

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*



PWS_1050122_CO_20191211_Plan Ltr

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 11, 2019

Mr. Donald G. Rauschuber, P.E.
Donald G. Rauschuber & Associates, Inc.
P.O. Box 342707
Austin, Texas 78734-0046

Re: Ruby Ranch WSC - Public Water System ID No. 1050122
Completion Data for Aquifer Storage and Recovery (ASR) Pilot Test Well at
Water Plant No. 2 (TP19607)
Engineer Contact Telephone: (512) 413-9300
Plan Review Log No. P-10112019-061
Hays County, Texas

CN: 603033564; RN: 102681285

Dear Mr. Rauschuber:

On October 11, 2019, the Texas Commission on Environmental Quality (TCEQ) received well completion material with the letter dated October 7, 2019 from Ruby Ranch WSC for the ASR Pilot Test Well. Based on our review of the information submitted, the project generally meets the minimum requirements of Title 30 Texas Administrative Code (TAC) Chapter 290 - Rules and Regulations for Public Water Systems and the constructed well is **approved for use** based on the conditions noted below and may now be **temporarily** placed into service. The well's continued use is contingent upon the following conditions:

1. The chemical analysis report submitted shows that the concentration(s) of several constituents require ongoing monitoring:
 - a. **The level of arsenic in the recovered water was 0.00515 mg/l.** The maximum contaminant level (MCL) for arsenic is 0.01 mg/l. The water when blended with Well #4 was 0.00278 mg/l. The WSC must monitor the level of arsenic in the recovered water and take immediate action (stop usage or install treatment) should water delivered to distribution exceed the MCL.

- b. **The level of iron, and manganese was very elevated in the recovered water and iron remained above the Secondary Contaminant Level (SCL) when blended with well #4.** When drinking water that does not meet secondary constituent levels is accepted for temporary use, such acceptance is valid only until such time as water of acceptable chemical quality can be made available at reasonable cost to the area(s) in question (30 TAC Chapter 290.118(a)). Continual efforts to address these issues must be made. TCEQ may revoke this authorization at any time should public health or service come into question.
- i. **The recovered ASR well #5 water must be blended with Well #4 if iron and manganese levels are above the SCL.**
 - ii. The Corporation has the ability to feed a blended phosphate at Water Plant No. 2 (TP19607). **This chemical injection has not been approved by the TCEQ.** Please provide a submittal describing the size of the equipment and injection point(s). Please provide a chemical suppliers recommendation of use regarding only for Well #5 in recovery or continuous. It was noted that iron levels decrease after continued use of the ASR well. Please provide an analysis of the iron levels from beginning of ASR recovery over a period of time and describe the need for iron sequestration as continuous or just during a start-up period.
2. Ruby Ranch was authorized to do an ASR Pilot Study by TCEQ Underground Injection Control (UIC) on March 16, 2017. That authorization has been terminated (enclosed letter of December 3, 2019). The ASR Pilot Study and request for permanent use is presently under review by UIC staff. The injection of water from Well No. 4 to Well No. 5 can only resume with approval of the UIC staff and must be in conformance with any conditions of the forthcoming TCEQ Class V ASR Authorization.
3. A representative of TCEQ's Drinking Water Quality Team will contact the public water system to arrange for the collection of the official chemical samples. It is the water systems responsibility to contact the **Drinking Water Quality Team at (512) 239-4691** if they have not had the official sample collection within **180 days** of the date of this letter. **Please note that this sampling must be done when the ASR Well (#5) is being operated in recovery.**
4. If official chemical analysis testing confirms that a regulated constituent does not meet primary or secondary standards, additional treatment, blending, or public notice may be required. The Drinking Water Quality Team will notify the water system of any additional special requirements for this public water supply source. Plans for any proposed water treatment and blending must be reviewed and approved by the Plan Review Team.

