AP-51-0

Caribou Refinery/Maverik Country Stores

2020 AGWR

From: Jayroe, Jason
To: Chavez, Carl J, EMNRD
Subject: [EXT] 2020 Annual Groundwater Report Former Caribou Refinery - Kirtland, NM
Date: Tuesday, March 2, 2021 1:08:47 PM
Attachments: image001.png
May 2020 Annual Rpt.pdf

Carl-

Attached is the 2020 Annual Groundwater Report for the Former Caribou Refinery - Kirtland, NM for your review.

Please let me know if you have any questions or concerns.

Thanks!

Jason Jayroe
Senior Geologist

TRC

123 N. College, Suite 206/ 208
Fort Collins, CO 80524
T: 970.484.3263 ext 15966 | C: 970.420.5666
LinkedIn | Twitter | Blog | TRCcompanies.com

123 N. College Ave.
Suite 206 & 208
Fort Collins, CO 80524

T 970.484.3263
TRCcompanies.com

March 2, 2021

Carl J. Chavez, CHMM
NMOCD
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Subject: **2020 Annual Groundwater Report, Maverik Country Stores (Former Caribou Refinery), Kirtland, New Mexico**

Dear Mr. Chavez:

This report provides the results of the 2020 Site activities for the Maverik Country Stores site (former Caribou Refinery) in Kirtland, New Mexico (**Figure 1**). These activities were completed during the 2020 calendar year to meet the annual monitoring requirements for the site. The scope of work completed included:

- Annual fluid level measurements of 17 on-site wells;
- Annual low-flow groundwater sampling of 6 on-site wells;
- Annual analytical evaluation of VOCs and dissolved sulfate in groundwater samples from 5 on-site wells, along with analytical evaluation of VOCs only from 1 on-site well.

Field methods, results, and the conclusions from the 2020 field events are discussed below.

Discontinue Sampling and Well Abandonment

Since 1998, groundwater sampling results have indicated that impacts to groundwater at the site are limited to within the slurry wall impoundment area. Due to the robust dataset for the site demonstrating no impacts to groundwater downgradient of the slurry wall impoundment, the New Mexico Oil Conservation Division (OCD) approved Maverik's proposal to discontinue sampling off-site and on-site monitoring wells outside of the slurry wall impoundment area (MW-10, MW-18, MW-19, MW-20, and MW-21), as well as plugging and abandoning all eight off-site monitoring wells (MW-3, MW-5, MW-7, MW-8, MW-9, MW-14, MW-15, and MW-16). Wells were plugged and abandoned in accordance with the State of New Mexico guidelines during the week of November 19th, 2018. The OCD approved of Maverik's proposal to continue gauging and groundwater sampling the six monitoring wells

inside the slurry wall area (INJ-N, INJ-E, INJ-S, INJ-W, MW-17, and MW-22) and gauging the remaining on-site monitoring wells (MW-10, MW-18, MW-19, MW-20, and MW-21).

Annual Groundwater Sampling

Annual groundwater sampling activities were conducted on December 14, 2020. Prior to well sampling, site-wide fluid levels were measured using an oil/water interface probe (**Table 1**) for compilation of the site potentiometric surface map (**Figure 2**). Fluid levels were not obtainable from the following site wells:

- MW-01: The well has a blockage approximately 2 feet below ground surface that prevented collection of a fluid level measurement

None of the monitoring wells contained measurable thicknesses of LNAPL during this event. Based on the December 2020 groundwater elevations, the groundwater flow direction is to the south-southwest across the site toward the San Juan River. This flow direction is consistent with past monitoring events. The average of horizontal gradient calculations at the site was 0.011 ft/ft (**Figure 2**).

Two monitoring wells and the four injection wells were sampled as part of the regular annual groundwater sampling event. All wells were sampled utilizing a peristaltic pump and flow-through cell. Groundwater field parameters pH, temperature, conductivity, dissolved oxygen (DO), and oxidation reduction potential (ORP) were measured using a flow through cell and YSI 556 MPS during groundwater sampling. Groundwater samples were sent to ALS in Fort Collins, Colorado under chain-of-custody (COC) protocol and analyzed for volatile organic compounds (VOCs) using EPA Method 8260C. In addition, the groundwater samples collected from MW-17 and the four injection wells (INJ-North, INJ-South, INJ-East, and INJ-West) were analyzed for dissolved sulfate using EPA Method 300.0. Laboratory deliverables are provided in **Attachment A**. Results of the groundwater sampling are summarized in **Table 2**. The results show that there were no VOC exceedances for the 2020 annual groundwater sampling event (**Figure 3**). There were five exceedances of dissolved sulfate in four injection wells and one monitoring well. The Groundwater Standard of 6,000,000 µg/L was exceeded at INJ-North, INJ-South, INJ-East, INJ-West, and MW-17 **(Table 2)**.

Plug and Abandon MW-1

Monitoring well MW-1 has a blockage approximately 2 feet below ground surface that prevents collection of a fluid level measurement. The well has been damaged since 2016. MW-1 serves as an upgradient well and is currently used to collect fluid level measurements. Maverik proposes to plug and abandon MW-1 in accordance with the State of New Mexico guidelines and utilize MW-18 as the upgradient well for the site.

Summary and Conclusions

The annual groundwater sampling was completed during the week of December 14, 2020. Fluid levels were measured in 17 wells to establish groundwater flow conditions. Across the site, groundwater flow is to the south-southwest, toward the San Juan River. Groundwater

results were below New Mexico Groundwater Standards for all 8260 VOCs inside of the slurry wall impoundment area.

