

6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Client Information		Sampler: <u>JUL LR</u>	Lab PM: <u>Kudchadkar, Sachin G</u>	COC No: <u>600-68943-18804.1</u>								
Client Contact: <u>Mr. Brett Krehbiel</u>		Phone: _____	E-Mail: <u>sachin.kudchadkar@testamericainc.com</u>	Page: <u>Page 1 of 3</u>								
Company: <u>ARCADIS U.S., Inc.</u>		Job #: _____										
Address: <u>1004 North Big Spring, Suite 121</u>		Analysis Requested										
City: <u>Midland</u>	TAT Requested (days): _____	Total Number of Containers: _____										
State, Zip: <u>TX, 79701</u>	PO #: _____	Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNsO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other: _____										
Phone: <u>916-786-5382(Tel)</u>	WO #: _____	Special Instructions/Note: _____										
Email: <u>brett.krehbiel@arcadis.com</u>	Project #: <u>60003622</u>	 600-187419 Chain of Custody										
Project Name: <u>Midland - Chevron</u>	SSOW#: _____											
Site: <u>Cooper Jai</u>												
Sample Identification	Sample Date				Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=oil, A=air)	Preservation Code: (BT=Tissue, AA=Al)	Field Filled Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C Calcd. 300_ORGFM_280	N
<u>MW-12</u>	<u>06/20/19</u>				<u>0857</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>MW-3</u>	<u>06/20/19</u>				<u>0932</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>MW-1</u>	<u>06/20/19</u>				<u>0938</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>MW-2A</u>	<u>06/20/19</u>				<u>0944</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>MW-2</u>	<u>06/20/19</u>				<u>0947</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>MW-4R</u>	<u>06/20/19</u>				<u>0953</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>Dup-1</u>	<u>06/20/19</u>				<u>1005</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>MW-5</u>	<u>06/20/19</u>				<u>1008</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>MW-SA</u>	<u>06/20/19</u>				<u>1014</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
<u>Dup-1</u>	<u>06/20/19</u>				<u>1014</u>	<u>G</u>	<u>Water</u>	<u>G</u>	<u>1</u>	<u>1</u>		
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input 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) _____												
Special Instructions/OC Requirements: _____												
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Return To Client _____ Disposal By Lab _____ Archive For _____ Months												
Empty Kit Relinquished by: _____ Date: _____ Method of Shipment: _____												
Relinquished by: <u>[Signature]</u> Date/Time: <u>06/20/19 1311</u> Company: <u>ARCADIS</u> Received by: _____ Date/Time: _____ Company: _____												
Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____												
Relinquished by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____												
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temperature(s) °C and Other Remarks: _____												

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Midland #264

Chain of Custody Record

Eurofins TestAmerica, Houston

6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Sampler: JUL / LR Lab PM: Kudchadkar, Sachin G Carrier Tracking No(s): 600-68943-18804.1
 Client Contact: Mr. Brett Krehbiel E-Mail: sachin.kudchadkar@testamericainc.com Page: Page 2 of 3
 Company: ARCADIS U.S., Inc. Job #:

Address: 1004 North Big Spring Suite 121
 City: Midland
 State, Zip: TX, 79701
 Phone: 916-786-5382(Tel)
 Email: brett.krehbiel@arcadis.com
 Project Name: Midland - Chevron
 Site: COOPER JAIL
 PO #: Purchase Order not required
 WO #:
 Project #: 60003622
 SOW#:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soil, D=distillate, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Preservation Code	Special Instructions/Note	Total Number of containers
MW-4	06/20/19	1022	G	Water					
MW-4A	06/20/19	1024	G	Water					
RW-6R	06/20/19	1049	G	Water					
RW-2	06/20/19	1051	G	Water					
MW-14	06/20/19	1105	G	Water					
MW-7	06/20/19	1120	G	Water					
MW-9	06/20/19	1130	G	Water					
MW-9A	06/20/19	1134	G	Water					
MW-11	06/20/19	1141	G	Water					
EB-1	06/20/19	1250	G	Water					
	RB			Water					

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Return To Client: Disposal By Lab: Archive For: Months

Special Instructions/QC Requirements:

Method of Shipment: Date/Time: Company:

Received by: AW Sidorowicz Date/Time: 06/20/19 1311 Company: ARCADIS

Received by: Date/Time: Company:

Received by: Date/Time: Company:

Cooler Temperature(s) °C and Other Remarks:

Custody Seal No.:
 Custody Seals Intact: Yes No



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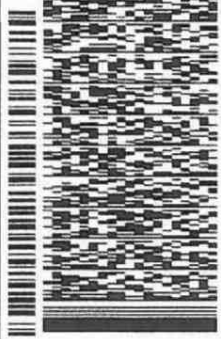
ORIGIN ID:MAFA (432) 215-3695
 JOSH FUNDERBURG
 1308 S. MIDKIFF
 SUITE 133
 MIDLAND, TX 79703
 UNITED STATES US

SHIP DATE: 07 JUN 19
 ACTWGT: 30.00 LB
 CAD: 113247836/INET4100
 DIMS: 26x14x14 IN
 BILL SENDER

TO TESTAMERICA
 TESTAMERICA
 6310 ROTHWAY

HOUSTON TX 77040
 (713) 690-4444
 INV. REF: ARCADIS COOPER JAL

DEPT.



SATURDAY 12:00P
 PRIORITY OVERNIGHT

TRK# 7753 8658 4523
 0201

X0 LKSA TX-US IAH
 77040



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TestAmerica Houston

Loc: 600
187419



Sample Receipt Checklist

19 JUN 21 10:19

JOB NUMBER: _____

Date/Time Received: _____

CLIENT: Arcadis

UNPACKED BY: JR

CARRIER/DRIVER: FB

Custody Seal Present: YES NO

Number of Coolers Received: 2

Cooler ID	Temp Blank	Trip Blank	Observed Temp (°C)	Therm ID	Therm CF	Corrected Temp (°C)
<u>G ray</u>	<u>Y / N</u>	<u>Y / N</u>	<u>1.9</u>	<u>606</u>	<u>-0.2</u>	<u>1.7</u>
<u>G ray</u>	<u>Y / N</u>	<u>Y / N</u>	<u>1.7</u>			<u>1.5</u>
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				
	<u>Y / N</u>	<u>Y / N</u>				

CF = correction factor

Samples received on ice? YES NO

LABORATORY PRESERVATION OF SAMPLES REQUIRED: NO YES

Base samples are >pH 12: YES NO Acid preserved are <pH 2: YES NO

pH paper Lot # _____

VOA headspace acceptable (5-6mm): YES NO NA

Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	YES	NO
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

COMMENTS:

_____ JR 6/21/19 _____

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 600-187419-1

Login Number: 187419

List Source: Eurofins TestAmerica, Houston

List Number: 1

Creator: Rubio, Yuri

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
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	1.7,1.5
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	Check done at department level as required.