Note: The Comprehensive Compliance Inspection (CCI) at Ruby Ranch conducted on January 4, 2018 noted the ability to draw water from the Ground Storage Tank (GST) at Water Plant #2 for injection into Well #5 (ASR). **This line was not described in the submittal and is not approved for use by the Corporation.**

The submitted materials consisted of the following:

- Existing Well No. 4 (G1050122D),
 - Latitude and Longitude: Lat. 30°03'30.7"N: Long. 97°55'16"
 - 405 feet deep into Edwards Aquifer (bottom 182 feet open hole)
 - Well rated for 90 gallons per minute (gpm)
 - State of Texas Well Report Tracking No. (not available)
 - TCEQ Completion Data approval September 6, 2002 (Plan Review Log No. 207-134)

- Existing Well No. 5 (G1050122E),
 - Latitude and Longitude: Lat. 30°03'30"N: Long. 97°55'15"
 - 1140 feet deep into Middle Trinity Aquifer, Cow Creek Formation (bottom 75 feet open hole)
 - Well rated for 150 gpm
 - State of Texas Well Report Tracking No. 217472
 - TCEQ Completion Data approval February 15, 2011 (Plan Review Log No. P-02092011-026)

- Technical drawings and pictures to describe as-built piping, controls, and valving to deliver up to 100 gpm of water from well #4 to inject into Well #5 (wells are 125 feet apart and located at Water Plant No. 2 (TP19607)

- ASR study including testing data for volume stored and volume pumped for four phase testing;

- Chemical analysis results from LCRA Environmental Laboratory Services dated July 23, 2019 (sample results are enclosed):

Primary Contaminants		Results		
Contaminant	MCL (mg/L)	Well No. 4 (Edwards/injection)	Well No. 5 (ASR Recovery)	Blended (EP 002)
Arsenic	0.01	<0.001	0.00515	0.00278
Fluoride	4.0	0.256	0.684	0.481
Nitrate	10 (as N)	0.518	<0.01	0.253
Nitrite	1 (as N)	<0.01	<0.01	<0.01

Secondary Contaminants		Results		
Contaminant	SCL (mg/L)	Well No. 4 (Edwards/injection)	Well No. 5 (ASR Recovery)	Blended (EP 002)
Aluminum	0.2	<0.005	<0.005	0.00517
Chloride	300	12.8	13.6	15.6
Copper	1.0	0.00387	0.00145	0.00481
Fluoride	2.0	0.256	0.684	0.481
Iron	0.3	<0.05	1.59	0.482
Manganese	0.05	<0.001	0.0578	0.0264
pH	≥7 (Standard Unit)	7.6	7.52	7.56
Sulfate	300	36	206	118
Total Dissolved Solids	1,000	298	557	378
Zinc	5.0	0.00864	0.00823	0.0146

ASR Recovery Corrosive Water Parameters	
Parameter	Result (mg/L)
Alkalinity as CaCO ₃	285
Calcium as CaCO ₃	267
Sodium	11
Lead	<0.001

This approval is for the above listed items only. Any wastewater components contained in this design were not considered.

The Ruby Ranch WSC public water system provides water treatment.

The project is located at the end of Ruby Ranch Road, 250 feet south of the intersection of Ruby Ranch Road and Bartlett Drive West in Hays County, Texas.

Texas Water Code Section 36.0015 allows for the creation of groundwater conservation districts (GCDs) as the preferred method of groundwater management. GCDs manage groundwater in many counties and are authorized to regulate production and spacing of water wells. **Public water systems drilling wells within an existing GCD are responsible for meeting the GCD's requirements.** The authorization provided in this letter does not affect GCD authority to manage groundwater or issue permits.

Please refer to the Plan Review Team's Log No. **P-10112019-061** in all correspondence for this project.

Please complete a copy of the most current Public Water System Plan Review Submittal form for any future submittals to TCEQ. Every blank on the form must be completed to minimize any delays in the review of your project. The document is available on TCEQ's website at the address shown below. You can also download the most current plan submittal checklists and forms from the same address.

<https://www.tceq.texas.gov/drinkingwater/udpubs.html>

For future reference, you can review part of the Plan Review Team's database to see if we have received your project. This is available on TCEQ's website at the following address:

<https://www.tceq.texas.gov/drinkingwater/planrev.html/#status>

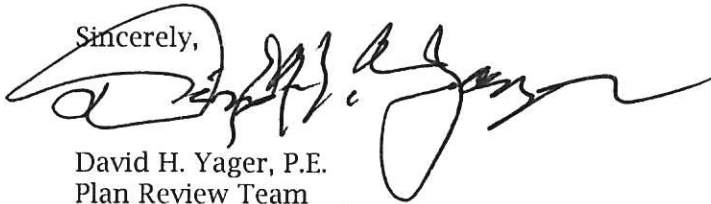
You can download the latest revision of 30 TAC Chapter 290 - Rules and Regulations for Public Water Systems from this site.