The groundwater sampling data suggest that the In Situ Chemical Oxidation (ISCO) injections were successful in decreasing the concentrations of VOCs within the slurry wall. Overall, the slurry wall impoundment is functioning as designed and no off-site migration of constituents of concern is occurring.

Sincerely,

Jason Jayroe
Project Manager

Tables

Table 1 – Groundwater Elevation Table
Table 2 – Analytical Results Table

Figures

Figure 1 – Site Location Map
Figure 2 – Potentiometric Surface Map, December 2020
Figure 3 – BTEX Concentration Map, December 2020

Attachments

Attachment A – Laboratory Data

Table 1
Monitoring Well Construction Summary and December 2020 Fluid Levels, Maverik Country Stores, Inc. (Former Caribou Refinery)

Well ID	Completion Date	Total Depth (ft. BGS)	Well Diameter (in.)	Top of Steel Casing Elevation (ft. AMSL)	Top of PVC Casing Elevation (ft. AMSL)	Ground Surface Elevation (ft. AMSL)	Top of Screen (ft. BGS)	Bottom of Screen (ft. BGS)	Screen Length (ft.)	Top of Screen Elevation (ft. AMSL)	Bottom of Screen Elevation (ft. AMSL)	Depth to Groundwater (ft.) December 2020	Product Thickness (ft.)	Groundwater Elevation (ft. AMSL)	Comments
MW-1	1987	21.5	2	5207.79	5207.24	5205.75	11.5	21.5	10	5194.25	5184.25	NA	NA	NA	Well damaged
MW-2	1987	15	2	5197.10	5196.93	5195.25	5	15	10	5190.25	5180.25	5.55	NA	5191.38	
MW-10	1987	12.5	2	5189.80	5189.30	5187.47	2.5	12.5	10	5184.97	5174.97	3.71	NA	5185.59	
MW-17	1993	15	2	5196.49	5195.91	5193.43	5	15	10	5188.43	5178.43	7.13	NA	5188.78	
MW-18	1993	15	2	5202.27	5201.75	5199.14	5	15	10	5194.14	5184.14	9.42	NA	5192.33	
MW-19	1990	12.5	2	NA	5189.54	5188.28	2.5	12.5	10	5185.78	5175.78	3.46	NA	5186.08	
MW-20	1990	12	2	NA	5191.05	5190.10	2	12	10	5188.10	5178.10	4.85	NA	5186.20	
MW-21	1990	13	2	NA	5194.81	5193.62	3	13	10	5190.62	5180.62	7.49	NA	5187.32	
MW-22	1990	13	2	NA	5195.86	5194.58	3	13	10	5191.58	5181.58	7.21	NA	5188.65	
P-1	1993	8	2	NA	5197.66	5195.74	3	8	5	5192.74	5187.74	7.64	NA	5190.02	
P-2	1993	8	2	NA	5192.32	5190.50	3	8	5	5187.50	5182.50	6.31	NA	5186.01	
P-3	1993	8	2	NA	5193.21	5191.44	3	8	5	5188.44	5183.44	6.94	NA	5186.27	
P-4	1993	8	2	NA	5198.82	5197.06	3	8	5	5194.06	5189.06	7.03	NA	5191.79	
INJ-N	2012	15	2	NA	NA	NA	5	15	10	NA	NA	6.82	NA	NA	
INJ-E	2012	15	2	NA	NA	NA	5	15	10	NA	NA	6.94	NA	NA	
INJ-S	2012	15	2	NA	NA	NA	5	15	10	NA	NA	7.21	NA	NA	
INJ-W	2012	15	2	NA	NA	NA	5	15	10	NA	NA	6.53	NA	NA	

Notes:

AMSL = Above mean sea level
BGS = Below ground surface
NM = Not Measured
NA = Not Applicable
ft =feet
in = inches

TABLE 2
SUMMARY OF GROUNDWATER QUALITY DATA

WELL IDENTIFICATION	DATE	ANALYTE CONCENTRATIONS (µg/L)					
		BENZENE	TOLUENE	EHTYL-BENZENE	TOTAL XYLENES	1,2 -DCA	DIS. SULFATE
MW-9	12/07/14	<1	<1	<1	<1	<1	NS
MW-9	12/10/15	<1	<1	<1	<1	<1	NS
MW-9	12/28/16	<1	<1	<1	<1	<1	NS
MW-9	12/27/17	<1	<1	<1	<1	<1	NS
MW-10	12/07/14	<1	<1	<1	<1	<1	NS
MW-10	12/10/15	<1	<1	<1	<1	<1	NS
MW-10	12/27/16	<1	<1	<1	<1	<1	NS
MW-10	12/27/17	<1	<1	<1	<1	<1	NS
MW-16	12/07/14	<1	<1	<1	<1	<1	NS
MW-16	12/10/15	<1	<1	<1	<1	<1	NS
MW-16	12/28/16	<1	<1	<1	<1	<1	NS
MW-16	12/27/17	<1	<1	<1	<1	<1	NS
MW-17	12/07/14	<1	<1	<1	<1	<1	**355,000**
MW-17	12/11/15	**290**	**11**	**151**	**227**	<1	**2,914,000**
MW-17	12/27/16	**1.1**	<1	**3.4**	**13.2**	**0.44**	**4,400,000**
MW-17	12/28/17	**2.7**	<1	**0.35**	**1.4**	<1	**3,300,000**
MW-17	11/21/18	<1	<1	<1	<1	<1	**5,600,000**
MW-17	12/02/19	**1.2**	<1	<1	**0.57 J**	**0.26 J**	**5,900,000**
MW-17	12/14/20	**1.7**	<1	<1	<1	<1	**15,000,000**
MW-18	12/07/14	<1	<1	<1	<1	<1	NS
MW-18	12/10/15	<1	<1	<1	<1	<1	NS
MW-18	12/27/16	<1	<1	<1	<1	<1	NS
MW-19	12/07/14	<1	<1	<1	<1	<1	NS
MW-19	12/10/15	<1	<1	<1	<1	<1	NS
MW-19	12/27/16	<1	<1	<1	<1	<1	NS
MW-19	12/27/17	<1	<1	<1	<1	<1	NS
MW-20	12/07/14	<1	<1	<1	<1	<1	NS
MW-20	12/10/15	<1	<1	<1	<1	<1	NS
MW-20	12/27/16	<1	<1	<1	<1	<1	NS
MW-20	12/27/17	<1	<1	<1	<1	<1	NS
Groundwater Standard		**10**	**750**	**750**	**100**	**10**	**6,000,000**