Environment Testing
TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

Laboratory Job ID: 600-196675-1
Client Project/Site: Cooper Jal

For:
ARCADIS U.S., Inc.
1004 North Big Spring
Suite 121
Midland, Texas 79701

Attn: Mr. Russell Grant

Authorized for release by:
12/19/2019 4:18:13 PM
Jasmine Turner, Project Management Assistant I
(713)690-4444
jasmine.turner@testamericainc.com

Designee for
Sachin Kudchadkar, Senior Project Manager
(713)690-4444
sachin.kudchadkar@testamericainc.com

LINKS

Review your project results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

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Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Laboratory Job ID: 600-196675-1

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Appendix A Laboratory Data Package Cover Page - Page 1 of 4

This data package is for Eurofins TestAmerica, Houston job number 600-196675-1 and consists of:

- R1 - Field chain-of-custody documentation;
- R2 - Sample identification cross-reference;
- R3 - Test reports (analytical data sheets) for each environmental sample that includes:
 - a. Items consistent with NELAC Chapter 5,
 - b. dilution factors,
 - c. preparation methods,
 - d. cleanup methods, and
 - e. if required for the project, tentatively identified compounds (TICs).
- R4 - Surrogate recovery data including:
 - a. Calculated recovery (%R), and
 - b. The laboratory's surrogate QC limits.
- R5 - Test reports/summary forms for blank samples;
- R6 - Test reports/summary forms for laboratory control samples (LCSs) including:
 - a. LCS spiking amounts,
 - b. Calculated %R for each analyte, and
 - c. The laboratory's LCS QC limits.
- R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
 - a. Samples associated with the MS/MSD clearly identified,
 - b. MS/MSD spiking amounts,
 - c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,
 - d. Calculated %Rs and relative percent differences (RPDs), and
 - e. The laboratory's MS/MSD QC limits
- R8 - Laboratory analytical duplicate (if applicable) recovery and precision:
 - a. The amount of analyte measured in the duplicate,
 - b. The calculated RPD, and
 - c. The laboratory's QC limits for analytical duplicates.
- R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.
- R10 - Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Jasmine Turner, for Sachin Kudchadkar

Name (printed)



Signature

12/19/2019

Date

Senior Project Manager

Official Title (printed)

Laboratory Review Checklist: Reportable Data - Page 2 of 4

Laboratory Name:	Eurofins TestAmerica, Houston	LRC Date:	12/19/2019
Project Name:	Cooper Jal	Laboratory Job Number:	600-196675-1
Reviewer Name:	Jasmine Turner, for Sachin Kudchadkar		

# ¹	A ²	Description	Yes	No	NA ³	NR ⁴	ER# ⁵
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?		X			R03A
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				R05D
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

- Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
- O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
- NA = Not applicable;
- NR = Not reviewed;
- ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review checklist: Supporting Data - Page 3 of 4

Laboratory Name:	Eurofins TestAmerica, Houston	LRC Date:	12/19/2019
Project Name:	Cooper Jal	Laboratory Job Number:	600-196675-1
Reviewer Name:	Jasmine Turner, for Sachin Kudchadkar		

# ¹	A ²	Description	Yes	No	NA ³	NR ⁴	ER# ⁵
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSS?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed?	X				
<p>1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.</p> <p>2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);</p> <p>3. NA = Not applicable;</p> <p>4. NR = Not reviewed;</p> <p>5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).</p>							

Laboratory Review Checklist: Exception Reports - Page 4 of 4

Laboratory Name:	Eurofins TestAmerica, Houston	LRC Date:	12/19/2019
Project Name:	Cooper Jal	Laboratory Job Number:	600-196675-1
Reviewer Name:	Jasmine Turner, for Sachin Kudchadkar		

ER # ¹	Description
R03A	Method SM 2540C: The following samples were received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: MW-12 (600-196675-1), MW-3 (600-196675-2), MW-2 (600-196675-3), MW-2A (600-196675-4), MW-6R (600-196675-5), MW-5 (600-196675-6), MW-5A (600-196675-7), MW-1 (600-196675-8), MW-4 (600-196675-9), MW-4A (600-196675-10), RW-1 (600-196675-11), RW-2R (600-196675-12), RW-2 (600-196675-13), MW-14 (600-196675-14), DUP-1 (600-196675-15), MW-10 (600-196675-16), MW-7 (600-196675-17), MW-8 (600-196675-18), MW-9 (600-196675-19), MW-9A (600-196675-20) and MW-11 (600-196675-21).
R05D	Method 300.0: The method blank for analytical batch 600-283030 contained Chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed. Method 300.0: The method blank for analytical batch 600-283045 contained Chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed. Method 300.0: The method blank for analytical batch 600-283211 contained chloride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.
	<ol style="list-style-type: none"> Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable); NA = Not applicable; NR = Not reviewed; ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).



Detection Check Standard

EuroFins TestAmerica, Houston

Matrix: Water
Method: SW-846 9056 / EPA 300
Date Analyzed: 8/23/2019
Job #: 600-188237
TALS Batch: 272774
Units: mg/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MLQ
Bromide	CHWC16	0.101	0.200	0.306	0.4
Chloride	CHWC16	0.053	0.200	0.305	0.4
Fluoride	CHWC16	0.060	0.200	0.296	0.2
Nitrate as N	CHWC16	0.025	0.200	0.306	0.2
Nitrite as N	CHWC16	0.030	0.400	0.384	0.2
Sulfate	CHWC16	0.096	0.400	0.482	0.5

DCS = Detection Check Standard
 MLQ = Method Quantitation Limit



Detection Check Standard

EuroFins TestAmerica, Houston

Matrix: Water
Method: SM 2540C
Date Analyzed: 8/20/2019
Job #: 600-188237
TALS Batch: 272376
Units: mg/L

Analyte	Instrument #	MDL	DCS Spike	Measured Result	MQL
Total Dissolved Solids	NOEQUIP	10.000	29.880	86.000	10

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DCS = Detection Check Standard
 MQL = Method Quantitation Limit

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Job ID: 600-196675-1

Laboratory: Eurofins TestAmerica, Houston

Narrative

**Job Narrative
600-196675-1**

Comments

No additional comments.

Receipt

The samples were received on 11/27/2019 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2° C.

All applicable analytical narratives can be found in the TRRP Checklist section of this report.

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL HOU
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL HOU

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
600-196675-1	MW-12	Water	11/23/19 15:10	11/27/19 10:15	
600-196675-2	MW-3	Water	11/23/19 15:22	11/27/19 10:15	
600-196675-3	MW-2	Water	11/23/19 15:32	11/27/19 10:15	
600-196675-4	MW-2A	Water	11/23/19 15:37	11/27/19 10:15	
600-196675-5	MW-6R	Water	11/23/19 15:46	11/27/19 10:15	
600-196675-6	MW-5	Water	11/23/19 15:54	11/27/19 10:15	
600-196675-7	MW-5A	Water	11/23/19 16:04	11/27/19 10:15	
600-196675-8	MW-1	Water	11/24/19 08:26	11/27/19 10:15	
600-196675-9	MW-4	Water	11/24/19 08:44	11/27/19 10:15	
600-196675-10	MW-4A	Water	11/24/19 08:49	11/27/19 10:15	
600-196675-11	RW-1	Water	11/24/19 09:08	11/27/19 10:15	
600-196675-12	RW-2R	Water	11/24/19 09:21	11/27/19 10:15	
600-196675-13	RW-2	Water	11/24/19 09:25	11/27/19 10:15	
600-196675-14	MW-14	Water	11/24/19 09:31	11/27/19 10:15	
600-196675-15	DUP-1	Water	11/24/19 00:00	11/27/19 10:15	
600-196675-16	MW-10	Water	11/24/19 09:52	11/27/19 10:15	
600-196675-17	MW-7	Water	11/24/19 10:11	11/27/19 10:15	
600-196675-18	MW-8	Water	11/24/19 10:22	11/27/19 10:15	
600-196675-19	MW-9	Water	11/24/19 10:32	11/27/19 10:15	
600-196675-20	MW-9A	Water	11/24/19 10:41	11/27/19 10:15	
600-196675-21	MW-11	Water	11/24/19 10:51	11/27/19 10:15	

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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-12
Date Collected: 11/23/19 15:10
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	337	b	100	13.4	mg/L	-		12/14/19 06:51	250
Sulfate	140		125	23.9	mg/L	-		12/14/19 06:51	250

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1010	H	20.0	20.0	mg/L	-		12/04/19 15:38	1

Client Sample ID: MW-3
Date Collected: 11/23/19 15:22
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-2
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	60.0	b	20.0	2.67	mg/L	-		12/14/19 07:02	50
Sulfate	96.6		25.0	4.79	mg/L	-		12/14/19 07:02	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	352	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-2
Date Collected: 11/23/19 15:32
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.7	b	8.00	1.07	mg/L	-		12/14/19 07:13	20
Sulfate	42.0		10.0	1.91	mg/L	-		12/14/19 07:13	20

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	274	H	10.0	10.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-2A
Date Collected: 11/23/19 15:37
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-4
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	88.0	b	20.0	2.67	mg/L	-		12/14/19 07:23	50
Sulfate	76.5		25.0	4.79	mg/L	-		12/14/19 07:23	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	414	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-6R
Date Collected: 11/23/19 15:46
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	69.4	b	20.0	2.67	mg/L	-		12/14/19 07:34	50
Sulfate	95.2		25.0	4.79	mg/L	-		12/14/19 07:34	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	384	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-5
Date Collected: 11/23/19 15:54
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-6
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1530	b	80.0	10.7	mg/L	-		12/14/19 08:06	200
Sulfate	250		100	19.1	mg/L	-		12/14/19 08:06	200

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3900	H	100	100	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-5A
Date Collected: 11/23/19 16:04
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-7
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	116	b	20.0	2.67	mg/L	-		12/14/19 08:17	50
Sulfate	61.1		25.0	4.79	mg/L	-		12/14/19 08:17	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	502	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-1
Date Collected: 11/24/19 08:26
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-8
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1110	b	80.0	10.7	mg/L	-		12/14/19 08:28	200
Sulfate	222		100	19.1	mg/L	-		12/14/19 08:28	200

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	2190	H	40.0	40.0	mg/L	-		12/04/19 13:21	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-4
Date Collected: 11/24/19 08:44
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-9
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3050	b	200	26.7	mg/L	-		12/14/19 09:00	500
Sulfate	420		250	47.9	mg/L	-		12/14/19 09:00	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	5960	H	100	100	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-4A
Date Collected: 11/24/19 08:49
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-10
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	321	b	40.0	5.34	mg/L	-		12/14/19 09:11	100
Sulfate	94.5		50.0	9.57	mg/L	-		12/14/19 09:11	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	824	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: RW-1
Date Collected: 11/24/19 09:08
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-11
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5780	b	400	53.4	mg/L	-		12/14/19 09:43	1000
Sulfate	722		500	95.7	mg/L	-		12/14/19 09:43	1000

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12200	H	200	200	mg/L	-		12/04/19 13:21	1

Client Sample ID: RW-2R
Date Collected: 11/24/19 09:21
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-12
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7720	b	400	53.4	mg/L	-		12/14/19 09:54	1000
Sulfate	943		500	95.7	mg/L	-		12/14/19 09:54	1000

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	21000	H	200	200	mg/L	-		12/04/19 13:21	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: RW-2

Lab Sample ID: 600-196675-13

Date Collected: 11/24/19 09:25

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3510	b	200	26.7	mg/L	-		12/18/19 01:23	500
Sulfate	464		250	47.9	mg/L	-		12/18/19 01:23	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	9880	H	200	200	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-14

Lab Sample ID: 600-196675-14

Date Collected: 11/24/19 09:31

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37.1	b	8.00	1.07	mg/L	-		12/14/19 10:24	20
Sulfate	94.5		10.0	1.91	mg/L	-		12/14/19 10:24	20

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	328	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: DUP-1

Lab Sample ID: 600-196675-15

Date Collected: 11/24/19 00:00

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40.4	b	8.00	1.07	mg/L	-		12/14/19 11:25	20
Sulfate	95.9		10.0	1.91	mg/L	-		12/14/19 11:25	20

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	324	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-10

Lab Sample ID: 600-196675-16

Date Collected: 11/24/19 09:52

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	230	b	40.0	5.34	mg/L	-		12/14/19 11:46	100
Sulfate	78.0		50.0	9.57	mg/L	-		12/14/19 11:46	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	826	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-7
Date Collected: 11/24/19 10:11
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-17
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2080	b	200	26.7	mg/L	-		12/14/19 12:06	500
Sulfate	272		250	47.9	mg/L	-		12/14/19 12:06	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	6300	H	100	100	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-8
Date Collected: 11/24/19 10:22
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-18
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.9	b	10.0	1.34	mg/L	-		12/14/19 12:27	25
Sulfate	27.6		12.5	2.39	mg/L	-		12/14/19 12:27	25

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	239	H	10.0	10.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-9
Date Collected: 11/24/19 10:32
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-19
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	337	b	40.0	5.34	mg/L	-		12/14/19 12:47	100
Sulfate	80.6		50.0	9.57	mg/L	-		12/14/19 12:47	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1170	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Client Sample ID: MW-9A
Date Collected: 11/24/19 10:41
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-20
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	231	b	40.0	5.34	mg/L	-		12/14/19 13:48	100
Sulfate	83.2		50.0	9.57	mg/L	-		12/14/19 13:48	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	838	H	20.0	20.0	mg/L	-		12/04/19 13:21	1

Eurofins TestAmerica, Houston

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-11

Lab Sample ID: 600-196675-21

Date Collected: 11/24/19 10:51

Matrix: Water

Date Received: 11/27/19 10:15

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	45.8	b	20.0	2.67	mg/L			12/14/19 14:50	50
Sulfate	113		25.0	4.79	mg/L			12/14/19 14:50	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	364	H	20.0	20.0	mg/L			12/04/19 13:21	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
b	The compound was found in the blank and sample
J	Result is less than the MQL but greater than or equal to the SDL and the concentration is an estimated value.
U	Analyte was not detected at or above the SDL.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
U	Analyte was not detected at or above the SDL.