Notes:

* Groundwater Standards based on the New Mexico Administrative Code Section 20.6.2.3103

NS - Not sampled

J - Estimated result. Result is less than RL

U - Undetected at the reporting limit or at the reported concentration; result is considered to be a false positive

Bold - Detected result

Highlighted - Result Exceeds New Mexico Groundwater Standard

TABLE 2
SUMMARY OF GROUNDWATER QUALITY DATA

WELL IDENTIFICATION	DATE	ANALYTE CONCENTRATIONS (µg/L)					
		BENZENE	TOLUENE	EHTYL-BENZENE	TOTAL XYLENES	1,2 -DCA	DIS. SULFATE
MW-21	12/07/14	<1	<1	<1	<1	<1	NS
MW-21	12/10/15	<1	<1	<1	<1	<1	NS
MW-21	12/27/16	<1	<1	<1	<1	<1	NS
MW-21	12/27/17	<1	<1	<1	<1	<1	NS
MW-22	12/07/14	**4**	<1	<1	<1	<1	NS
MW-22	12/27/16	**2.5**	<1	**0.67**	**7.12**	**1.7**	NS
MW-22	11/21/18	**1.3**	<1	<1	<1	**36**	NS
MW-22	12/02/19	**0.52 J**	<1	<1	<1	**18**	NS
MW-22	12/14/20	<1	<1	<1	<1	<1	NS
Injection North	12/07/14	1	<1	<1	<1	**18**	**1,275,000**
Injection North	12/11/15	**370**	**229**	**402**	**2,270**	<1	**5,815,000**
Injection North	12/27/16	**48**	**19**	**10**	**1,070**	<1	**3,100,000**
Injection North	12/28/17	**58**	**2.3**	**2.6**	**56**	<1	**2,800,000**
Injection North	11/21/18	**0.36 J**	<1	<1	<1	<1	**4,200,000**
Injection North	12/02/19	**0.53 J**	<1	<1	**0.4 J**	**0.98 J**	**14,000,000**
Injection North	12/14/20	<1	<1	<1	<1	<1	**19,000,000**
Injection West	12/07/14	<1	<1	<1	<1	<1	**675,000**
Injection West	12/11/15	<1	<1	<1	<1	<1	**5,423,000**
Injection West	12/27/16	<1	<1	<1	<1	<1	**4,400,000**
Injection West	12/28/17	<1	<1	<1	<1	<1	**2,700,000**
Injection West	11/21/18	<1	<1	<1	<1	<1	**2,000,000**
Injection West	12/02/19	<1	<1	<1	<1	<1	**15,000,000**
Injection West	12/14/20	<1	<1	<1	<1	<1	**18,000,000**
Injection South	12/07/14	<1	<1	<1	<1	<1	**295,000**
Injection South	12/11/15	<1	<1	<1	<1	<1	**2,305,000**
Injection South	12/27/16	<1	<1	<1	**0.33**	<1	**1,900,000**
Injection South	12/27/17	<1	<1	<1	<1	<1	**1,800,000**
Injection South	11/21/18	<1	<1	<1	<1	<1	**2,300,000**
Injection South	12/02/19	<1	<1	<1	<1	<1	**5,800,000**
Injection South	12/14/20	<1	<1	<1	<1	<1	**16,000,000**
Injection East	12/07/14	<1	<1	<1	<1	<1	**295,000**
Injection East	12/11/15	<1	<1	<1	<1	<1	**3,002,000**
Injection East	12/27/16	<1	<1	<1	<1	<1	**1,600,000**
Injection East	12/27/17	<1	<1	<1	<1	<1	**1,800,000**
Injection East	11/21/18	<1	<1	<1	<1	<1	**1,900,000**
Injection East	12/02/19	<1	<1	<1	<1	<1	**3,300,000**
Injection East	12/14/20	<1	<1	<1	<1	<1	**8,900,000**
Groundwater Standard		**10**	**750**	**750**	**100**	**10**	**6,000,000**

Notes:

* Groundwater Standards based on the New Mexico Administrative Code Section 20.6.2.3103

NS - Not sampled

J - Estimated result. Result is less than RL

U - Undetected at the reporting limit or at the reported concentration; result is considered to be a false positive

Bold - Detected result

Highlighted - Result Exceeds New Mexico Groundwater Standard

LEGEND

- MW-2 — MONITORING WELL
- MW-7 — PLUG AND ABANDONED WELL
- P1 — PIEZOMETER
- E. Gray — PRIVATE WELL
- SLURRY WALL
- MAVERIK CARIBOU FORMER REFINERY BOUNDARY
- WESTSIDE IRRIGATION DITCH FILLED IN LOCATION

Co. Road 6257

O. Curley

I. Hull

Co. Road 6261

MW-2

Road

MW-1

MW-21

MW-20

P4

P3

MW-22

MW-10

MW-18

P1

MW-17

P2

MW-19

U.S. Highway 64

WESTSIDE IRRIGATION DITCH

MW-16

MW-14

MW-9

MURRAY PROPERTY DITCH

DITCH IS FILLED IN AT THIS LOCATION

FARMER'S MUTUAL IRRIGATION DITCH

100 0 200

SCALE IN FEET

Co. Road D 6255

E. Mclemore

E. Gray

J.L. Flack

R. Neff

Co. Road D 6259

Co. Road D 6263

MW-15

G. Nelson

MW-3

(Out of Service)

MW-7

DITCH IS FILLED IN AT THIS LOCATION

R. Jackson

A. Jackson

Ryan

Co. Road D 6271

CO. Road 6100

MW-8

M. Stone

WM. H. Walker

MW-5

TRC

2020 ANNUAL GROUNDWATER REPORT
MAVERIK CARIBOU FORMER REFINERY
KIRTLAND, NEW MEXICO

DATE: 02-17-21 | DRWN: JMJ

SITE LOCATION MAP
DECEMBER 2020

FIGURE 1

LEGEND

- MW-2 — MONITORING WELL
- MW-7 — PLUG AND ABANDONED WELL
- P1 — PIEZOMETER
- E. Gray — PRIVATE WELL
- SLURRY WALL
- MAVERIK CARIBOU FORMER REFINERY BOUNDARY
- GROUNDWATER ELEVATION CONTOURS
- WESTSIDE IRRIGATION DITCH FILLED IN LOCATION

Co. Road 6257

Co. Road 6261

Co. Road D 6259

Co. Road D 6263

Co. Road D 6271

CO. Road 6100

U.S. Highway 64

Road

E. Mclemore

E. Gray

J.L. Flack

R. Neff

O. Curley

I. Hull

5191

5190

5189

5188

5187

5186

MW-2
5191.38

MW-1

MW-21
5187.32

MW-20
5186.20

MW-10
5185.59

MW-19
5186.08

MW-22

MW-18
5192.33

MW-17

P1

P2

P3

P4

MW-16

MW-14

MW-9

MW-15

MW-3

MW-7

MW-8

MW-5

(Out of Service)

G. Nelson

R. Jackson

Ryan

A. Jackson

M. Stone

WM. H. Walker

DITCH IS FILLED IN AT THIS LOCATION

DITCH IS FILLED IN AT THIS LOCATION

WESTSIDE IRRIGATION DITCH

FARMER'S MUTUAL IRRIGATION DITCH

MURRAY PROPERTY DITCH

100 0 200

SCALE IN FEET

TRC

2020 ANNUAL GROUNDWATER REPORT
MAVERIK CARIBOU FORMER REFINERY
KIRTLAND, NEW MEXICO

DATE: 02-17-21 | DRWN: JMJ

POTENTIOMETRIC SURFACE MAP
DECEMBER 2020

FIGURE 2

LEGEND

- MW-2 — MONITORING WELL
- MW-7 — PLUG AND ABANDONED WELL
- P1 — PIEZOMETER
- INJ-W — INJECTION WELLS
- E. Gray — PRIVATE WELL
- SLURRY WALL
- MAVERIK CARIBOU FORMER REFINERY BOUNDARY
- WESTSIDE IRRIGATION DITCH FILLED IN LOCATION

ALL RESULTS ARE IN MICROGRAMS PER LITER (µg/L)
J - ESTIMATED CONCENTRATION

Co. Road 6257

Co. Road 6261

O. Curley

I. Hull

E. Mclemore

E. Gray

J.L. Flack

R. Neff

Co. Road D 6259

Co. Road D 6263

G. Nelson

U.S. Highway 64

Road

INJ-W (Within Slurry Wall)	12/14/20
Benzene	<1
Toluene	<1
Ethylbenzene	<1
Total Xylenes	<1
1,2-DCA	<1

MW-17 (Within Slurry Wall)	12/14/20
Benzene	1.7
Toluene	<1
Ethylbenzene	<1
Total Xylenes	<1
1,2-DCA	<1

MW-22 (On-Site)	12/14/20
Benzene	<1
Toluene	<1
Ethylbenzene	<1
Total Xylenes	<1
1,2-DCA	<1

INJ-N (Within Slurry Wall)	12/14/20
Benzene	<1
Toluene	<1
Ethylbenzene	<1
Total Xylenes	<1
1,2-DCA	<1

INJ-E (Within Slurry Wall)	12/14/20
Benzene	<1
Toluene	<1
Ethylbenzene	<1
Total Xylenes	<1
1,2-DCA	<1

INJ-S (Within Slurry Wall)	12/14/20
Benzene	<1
Toluene	<1
Ethylbenzene	<1
Total Xylenes	<1
1,2-DCA	<1

MW-1, MW-2, MW-3, MW-5, MW-7, MW-8, MW-9, MW-10, MW-13, MW-14, MW-15, MW-16, MW-17, MW-19, MW-20, MW-21, MW-22, P1, P2, P3, P4, INJ-W, INJ-N, INJ-E, INJ-S, SW12, SW13