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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-283030/34
Matrix: Water
Analysis Batch: 283030

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.3130	J	0.400	0.0534	mg/L			12/14/19 07:45	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/14/19 07:45	1

Lab Sample ID: MB 600-283030/6
Matrix: Water
Analysis Batch: 283030

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.3105	J	0.400	0.0534	mg/L			12/14/19 02:43	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/14/19 02:43	1

Lab Sample ID: LCS 600-283030/35
Matrix: Water
Analysis Batch: 283030

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.45		mg/L		97	90 - 110
Sulfate	20.0	19.18		mg/L		96	90 - 110

Lab Sample ID: LCS 600-283030/7
Matrix: Water
Analysis Batch: 283030

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.37		mg/L		97	90 - 110
Sulfate	20.0	19.14		mg/L		96	90 - 110

Lab Sample ID: 600-196675-10 MS
Matrix: Water
Analysis Batch: 283030

Client Sample ID: MW-4A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	321	b	1000	1285		mg/L		96	80 - 120
Sulfate	94.5		1000	1026		mg/L		93	80 - 120

Lab Sample ID: 600-196675-10 MSD
Matrix: Water
Analysis Batch: 283030

Client Sample ID: MW-4A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	321	b	1000	1296		mg/L		97	80 - 120	1	20
Sulfate	94.5		1000	1046		mg/L		95	80 - 120	2	20

Lab Sample ID: MB 600-283045/4
Matrix: Water
Analysis Batch: 283045

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.1909	J	0.400	0.0534	mg/L			12/14/19 09:43	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/14/19 09:43	1

Eurofins TestAmerica, Houston

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 600-283045/5
Matrix: Water
Analysis Batch: 283045

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	20.20		mg/L		101	90 - 110
Sulfate	20.0	19.48		mg/L		97	90 - 110

Lab Sample ID: 600-196675-14 MS
Matrix: Water
Analysis Batch: 283045

Client Sample ID: MW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	37.1	b	200	243.4		mg/L		103	80 - 120
Sulfate	94.5		200	294.4		mg/L		100	80 - 120

Lab Sample ID: 600-196675-14 MSD
Matrix: Water
Analysis Batch: 283045

Client Sample ID: MW-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	37.1	b	200	243.4		mg/L		103	80 - 120	0	20
Sulfate	94.5		200	293.7		mg/L		100	80 - 120	0	20

Lab Sample ID: 600-196675-20 MS
Matrix: Water
Analysis Batch: 283045

Client Sample ID: MW-9A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	231	b	1000	1255		mg/L		102	80 - 120
Sulfate	83.2		1000	1041		mg/L		96	80 - 120

Lab Sample ID: 600-196675-20 MSD
Matrix: Water
Analysis Batch: 283045

Client Sample ID: MW-9A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	231	b	1000	1261		mg/L		103	80 - 120	1	20
Sulfate	83.2		1000	1045		mg/L		96	80 - 120	0	20

Lab Sample ID: MB 600-283211/35
Matrix: Water
Analysis Batch: 283211

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.1862	J	0.400	0.0534	mg/L			12/17/19 22:19	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/17/19 22:19	1

Lab Sample ID: MB 600-283211/4
Matrix: Water
Analysis Batch: 283211

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.1863	J	0.400	0.0534	mg/L			12/17/19 11:46	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			12/17/19 11:46	1

Eurofins TestAmerica, Houston

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 600-283211/36
Matrix: Water
Analysis Batch: 283211

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1000	1017		mg/L		102	90 - 110
Sulfate	1000	980.3		mg/L		98	90 - 110

Lab Sample ID: LCS 600-283211/5
Matrix: Water
Analysis Batch: 283211

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	20.14		mg/L		101	90 - 110
Sulfate	20.0	19.34		mg/L		97	90 - 110

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

Lab Sample ID: MB 600-282061/1
Matrix: Water
Analysis Batch: 282061

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			12/04/19 13:21	1

Lab Sample ID: LCS 600-282061/2
Matrix: Water
Analysis Batch: 282061

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	1800	1726		mg/L		96	90 - 110

Lab Sample ID: 600-196675-10 DU
Matrix: Water
Analysis Batch: 282061

Client Sample ID: MW-4A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	824	H	806.0		mg/L		2	10

Lab Sample ID: 600-196675-21 DU
Matrix: Water
Analysis Batch: 282061

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	364	H	340.0		mg/L		7	10

Lab Sample ID: MB 600-282105/1
Matrix: Water
Analysis Batch: 282105

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			12/04/19 15:38	1

Eurofins TestAmerica, Houston

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Cooper Jal

Job ID: 600-196675-1

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

Lab Sample ID: LCS 600-282105/2
 Matrix: Water
 Analysis Batch: 282105

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	1800	1726		mg/L		96	90 - 110

Lab Sample ID: 600-196675-1 DU
 Matrix: Water
 Analysis Batch: 282105

Client Sample ID: MW-12
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1010	H	1032		mg/L		2	10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Unadjusted Detection Limits

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units
Chloride	0.400	0.0534	mg/L
Sulfate	0.500	0.0957	mg/L

General Chemistry

Analyte	MQL	MDL	Units
Total Dissolved Solids	10.0	10.0	mg/L

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

HPLC/IC

Analysis Batch: 283030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-1	MW-12	Total/NA	Water	300.0	
600-196675-2	MW-3	Total/NA	Water	300.0	
600-196675-3	MW-2	Total/NA	Water	300.0	
600-196675-4	MW-2A	Total/NA	Water	300.0	
600-196675-5	MW-6R	Total/NA	Water	300.0	
600-196675-6	MW-5	Total/NA	Water	300.0	
600-196675-7	MW-5A	Total/NA	Water	300.0	
600-196675-8	MW-1	Total/NA	Water	300.0	
600-196675-9	MW-4	Total/NA	Water	300.0	
600-196675-10	MW-4A	Total/NA	Water	300.0	
600-196675-11	RW-1	Total/NA	Water	300.0	
600-196675-12	RW-2R	Total/NA	Water	300.0	
MB 600-283030/34	Method Blank	Total/NA	Water	300.0	
MB 600-283030/6	Method Blank	Total/NA	Water	300.0	
LCS 600-283030/35	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-283030/7	Lab Control Sample	Total/NA	Water	300.0	
600-196675-10 MS	MW-4A	Total/NA	Water	300.0	
600-196675-10 MSD	MW-4A	Total/NA	Water	300.0	

Analysis Batch: 283045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-14	MW-14	Total/NA	Water	300.0	
600-196675-15	DUP-1	Total/NA	Water	300.0	
600-196675-16	MW-10	Total/NA	Water	300.0	
600-196675-17	MW-7	Total/NA	Water	300.0	
600-196675-18	MW-8	Total/NA	Water	300.0	
600-196675-19	MW-9	Total/NA	Water	300.0	
600-196675-20	MW-9A	Total/NA	Water	300.0	
600-196675-21	MW-11	Total/NA	Water	300.0	
MB 600-283045/4	Method Blank	Total/NA	Water	300.0	
LCS 600-283045/5	Lab Control Sample	Total/NA	Water	300.0	
600-196675-14 MS	MW-14	Total/NA	Water	300.0	
600-196675-14 MSD	MW-14	Total/NA	Water	300.0	
600-196675-20 MS	MW-9A	Total/NA	Water	300.0	
600-196675-20 MSD	MW-9A	Total/NA	Water	300.0	