WESTSIDE IRRIGATION DITCH

FARMER'S MUTUAL IRRIGATION DITCH

MURRAY PROPERTY DITCH

DITCH IS FILLED IN AT THIS LOCATION

DITCH IS FILLED IN AT THIS LOCATION

(Out of Service)

R. Jackson

A. Jackson

Ryan

M. Stone

WM. H. Walker

CO. Road 6100

Co. Road D 6271

100 0 200

SCALE IN FEET

TRC

2020 ANNUAL GROUNDWATER REPORT
MAVERIK CARIBOU FORMER REFINERY
KIRTLAND, NEW MEXICO

DATE: 02-17-21 | DRWN: JMJ

VOC CONCENTRATION MAP
DECEMBER 2020
FIGURE 3

Wednesday, December 30, 2020

Jason Jayroe
TRC
123 N College, Suite 206/208.
Fort Collins, CO 80524

Re: ALS Workorder: 2012427
Project Name: Maverik Kirtland NM
Project Number:

Dear Mr. Jayroe:

Eight water samples were received from TRC, on 12/18/2020. The samples were scheduled for the following analyses:

GC/MS Volatiles
Inorganics

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Marcela M. Hobgood
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Alaska (AK)	17-003
Arizona (AZ)	AZ0742
California (CA)	2926
Colorado (CO)	CO01099
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
PJ-LA (DoD ELAP/ISO 170250)	95377
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO010992018-1
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	TN02976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

2012427

GC/MS Volatiles:
The samples were analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C.

All surrogate recoveries were within acceptance criteria with the following exceptions:

Surrogate	Sample	Direction
Dibromofluoromethane	1-3, -5 and -6	Low

The low surrogate recoveries are due to the high pH of the samples. No further action was taken.

All remaining acceptance criteria were met.

Inorganics:
The samples were analyzed following EMSL procedures for the current revision of the following SOP and method:

Analyte	Method	SOP #
Sulfate	300.0 Revision 2.1	1113

All acceptance criteria were met.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 2012427
Client Name: TRC
Client Project Name: Maverik Kirtland NM
Client Project Number:
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Inj - N	2012427-1		WATER	14-Dec-20	9:00
Inj - E	2012427-2		WATER	14-Dec-20	11:30
Inj - W	2012427-3		WATER	14-Dec-20	9:30
MW - 17	2012427-4		WATER	14-Dec-20	10:15
Inj - S	2012427-5		WATER	14-Dec-20	11:00
MW - 22	2012427-6		WATER	14-Dec-20	12:30
Trip blank	2012427-7		WATER	14-Dec-20	
MW - 117	2012427-8		WATER	14-Dec-20	12:00

ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.

Turnaround time for samples received Saturday will be calculated beginning from the next business day.

ALS WORKORDER #	
	2012429
PAGE	1 of 1
DISPOSAL	BY LAB or RETURN

PROJECT NAME	Maverik Kirtland NM	TURNAROUND TIME	Std	SAMPLER	J. JAYROE
PROJECT No.		SITE ID			
		EDD FORMAT			
COMPANY NAME	IEC	PURCHASE ORDER			
SEND REPORT TO	Jason Jayroe	BILL TO COMPANY			
ADDRESS	123 N College Suite 206	INVOICE ATTN TO			
CITY / STATE / ZIP	Fort Collins CO	ADDRESS			
PHONE	970 420 5646	CITY / STATE / ZIP			
FAX		PHONE			
E-MAIL	jjayroe@iecompanies.com	FAX			
		E-MAIL			

PARAMETER/METHOD REQUEST FOR ANALYSIS

A	BTEX + 1,2 DCA
B	Sulfate
C	
D	
E	
F	
G	
H	
I	
J	

LAB ID	FIELD ID	MATRIX	SAMPLE DATE	SAMPLE TIME	# OF BOTTLES	PRESERVATIVE	QC	A	B	C	D	E	F	G	H	I	J	SEE NOTES SECTION
1	Inj - N	GW	12/14/20	0900	4	Hcl/Non		X	X									
2	Inj - E			1130														
3	Inj - W			0930														
4	MW-17			1015														
5	Inj - S			1100					X									
6	MW-22	↓	↓	1230	↓	↓		X	MW NO									
7	Trip blank	↓			2			X										
8	MW-117	W	12/14/20	1200	4	Hcl/Non		X	MW NO									

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

NOTES	REPORT LEVEL / QC REQUIRED
	Summary (Standard QC)
	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
	LEVEL IV (Std QC + forms + raw

5.10c

PRESERVATION KEY: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/ZnAcetate 6-NaHSO4 7-4°C 8-Other

Form 202r9

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		JASON JAYROE	12/18/20	1330
RECEIVED BY		Tyler Mosser	12/18/20	1330
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client Name/ID: TRC FC Workorder No: 2012427