Analysis Batch: 283211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-13	RW-2	Total/NA	Water	300.0	
MB 600-283211/35	Method Blank	Total/NA	Water	300.0	
MB 600-283211/4	Method Blank	Total/NA	Water	300.0	
LCS 600-283211/36	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-283211/5	Lab Control Sample	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 282061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-2	MW-3	Total/NA	Water	SM 2540C	
600-196675-3	MW-2	Total/NA	Water	SM 2540C	
600-196675-4	MW-2A	Total/NA	Water	SM 2540C	

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QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

General Chemistry (Continued)

Analysis Batch: 282061 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-5	MW-6R	Total/NA	Water	SM 2540C	
600-196675-6	MW-5	Total/NA	Water	SM 2540C	
600-196675-7	MW-5A	Total/NA	Water	SM 2540C	
600-196675-8	MW-1	Total/NA	Water	SM 2540C	
600-196675-9	MW-4	Total/NA	Water	SM 2540C	
600-196675-10	MW-4A	Total/NA	Water	SM 2540C	
600-196675-11	RW-1	Total/NA	Water	SM 2540C	
600-196675-12	RW-2R	Total/NA	Water	SM 2540C	
600-196675-13	RW-2	Total/NA	Water	SM 2540C	
600-196675-14	MW-14	Total/NA	Water	SM 2540C	
600-196675-15	DUP-1	Total/NA	Water	SM 2540C	
600-196675-16	MW-10	Total/NA	Water	SM 2540C	
600-196675-17	MW-7	Total/NA	Water	SM 2540C	
600-196675-18	MW-8	Total/NA	Water	SM 2540C	
600-196675-19	MW-9	Total/NA	Water	SM 2540C	
600-196675-20	MW-9A	Total/NA	Water	SM 2540C	
600-196675-21	MW-11	Total/NA	Water	SM 2540C	
MB 600-282061/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-282061/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-196675-10 DU	MW-4A	Total/NA	Water	SM 2540C	
600-196675-21 DU	MW-11	Total/NA	Water	SM 2540C	

Analysis Batch: 282105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-196675-1	MW-12	Total/NA	Water	SM 2540C	
MB 600-282105/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 600-282105/2	Lab Control Sample	Total/NA	Water	SM 2540C	
600-196675-1 DU	MW-12	Total/NA	Water	SM 2540C	

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Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-12
Date Collected: 11/23/19 15:10
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		250			283030	12/14/19 06:51	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282105	12/04/19 15:38	TNL	TAL HOU

Client Sample ID: MW-3
Date Collected: 11/23/19 15:22
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283030	12/14/19 07:02	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-2
Date Collected: 11/23/19 15:32
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			283030	12/14/19 07:13	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-2A
Date Collected: 11/23/19 15:37
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283030	12/14/19 07:23	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-6R
Date Collected: 11/23/19 15:46
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283030	12/14/19 07:34	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-5
Date Collected: 11/23/19 15:54
Date Received: 11/27/19 10:15

Lab Sample ID: 600-196675-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			283030	12/14/19 08:06	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

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Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-5A

Lab Sample ID: 600-196675-7

Date Collected: 11/23/19 16:04

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283030	12/14/19 08:17	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-1

Lab Sample ID: 600-196675-8

Date Collected: 11/24/19 08:26

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200			283030	12/14/19 08:28	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	25 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-4

Lab Sample ID: 600-196675-9

Date Collected: 11/24/19 08:44

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			283030	12/14/19 09:00	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-4A

Lab Sample ID: 600-196675-10

Date Collected: 11/24/19 08:49

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			283030	12/14/19 09:11	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: RW-1

Lab Sample ID: 600-196675-11

Date Collected: 11/24/19 09:08

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1000			283030	12/14/19 09:43	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: RW-2R

Lab Sample ID: 600-196675-12

Date Collected: 11/24/19 09:21

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1000			283030	12/14/19 09:54	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

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Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: RW-2

Lab Sample ID: 600-196675-13

Date Collected: 11/24/19 09:25

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			283211	12/18/19 01:23	SKR	TAL HOU
Total/NA	Analysis	SM 2540C		1	5 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-14

Lab Sample ID: 600-196675-14

Date Collected: 11/24/19 09:31

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			283045	12/14/19 10:24	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: DUP-1

Lab Sample ID: 600-196675-15

Date Collected: 11/24/19 00:00

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		20			283045	12/14/19 11:25	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-10

Lab Sample ID: 600-196675-16

Date Collected: 11/24/19 09:52

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			283045	12/14/19 11:46	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-7

Lab Sample ID: 600-196675-17

Date Collected: 11/24/19 10:11

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500			283045	12/14/19 12:06	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	10 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-8

Lab Sample ID: 600-196675-18

Date Collected: 11/24/19 10:22

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25			283045	12/14/19 12:27	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Eurofins TestAmerica, Houston

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Cooper Jal

Job ID: 600-196675-1

Client Sample ID: MW-9

Lab Sample ID: 600-196675-19

Date Collected: 11/24/19 10:32

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			283045	12/14/19 12:47	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-9A

Lab Sample ID: 600-196675-20

Date Collected: 11/24/19 10:41

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			283045	12/14/19 13:48	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Client Sample ID: MW-11

Lab Sample ID: 600-196675-21

Date Collected: 11/24/19 10:51

Matrix: Water

Date Received: 11/27/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50			283045	12/14/19 14:50	W1N	TAL HOU
Total/NA	Analysis	SM 2540C		1	50 mL	100 mL	282061	12/04/19 13:21	TNL	TAL HOU

Laboratory References:

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Cooper Jal

Job ID: 600-196675-1

Laboratory: Eurofins TestAmerica, Houston

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	88-0759	08-04-20
Louisiana	NELAP	01967	06-30-20
Oklahoma	State	2019-073	08-31-20
Texas	NELAP	T104704223-19-25	10-31-19 *
Texas	NELAP	T104704223-19-25	10-31-20
USDA	US Federal Programs	P330-18-00130	04-30-21
Utah	NELAP	TX000832019-5	07-31-20

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



Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record



Client Information Client Contact: Mr. Russell Grant Company: ARCADIS U.S., Inc. Address: 1004 North Big Spring Suite 121 City: Midland State, Zip: TX, 79701 Phone: 916-786-5382(Tel) Email: russell.grant@arcadis-us.com Project Name: <u>Cooper J-1</u> Site:		Lab PM: Kudchadkar, Sachin G E-Mail: sachin.kudchadkar@testamericainc.com Phone: 361-701-0369 Carier Tracking No(s): COC No: 600-72356-19860.3 Page: Job #: Preservation Codes: A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AgNO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
Due Date Requested: TAT Requested (days): PO #: 30006543 Mark Owen WO #: Project #: 60003622 SSOW#:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> N Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> N 2540C - TDS <input checked="" type="checkbox"/> X 300-Cl, SO4 <input checked="" type="checkbox"/> X Total Number of Containers:	
Sample Identification MW-12 MW-12 MW-2 MW-2A MW-6R MW-5 MW-5A MW-1 MW-4 MW-4A RW-1		Sample Date 11/23/19 11/23/19 11/23/19 11/23/19 11/23/19 11/23/19 11/24/19 11/24/19 11/24/19	
Sample Time 1510 1522 1532 1537 1546 1554 1604 0826 0844 0849 0908		Sample Type (C=Comp, G=grab) G G G G G G G G G G G	
Matrix (W=Water, S=solid, O=Other, A=All) Water Water Water Water Water Water Water Water Water Water Water		Preservation Code: Water Water Water Water Water Water Water Water Water Water Water	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input 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 Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/OC Requirements:	
Empty Kit Relinquished by: Relinquished by: <u>Carol Martinez</u> Relinquished by: Relinquished by:		Method of Shipment: Date/Time: 11/26/19 1800 Date/Time: Date/Time:	
Custody Seals Intact: Δ Yes Δ No		Received by: <u>ARCADIS</u> Company: ARCADIS Received by: <u>YARD</u> Company: YARD Received by: Company:	
Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	



Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

eurofins Environment Testing
TestAmerica

Client Information Client Contact: Mr. Russell Grant Company: ARCADIS U.S., Inc. Address: 1004 North Big Spring Suite 121 City: Midland State, Zip: TX, 79701 Phone: 916-786-5382(Tel) Email: russell.grant@arcadis-us.com Project Name: MARK-OWEN Site: Cooper Jail		Lab PM: Kuchadkar, Sachin G E-Mail: sachin.kuchadkar@testamericainc.com Carrier Tracking No(s):		COC No: 600-72356-19860 3 Page: Page: Job #:						
Due Date Requested: TAT Requested (days): PO #: 30006543 Mark Owen WO #: Project #: 60003622 SSOW#:		Analysis Requested								
Sample Identification		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AshNaO2 P - Na2SO4 Q - NaZSO3 R - NaZSO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)								
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Swab, On-wash, etc.)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	2540C - TDS	300-Cl, SO4	Total Number of Containers	Special Instructions/Note:
RW-2R	11/24/19	0921	G	Water	X	X	X	X	1	
RW-2	11/24/19	0925	G	Water	X	X	X	X	1	
MW-14	11/24/19	0931	G	Water	X	X	X	X	1	
D4P-1	11/24/19	-	G	Water	X	X	X	X	1	
MW-10	11/24/19	0952	G	Water	X	X	X	X	1	
MW-7	11/24/19	1011	G	Water	X	X	X	X	1	
MW-8	11/24/19	1022	G	Water	X	X	X	X	1	
MW-9	11/24/19	1032	G	Water	X	X	X	X	1	
MW-9A	11/24/19	1041	G	Water	X	X	X	X	1	
MW-11	11/24/19	1051	G	Water	X	X	X	X	1	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input 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 Disposal: (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:										
Empty Kit Relinquished by: Relinquished by: <i>Charles Martinez</i> Date: 11/26/19 / 1800 Relinquished by: _____ Date/Time: _____ Relinquished by: _____ Date/Time: _____ Custody Seals Intact: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks:										
Received by: <i>YARD</i> Date/Time: 11/27/19 1015 Received by: _____ Date/Time: _____ Received by: _____ Date/Time: _____ Company: ARCADIS Company: TPAH Company: _____										

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Ver: 01/16/2019

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 600-196675-1

Login Number: 196675

List Source: Eurofins TestAmerica, Houston

List Number: 1

Creator: Rubio, Yuri

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
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	2.2
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	Check done at department level as required.



Environment Testing
America

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ANALYTICAL REPORT

Eurofins TestAmerica, Houston
6310 Rothway Street
Houston, TX 77040
Tel: (713)690-4444

Laboratory Job ID: 600-204022-1
Client Project/Site: Chevron-Cooper Jal Groundwaters 2020

For:
ARCADIS U.S., Inc.
1004 North Big Spring
Suite 121
Midland, Texas 79701

Attn: Ryan Nanny

Authorized for release by:
5/12/2020 2:57:08 PM

Sachin Kudchadkar, Senior Project Manager
(713)690-4444
sachin.kudchadkar@testamericainc.com



LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

Client: ARCADIS U.S., Inc.
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Laboratory Job ID: 600-204022-1

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Method Summary

Client: ARCADIS U.S., Inc.

Job ID: 600-204022-1

Project/Site: Chevron-Cooper Jal Groundwaters 2020

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL HOU
2540 C-1997	Total Dissolved Solids (Dried at 180 °C)	SM	TAL HOU

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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

Laboratory References:

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

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Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
600-204022-1	MW-11-W-200420	Water	04/20/20 09:00	04/21/20 10:08	
600-204022-2	MW-9-W-200420	Water	04/20/20 09:30	04/21/20 10:08	
600-204022-3	MW-9A-W-200420	Water	04/20/20 09:40	04/21/20 10:08	
600-204022-4	MW-8-W-200420	Water	04/20/20 09:46	04/21/20 10:08	
600-204022-5	MW-7-W-200420	Water	04/20/20 10:02	04/21/20 10:08	
600-204022-6	MW-14-W-200420	Water	04/20/20 10:09	04/21/20 10:08	
600-204022-7	MW-10-W-200420	Water	04/20/20 10:12	04/21/20 10:08	
600-204022-8	RW-2-W-200420	Water	04/20/20 10:26	04/21/20 10:08	
600-204022-9	RW-2R-W-200420	Water	04/20/20 10:30	04/21/20 10:08	
600-204022-10	MW-4A-W-200420	Water	04/20/20 10:45	04/21/20 10:08	
600-204022-11	MW-4-W-200420	Water	04/20/20 10:52	04/21/20 10:08	

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Client Sample ID: MW-11-W-200420

Lab Sample ID: 600-204022-1

Date Collected: 04/20/20 09:00

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	29.0		4.00	0.534	mg/L			05/08/20 12:28	10
Fluoride	0.601	U	2.00	0.601	mg/L			05/08/20 12:28	10
Sulfate	91.7		5.00	0.957	mg/L			05/08/20 12:28	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	394		10.0	10.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-9-W-200420

Lab Sample ID: 600-204022-2

Date Collected: 04/20/20 09:30

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1070		40.0	5.34	mg/L			05/08/20 12:39	100
Fluoride	6.01	U	20.0	6.01	mg/L			05/08/20 12:39	100
Sulfate	181		50.0	9.57	mg/L			05/08/20 12:39	100

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	3090		20.0	20.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-9A-W-200420

Lab Sample ID: 600-204022-3

Date Collected: 04/20/20 09:40

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	352		10.0	1.34	mg/L			05/08/20 12:50	25
Fluoride	1.50	U	5.00	1.50	mg/L			05/08/20 12:50	25
Sulfate	93.3		12.5	2.39	mg/L			05/08/20 12:50	25

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	940		20.0	20.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-8-W-200420

Lab Sample ID: 600-204022-4

Date Collected: 04/20/20 09:46

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	49.4		4.00	0.534	mg/L			05/08/20 13:00	10
Fluoride	0.601	U	2.00	0.601	mg/L			05/08/20 13:00	10
Sulfate	51.0		5.00	0.957	mg/L			05/08/20 13:00	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	305		10.0	10.0	mg/L			04/24/20 08:37	1