Project Manager: MMH Initials: TM Date: 12/21/20

1. Are airbills / shipping documents present and/or removable?	☑ Drop Off	☐ YES	☐ NO	
2. Are custody seals on **shipping** containers intact?	☑ NONE	☐ YES	☐ NO*	
3. Are custody seals on **sample** containers intact?	☑ NONE	☐ YES	☐ NO*	
4. Is there a COC (chain-of-custody) present?		☑ YES	☐ NO*	
5. Is the COC in agreement with samples received? (IDs, dates, times, # of samples, # of containers, matrix, requested analyses, etc.)		☑ YES	☐ NO*	
6. Are short-hold samples present?		☐ YES	☑ NO	
7. Are all samples within holding times for the requested analyses?		☑ YES	☐ NO*	
8. Were all sample containers received intact? (not broken or leaking)		☑ YES	☐ NO*	
9. Is there sufficient sample for the requested analyses?		☑ YES	☐ NO*	
10. Are samples in proper containers for requested analyses? (form 250, *Sample Handling Guidelines*)		☑ YES	☐ NO*	
11. Are all aqueous samples preserved correctly, if required?	☑ N/A	☐ YES	☐ NO*	
12. Were unpreserved samples pH checked, if required?	☑ N/A	☐ YES	☐ NO	
13. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, radon) free of bubbles > 6 mm in diameter?	☐ N/A	☑ YES	☐ NO	
14. Were the samples shipped on ice?		☑ YES	☐ NO	
15. Were cooler temperatures measured at 0.1 - 6.0°C? IR gun used+: ☐ #3 ☑ #5	☐ Rad Only	☑ YES	☐ NO	

Cooler #: 1

Temperature (°C): 5.1

# of custody seals on cooler: 0

External mR/hr reading: -

Background mR/hr reading: 9

Were external mR/hr readings ≤ two times background and within DOT acceptance criteria? (If no, see Form 008) ☑ N/A ☐ YES ☐ NO

* Please provide details below for 'NO' responses in gray boxes above - for 2 thru 5 & 7 thru 12, notify PM & continue w/ login.

All client bottle ID's vs ALS lab ID's double-checked by: TM

If applicable, was the client contacted? ☐ YES ☑ N/A Contact Name Date:

Project Manager Signature / Date: 12-21-20

Form 201r30.xls
(06/04/2020)

+IR Gun #3, VWR SN 170647571
+IR Gun #5, VWR SN 192272629

Client:	TRC	**Date:**	*30-Dec-20*
Project:	Maverik Kirtland NM	**Work Order:**	2012427
Sample ID:	Inj - N	**Lab ID:**	2012427-1
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 09:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles			**SW8260_25**		Prep Date: **12/23/2020**	PrepBy: **AEW**
1,2-DICHLOROETHANE	ND		1	UG/L	1	12/23/2020 15:24
BENZENE	ND		1	UG/L	1	12/23/2020 15:24
ETHYLBENZENE	ND		1	UG/L	1	12/23/2020 15:24
M+P-XYLENE	ND		1	UG/L	1	12/23/2020 15:24
O-XYLENE	ND		1	UG/L	1	12/23/2020 15:24
TOLUENE	ND		1	UG/L	1	12/23/2020 15:24
Surr: 4-BROMOFLUOROBENZENE	*103*		*80-120*	*%REC*	1	12/23/2020 15:24
Surr: DIBROMOFLUOROMETHANE	*30*	*	*80-120*	*%REC*	1	12/23/2020 15:24
Surr: TOLUENE-D8	*100*		*80-120*	*%REC*	1	12/23/2020 15:24
Ion Chromatography			**EPA300.0**		Prep Date: **12/22/2020**	PrepBy: **KJS**
SULFATE	**19000**		**200**	**MG/L**	200	12/22/2020 11:39

Client: TRC **Date:** *30-Dec-20*
Project: Maverik Kirtland NM **Work Order:** 2012427
Sample ID: Inj - E **Lab ID:** 2012427-2
Legal Location: **Matrix:** WATER
Collection Date: 12/14/2020 11:30 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles			**SW8260_25**		Prep Date: **12/23/2020**	PrepBy: **AEW**
1,2-DICHLOROETHANE	ND		1	UG/L	1	12/23/2020 15:44
BENZENE	ND		1	UG/L	1	12/23/2020 15:44
ETHYLBENZENE	ND		1	UG/L	1	12/23/2020 15:44
M+P-XYLENE	ND		1	UG/L	1	12/23/2020 15:44
O-XYLENE	ND		1	UG/L	1	12/23/2020 15:44
TOLUENE	ND		1	UG/L	1	12/23/2020 15:44
Surr: 4-BROMOFLUOROBENZENE	*103*		*80-120*	*%REC*	1	12/23/2020 15:44
Surr: DIBROMOFLUOROMETHANE	*23*	*	*80-120*	*%REC*	1	12/23/2020 15:44
Surr: TOLUENE-D8	*100*		*80-120*	*%REC*	1	12/23/2020 15:44
Ion Chromatography			**EPA300.0**		Prep Date: **12/22/2020**	PrepBy: **KJS**
SULFATE	**8900**		**120**	**MG/L**	125	12/22/2020 12:45

Client:	TRC	**Date:**	*30-Dec-20*
Project:	Maverik Kirtland NM	**Work Order:**	2012427
Sample ID:	Inj - W	**Lab ID:**	2012427-3
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 09:30	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles			**SW8260_25**	Prep Date: **12/23/2020**		PrepBy: **AEW**
1,2-DICHLOROETHANE	ND		1	UG/L	1	12/23/2020 16:04
BENZENE	ND		1	UG/L	1	12/23/2020 16:04
ETHYLBENZENE	ND		1	UG/L	1	12/23/2020 16:04
M+P-XYLENE	ND		1	UG/L	1	12/23/2020 16:04
O-XYLENE	ND		1	UG/L	1	12/23/2020 16:04
TOLUENE	ND		1	UG/L	1	12/23/2020 16:04
Surr: 4-BROMOFLUOROBENZENE	*101*		*80-120*	*%REC*	1	12/23/2020 16:04
Surr: DIBROMOFLUOROMETHANE	*28*	*	*80-120*	*%REC*	1	12/23/2020 16:04
Surr: TOLUENE-D8	*99*		*80-120*	*%REC*	1	12/23/2020 16:04
Ion Chromatography			**EPA300.0**	Prep Date: **12/22/2020**		PrepBy: **KJS**
SULFATE	**18000**		**200**	**MG/L**	200	12/22/2020 12:06

Client:	TRC	**Date:**	*30-Dec-20*
Project:	Maverik Kirtland NM	**Work Order:**	2012427
Sample ID:	MW - 17	**Lab ID:**	2012427-4
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 10:15	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles			**SW8260_25**		Prep Date: **12/23/2020**	PrepBy: **AEW**
1,2-DICHLOROETHANE	ND		1	UG/L	1	12/23/2020 16:25
BENZENE	**1.7**		**1**	**UG/L**	1	12/23/2020 16:25
ETHYLBENZENE	ND		1	UG/L	1	12/23/2020 16:25
M+P-XYLENE	ND		1	UG/L	1	12/23/2020 16:25
O-XYLENE	ND		1	UG/L	1	12/23/2020 16:25
TOLUENE	ND		1	UG/L	1	12/23/2020 16:25
Surr: 4-BROMOFLUOROBENZENE	*102*		*80-120*	*%REC*	1	12/23/2020 16:25
Surr: DIBROMOFLUOROMETHANE	*102*		*80-120*	*%REC*	1	12/23/2020 16:25
Surr: TOLUENE-D8	*97*		*80-120*	*%REC*	1	12/23/2020 16:25
Ion Chromatography			**EPA300.0**		Prep Date: **12/22/2020**	PrepBy: **KJS**
SULFATE	**15000**		**200**	**MG/L**	200	12/22/2020 12:19

Client:	TRC	**Date:**	*30-Dec-20*
Project:	Maverik Kirtland NM	**Work Order:**	2012427
Sample ID:	Inj - S	**Lab ID:**	2012427-5
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 11:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles			**SW8260_25**		Prep Date: **12/23/2020**	PrepBy: **AEW**
1,2-DICHLOROETHANE	ND		1	UG/L	1	12/23/2020 16:45
BENZENE	ND		1	UG/L	1	12/23/2020 16:45
ETHYLBENZENE	ND		1	UG/L	1	12/23/2020 16:45
M+P-XYLENE	ND		1	UG/L	1	12/23/2020 16:45
O-XYLENE	ND		1	UG/L	1	12/23/2020 16:45
TOLUENE	ND		1	UG/L	1	12/23/2020 16:45
Surr: 4-BROMOFLUOROBENZENE	*102*		*80-120*	*%REC*	1	12/23/2020 16:45
Surr: DIBROMOFLUOROMETHANE	*24*	*	*80-120*	*%REC*	1	12/23/2020 16:45
Surr: TOLUENE-D8	*100*		*80-120*	*%REC*	1	12/23/2020 16:45
Ion Chromatography			**EPA300.0**		Prep Date: **12/22/2020**	PrepBy: **KJS**
SULFATE	**16000**		**200**	**MG/L**	200	12/22/2020 12:32

Client:	TRC	**Date:**	*30-Dec-20*
Project:	Maverik Kirtland NM	**Work Order:**	2012427
Sample ID:	MW - 22	**Lab ID:**	2012427-6
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 12:30	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles			**SW8260_25**	Prep Date: **12/23/2020**		PrepBy: **AEW**
1,2-DICHLOROETHANE	ND		1	UG/L	1	12/23/2020 17:05
BENZENE	ND		1	UG/L	1	12/23/2020 17:05
ETHYLBENZENE	ND		1	UG/L	1	12/23/2020 17:05
M+P-XYLENE	ND		1	UG/L	1	12/23/2020 17:05
O-XYLENE	ND		1	UG/L	1	12/23/2020 17:05
TOLUENE	ND		1	UG/L	1	12/23/2020 17:05
Surr: 4-BROMOFLUOROBENZENE	*101*		*80-120*	*%REC*	1	12/23/2020 17:05
Surr: DIBROMOFLUOROMETHANE	*33*	*	*80-120*	*%REC*	1	12/23/2020 17:05
Surr: TOLUENE-D8	*96*		*80-120*	*%REC*	1	12/23/2020 17:05

Client:	TRC	**Date:**	*30-Dec-20*
Project:	Maverik Kirtland NM	**Work Order:**	2012427
Sample ID:	Trip blank	**Lab ID:**	2012427-7
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles			**SW8260_25**	Prep Date: **12/23/2020**		PrepBy: **AEW**
1,2-DICHLOROETHANE	ND		1	UG/L	1	12/23/2020 17:25
BENZENE	ND		1	UG/L	1	12/23/2020 17:25
ETHYLBENZENE	ND		1	UG/L	1	12/23/2020 17:25
M+P-XYLENE	ND		1	UG/L	1	12/23/2020 17:25
O-XYLENE	ND		1	UG/L	1	12/23/2020 17:25
TOLUENE	ND		1	UG/L	1	12/23/2020 17:25
Surr: 4-BROMOFLUOROBENZENE	*104*		*80-120*	*%REC*	1	12/23/2020 17:25
Surr: DIBROMOFLUOROMETHANE	*102*		*80-120*	*%REC*	1	12/23/2020 17:25
Surr: TOLUENE-D8	*101*		*80-120*	*%REC*	1	12/23/2020 17:25