Eurofins TestAmerica, Houston

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Client Sample ID: MW-7-W-200420

Lab Sample ID: 600-204022-5

Date Collected: 04/20/20 10:02

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4570		100	13.4	mg/L			05/08/20 13:11	250
Fluoride	15.0	U	50.0	15.0	mg/L			05/08/20 13:11	250
Sulfate	457		125	23.9	mg/L			05/08/20 13:11	250

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	14100		100	100	mg/L			04/24/20 08:37	1

Client Sample ID: MW-14-W-200420

Lab Sample ID: 600-204022-6

Date Collected: 04/20/20 10:09

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.0		4.00	0.534	mg/L			05/08/20 14:26	10
Fluoride	0.601	U F1	2.00	0.601	mg/L			05/08/20 14:26	10
Sulfate	86.1		5.00	0.957	mg/L			05/08/20 14:26	10

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	400		10.0	10.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-10-W-200420

Lab Sample ID: 600-204022-7

Date Collected: 04/20/20 10:12

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	372		10.0	1.34	mg/L			05/08/20 14:59	25
Fluoride	1.50	U	5.00	1.50	mg/L			05/08/20 14:59	25
Sulfate	96.0		12.5	2.39	mg/L			05/08/20 14:59	25

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1050		20.0	20.0	mg/L			04/24/20 08:37	1

Client Sample ID: RW-2-W-200420

Lab Sample ID: 600-204022-8

Date Collected: 04/20/20 10:26

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3610		100	13.4	mg/L			05/08/20 13:43	250
Fluoride	15.0	U	50.0	15.0	mg/L			05/08/20 13:43	250
Sulfate	618		125	23.9	mg/L			05/08/20 13:43	250

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	7890		40.0	40.0	mg/L			04/24/20 08:37	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Client Sample ID: RW-2R-W-200420

Lab Sample ID: 600-204022-9

Date Collected: 04/20/20 10:30

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9210		200	26.7	mg/L			05/08/20 13:54	500
Fluoride	30.1	U	100	30.1	mg/L			05/08/20 13:54	500
Sulfate	815		250	47.9	mg/L			05/08/20 13:54	500

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	21500		200	200	mg/L			04/24/20 08:37	1

Client Sample ID: MW-4A-W-200420

Lab Sample ID: 600-204022-10

Date Collected: 04/20/20 10:45

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	311	F1	20.0	2.67	mg/L			05/08/20 16:54	50
Fluoride	6.38	J F1	10.0	3.01	mg/L			05/08/20 16:54	50
Sulfate	174	F1	25.0	4.79	mg/L			05/08/20 16:54	50

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	808		20.0	20.0	mg/L			04/24/20 08:37	1

Client Sample ID: MW-4-W-200420

Lab Sample ID: 600-204022-11

Date Collected: 04/20/20 10:52

Matrix: Water

Date Received: 04/21/20 10:08

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14600		400	53.4	mg/L			05/08/20 17:55	1000
Fluoride	60.1	U	200	60.1	mg/L			05/08/20 17:55	1000
Sulfate	2410		500	95.7	mg/L			05/08/20 17:55	1000

General Chemistry

Analyte	Result	Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	28900		200	200	mg/L			04/24/20 08:37	1

Definitions/Glossary

Client: ARCADIS U.S., Inc.

Job ID: 600-204022-1

Project/Site: Chevron-Cooper Jal Groundwaters 2020

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 600-294111/11
 Matrix: Water
 Analysis Batch: 294111

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

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	0.0534	U	0.400	0.0534	mg/L			05/08/20 16:13	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/08/20 16:13	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/08/20 16:13	1

Lab Sample ID: LCS 600-294111/12
 Matrix: Water
 Analysis Batch: 294111

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	7.50	7.338		mg/L		98	90 - 110
Sulfate	20.0	20.36		mg/L		102	90 - 110

Lab Sample ID: 600-204022-10 MS
 Matrix: Water
 Analysis Batch: 294111

Client Sample ID: MW-4A-W-200420
 Prep Type: Total/NA

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Chloride	311	F1	500	921.1	F1	mg/L		122	80 - 120
Fluoride	6.38	J F1	100	352.5	F1	mg/L		346	80 - 120
Sulfate	174	F1	500	759.2		mg/L		117	80 - 120

Lab Sample ID: 600-204022-10 MSD
 Matrix: Water
 Analysis Batch: 294111

Client Sample ID: MW-4A-W-200420
 Prep Type: Total/NA

Analyte	Sample Sample		Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Chloride	311	F1	500	957.7	F1	mg/L		129	80 - 120	4	20
Fluoride	6.38	J F1	100	324.4	F1	mg/L		318	80 - 120	8	20
Sulfate	174	F1	500	846.6	F1	mg/L		134	80 - 120	11	20

Lab Sample ID: MB 600-294114/36
 Matrix: Water
 Analysis Batch: 294114

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

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	0.0534	U	0.400	0.0534	mg/L			05/08/20 13:22	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/08/20 13:22	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/08/20 13:22	1

Lab Sample ID: MB 600-294114/6
 Matrix: Water
 Analysis Batch: 294114

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

Analyte	MB MB		MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	0.0534	U	0.400	0.0534	mg/L			05/08/20 04:14	1
Fluoride	0.0601	U	0.200	0.0601	mg/L			05/08/20 04:14	1
Sulfate	0.0957	U	0.500	0.0957	mg/L			05/08/20 04:14	1

Eurofins TestAmerica, Houston

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 600-294114/37
 Matrix: Water
 Analysis Batch: 294114

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.59		mg/L		98	90 - 110
Fluoride	7.50	7.965		mg/L		106	90 - 110
Sulfate	20.0	19.63		mg/L		98	90 - 110

Lab Sample ID: LCS 600-294114/7
 Matrix: Water
 Analysis Batch: 294114

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	19.87		mg/L		99	90 - 110
Fluoride	7.50	7.821		mg/L		104	90 - 110
Sulfate	20.0	20.10		mg/L		101	90 - 110

Lab Sample ID: 600-204022-6 MS
 Matrix: Water
 Analysis Batch: 294114

Client Sample ID: MW-14-W-200420
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	46.0		100	133.3		mg/L		87	80 - 120
Fluoride	0.601	U F1	20.0	53.71	F1	mg/L		269	80 - 120
Sulfate	86.1		100	192.4		mg/L		106	80 - 120

Lab Sample ID: 600-204022-6 MSD
 Matrix: Water
 Analysis Batch: 294114

Client Sample ID: MW-14-W-200420
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	46.0		100	132.8		mg/L		87	80 - 120	0	20
Fluoride	0.601	U F1	20.0	53.59	F1	mg/L		268	80 - 120	0	20
Sulfate	86.1		100	190.7		mg/L		105	80 - 120	1	20

Method: 2540 C-1997 - Total Dissolved Solids (Dried at 180 °C)

Lab Sample ID: MB 600-293202/1
 Matrix: Water
 Analysis Batch: 293202

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

Analyte	MB Result	MB Qualifier	MQL (Adj)	SDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10.0	U	10.0	10.0	mg/L			04/24/20 08:37	1

Lab Sample ID: LCS 600-293202/2
 Matrix: Water
 Analysis Batch: 293202

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	1800	1773		mg/L		99	90 - 110

Eurofins TestAmerica, Houston

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Method: 2540 C-1997 - Total Dissolved Solids (Dried at 180 °C) (Continued)

Lab Sample ID: 600-204022-10 DU
Matrix: Water
Analysis Batch: 293202

Client Sample ID: MW-4A-W-200420
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	808		850.0		mg/L		5	10

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Unadjusted Detection Limits

Client: ARCADIS U.S., Inc.

Job ID: 600-204022-1

Project/Site: Chevron-Cooper Jal Groundwaters 2020

Method: 300.0 - Anions, Ion Chromatography

Analyte	MQL	MDL	Units
Chloride	0.400	0.0534	mg/L
Fluoride	0.200	0.0601	mg/L
Sulfate	0.500	0.0957	mg/L

General Chemistry

Analyte	MQL	MDL	Units
Total Dissolved Solids	10.0	10.0	mg/L

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QC Association Summary

Client: ARCADIS U.S., Inc.

Job ID: 600-204022-1

Project/Site: Chevron-Cooper Jal Groundwaters 2020

HPLC/IC

Analysis Batch: 294111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204022-10	MW-4A-W-200420	Total/NA	Water	300.0	
600-204022-11	MW-4-W-200420	Total/NA	Water	300.0	
MB 600-294111/11	Method Blank	Total/NA	Water	300.0	
LCS 600-294111/12	Lab Control Sample	Total/NA	Water	300.0	
600-204022-10 MS	MW-4A-W-200420	Total/NA	Water	300.0	
600-204022-10 MSD	MW-4A-W-200420	Total/NA	Water	300.0	

Analysis Batch: 294114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204022-1	MW-11-W-200420	Total/NA	Water	300.0	
600-204022-2	MW-9-W-200420	Total/NA	Water	300.0	
600-204022-3	MW-9A-W-200420	Total/NA	Water	300.0	
600-204022-4	MW-8-W-200420	Total/NA	Water	300.0	
600-204022-5	MW-7-W-200420	Total/NA	Water	300.0	
600-204022-6	MW-14-W-200420	Total/NA	Water	300.0	
600-204022-7	MW-10-W-200420	Total/NA	Water	300.0	
600-204022-8	RW-2-W-200420	Total/NA	Water	300.0	
600-204022-9	RW-2R-W-200420	Total/NA	Water	300.0	
MB 600-294114/36	Method Blank	Total/NA	Water	300.0	
MB 600-294114/6	Method Blank	Total/NA	Water	300.0	
LCS 600-294114/37	Lab Control Sample	Total/NA	Water	300.0	
LCS 600-294114/7	Lab Control Sample	Total/NA	Water	300.0	
600-204022-6 MS	MW-14-W-200420	Total/NA	Water	300.0	
600-204022-6 MSD	MW-14-W-200420	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 293202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-204022-1	MW-11-W-200420	Total/NA	Water	2540 C-1997	
600-204022-2	MW-9-W-200420	Total/NA	Water	2540 C-1997	
600-204022-3	MW-9A-W-200420	Total/NA	Water	2540 C-1997	
600-204022-4	MW-8-W-200420	Total/NA	Water	2540 C-1997	
600-204022-5	MW-7-W-200420	Total/NA	Water	2540 C-1997	
600-204022-6	MW-14-W-200420	Total/NA	Water	2540 C-1997	
600-204022-7	MW-10-W-200420	Total/NA	Water	2540 C-1997	
600-204022-8	RW-2-W-200420	Total/NA	Water	2540 C-1997	
600-204022-9	RW-2R-W-200420	Total/NA	Water	2540 C-1997	
600-204022-10	MW-4A-W-200420	Total/NA	Water	2540 C-1997	
600-204022-11	MW-4-W-200420	Total/NA	Water	2540 C-1997	
MB 600-293202/1	Method Blank	Total/NA	Water	2540 C-1997	
LCS 600-293202/2	Lab Control Sample	Total/NA	Water	2540 C-1997	
600-204022-10 DU	MW-4A-W-200420	Total/NA	Water	2540 C-1997	

Eurofins TestAmerica, Houston

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Client Sample ID: MW-11-W-200420

Lab Sample ID: 600-204022-1

Date Collected: 04/20/20 09:00

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294114	05/08/20 12:28	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-9-W-200420

Lab Sample ID: 600-204022-2

Date Collected: 04/20/20 09:30

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100	294114	05/08/20 12:39	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-9A-W-200420

Lab Sample ID: 600-204022-3

Date Collected: 04/20/20 09:40

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25	294114	05/08/20 12:50	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-8-W-200420

Lab Sample ID: 600-204022-4

Date Collected: 04/20/20 09:46

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294114	05/08/20 13:00	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-7-W-200420

Lab Sample ID: 600-204022-5

Date Collected: 04/20/20 10:02

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		250	294114	05/08/20 13:11	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-14-W-200420

Lab Sample ID: 600-204022-6

Date Collected: 04/20/20 10:09

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	294114	05/08/20 14:26	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Eurofins TestAmerica, Houston

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Client Sample ID: MW-10-W-200420

Lab Sample ID: 600-204022-7

Date Collected: 04/20/20 10:12

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		25	294114	05/08/20 14:59	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: RW-2-W-200420

Lab Sample ID: 600-204022-8

Date Collected: 04/20/20 10:26

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		250	294114	05/08/20 13:43	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: RW-2R-W-200420

Lab Sample ID: 600-204022-9

Date Collected: 04/20/20 10:30

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		500	294114	05/08/20 13:54	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-4A-W-200420

Lab Sample ID: 600-204022-10

Date Collected: 04/20/20 10:45

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50	294111	05/08/20 16:54	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Client Sample ID: MW-4-W-200420

Lab Sample ID: 600-204022-11

Date Collected: 04/20/20 10:52

Matrix: Water

Date Received: 04/21/20 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1000	294111	05/08/20 17:55	W1N	TAL HOU
Total/NA	Analysis	2540 C-1997		1	293202	04/24/20 08:37	TNL	TAL HOU

Laboratory References:

TAL HOU = Eurofins TestAmerica, Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chevron-Cooper Jal Groundwaters 2020

Job ID: 600-204022-1

Laboratory: Eurofins TestAmerica, Houston

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704223-19-25	10-31-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540 C-1997		Water	Total Dissolved Solids
300.0		Water	Chloride
300.0		Water	Fluoride
300.0		Water	Sulfate

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Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 600-204022-1

Login Number: 204022

List Source: Eurofins TestAmerica, Houston

List Number: 1

Creator: Rubio, Yuri

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
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	0.6
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	Check done at department level as required.

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 349420

CONDITIONS

Operator: CHEVRON U S A INC 6301 Deauville Blvd Midland, TX 79706	OGRID: 4323
	Action Number: 349420
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	A letter of approval dated 09/27/2024 has been issued electronically with conditions of approval, and is part of the record for the stage 1 and stage 2 abatement plans.	9/27/2024