Client: TRC **Date:** *30-Dec-20*
Project: Maverik Kirtland NM **Work Order:** 2012427
Sample ID: MW - 117 **Lab ID:** 2012427-8
Legal Location: **Matrix:** WATER
Collection Date: 12/14/2020 12:00 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS Volatiles			**SW8260_25**		Prep Date: **12/23/2020**	PrepBy: **AEW**
1,2-DICHLOROETHANE	ND		1	UG/L	1	12/23/2020 17:46
BENZENE	**1.6**		**1**	**UG/L**	1	12/23/2020 17:46
ETHYLBENZENE	ND		1	UG/L	1	12/23/2020 17:46
M+P-XYLENE	ND		1	UG/L	1	12/23/2020 17:46
O-XYLENE	ND		1	UG/L	1	12/23/2020 17:46
TOLUENE	ND		1	UG/L	1	12/23/2020 17:46
Surr: 4-BROMOFLUOROBENZENE	*103*		*80-120*	*%REC*	1	12/23/2020 17:46
Surr: DIBROMOFLUOROMETHANE	*100*		*80-120*	*%REC*	1	12/23/2020 17:46
Surr: TOLUENE-D8	*99*		*80-120*	*%REC*	1	12/23/2020 17:46

Client:	TRC	**Date:**	*30-Dec-20*
Project:	Maverik Kirtland NM	**Work Order:**	2012427
Sample ID:	MW - 117	**Lab ID:**	2012427-8
Legal Location:		**Matrix:**	WATER
Collection Date:	12/14/2020 12:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **VL201223-3-2** Instrument ID **HPV3** Method: **SW8260_25**

LCS Sample ID: **VL201223-3** Units: **%REC** Analysis Date: **12/23/2020 11:19**

Client ID: Run ID: **VL201223-3A** Prep Date: **12/23/2020** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25.5		25		102	80-120					
Surr: DIBROMOFLUOROMETHANE	25.3		25		101	80-120					
Surr: TOLUENE-D8	24.3		25		97	80-120					
1,2-DICHLOROETHANE	10.6	1	10		106	76-120				20	
BENZENE	10.1	1	10		101	80-120				20	
ETHYLBENZENE	10.4	1	10		104	80-120				20	
M+P-XYLENE	20	1	20		100	80-120				20	
O-XYLENE	9.89	1	10		99	80-120				20	
TOLUENE	9.87	1	10		99	80-120				20	

LCSD Sample ID: **VL201223-3** Units: **%REC** Analysis Date: **12/23/2020 11:39**

Client ID: Run ID: **VL201223-3A** Prep Date: **12/23/2020** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25.7		25		103	80-120			1		
Surr: DIBROMOFLUOROMETHANE	25.4		25		102	80-120			0		
Surr: TOLUENE-D8	24.5		25		98	80-120			1		
1,2-DICHLOROETHANE	10.3	1	10		103	76-120		10.6	3	20	
BENZENE	10.2	1	10		102	80-120		10.1	0	20	
ETHYLBENZENE	10.2	1	10		102	80-120		10.4	3	20	
M+P-XYLENE	19.4	1	20		97	80-120		20	3	20	
O-XYLENE	9.87	1	10		99	80-120		9.89	0	20	
TOLUENE	9.48	1	10		95	80-120		9.87	4	20	

Client: TRC
Work Order: 2012427
Project: Maverik Kirtland NM

QC BATCH REPORT

Batch ID: **VL201223-3-2** Instrument ID **HPV3** Method: **SW8260_25**

MB Sample ID: **VL201223-3** Units: **%REC** Analysis Date: **12/23/2020 12:43**

Client ID: Run ID: **VL201223-3A** Prep Date: **12/23/2020** DF: **1**

Analyte	Result	ReportLimit			Qual
Surr: 4-BROMOFLUOROBENZENE	25.4		102	80-120	
Surr: DIBROMOFLUOROMETHANE	25.2		101	80-120	
Surr: TOLUENE-D8	24.6		98	80-120	
1,2-DICHLOROETHANE	ND	1			
BENZENE	ND	1			
ETHYLBENZENE	ND	1			
M+P-XYLENE	ND	1			
O-XYLENE	ND	1			
TOLUENE	ND	1			

The following samples were analyzed in this batch:

2012427-1	2012427-2	2012427-3
2012427-4	2012427-5	2012427-6
2012427-7	2012427-8	

Client: TRC
Work Order: 2012427
Project: Maverik Kirtland NM

QC BATCH REPORT

Batch ID: **IC201222-1-1** Instrument ID **IC3** Method: **EPA300.0**

LCS Sample ID: **IC201222-1** Units: **MG/L** Analysis Date: **12/22/2020 08:33**
Client ID: Run ID: **IC201222-1a1** Prep Date: **12/22/2020** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SULFATE	51.1	1	50		102	90-110				15	

LCSD Sample ID: **IC201222-1** Units: **MG/L** Analysis Date: **12/22/2020 11:12**
Client ID: Run ID: **IC201222-1a1** Prep Date: **12/22/2020** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SULFATE	50.9	1	50		102	90-110		51.1	0	15	

MB Sample ID: **IC201222-1** Units: **MG/L** Analysis Date: **12/22/2020 08:47**
Client ID: Run ID: **IC201222-1a1** Prep Date: **12/22/2020** DF: **1**

Analyte	Result	ReportLimit	Qual
SULFATE	ND	1	

The following samples were analyzed in this batch:

2012427-1	2012427-2	2012427-3
2012427-4	2012427-5	