Mr. Donald G. Rauschuber, P.E.
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If you have any questions concerning this letter or need further assistance, please contact David Yager at 512-239-0605 or by email at david.yager@tceq.texas.gov or by correspondence at the following address:

Plan Review Team, MC-159
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Sincerely,



David H. Yager, P.E.
Plan Review Team
Plan and Technical Review Section
Water Supply Division
Texas Commission on Environmental Quality



Vera Poe, P.E., Team Leader
Plan Review Team
Plan and Technical Review Section
Water Supply Division
Texas Commission on Environmental Quality

VP/DY/sg

Enclosure: Sample Results
TCEQ UIC Letter of December 3, 2019

cc: Ruby Ranch WSC, Attn: Steve Selger, PO Box 1585, Buda, Texas 78610-1585

Mr. Donald G. Rauschuber, P.E.
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December 11, 2019

bcc: TCEQ Central Records PWS File 1050122 (P-10112019-061/Ruby Ranch WSC)
TCEQ Region No. 11 Office - Austin
TCEQ PWSCHEM, MC-155
TCEQ PWSINV, MC-155

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 3, 2019

Mr. Thomas Doebner
Ruby Ranch Water Supply Company
P.O. Box 1585
Buda, Texas 78610

RE: Termination of Class V Authorization
TCEQ Authorization No. 5X2500126
CN603033564/RN102681285
2033 Ruby Ranch Road
Buda, Texas 78610

Dear Mr. Doebner:

The Texas Commission on Environmental Quality (TCEQ) Underground Injection Control (UIC) Permits Section staff has completed review of the request for termination of Class V Authorization 5X2500126 dated November 25, 2019. The Class V Authorization was initially issued by the Texas Commission on Environmental Quality on March 16, 2017 and revised on January 25, 2018 for injection of groundwater from the Edwards Aquifer into the Cow Creek Formation via existing Water Supply Well No. 5. The purpose of the injection well was to conduct cycle testing to determine the feasibility of an aquifer storage and recovery (ASR) project. The information provided indicates that cycle testing has been completed. Ruby Ranch Water Supply Company submitted an application (dated November 13, 2019 and received on November 15, 2019) for an ASR project (pending Class V ASR project application no. 5R2100053) for this water well. Class V Authorization 5X2500126 is hereby terminated. No further injection may be conducted under this authorization.

If you have any questions or comments regarding this matter, please contact me at david.murry@tceq.texas.gov or (512) 239-6080. If you will be responding by letter, please include mail code MC233 in the mailing address.

Sincerely,

A handwritten signature in cursive script that reads "David H. Murry".

David H. Murry, P.G., Project Manager
Underground Injection Control Permits Section
Radioactive Materials Division

DHM/krh-d



LCRA Environmental Laboratory Services
 3505 Montopolis Drive
 Austin, TX 78744
 Phone: (512) 730-6022
 Fax: (512) 730-6021

Analytical Results

Lab ID: Q1946541001	Date Received: 7/23/2019 11:28	Matrix: Drinking Water
Sample ID: EDWARDS NO 4	Date Collected: 7/23/2019 10:15	Sample Type: SAMPLE
Project ID: RUBY RANCH STEP 4 ANALYSIS		

Parameter	Results	Units	MRL	LOD	DF	Prepared	By	Analyzed	By	Qual
ALKALINITY (SM2320B, Alkalinity)										
Total Alkalinity (CaCO3)	253	mg/L	20.0	20.0	1	07/23/19 09:06	ME	07/29/19 00:00	ME	*
Conductance @ 25°C (SM2510B, Conductivity @ 25°C)										
Specific Conductance	558	umho/cm	10.0	10.0	1	07/29/19 14:03	ME	07/29/19 14:19	ME	
INORGANICS (E200.7 Prep/E200.7 Metals, Trace Elements)										
Calcium Total	67.6	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 18:54	FM	*
Iron Total	<0.0500	mg/L	0.0500	0.0200	1	07/25/19 14:19	ME	07/25/19 18:54	FM	
Magnesium Total	26.7	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 18:54	FM	
Sodium Total	7.54	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 18:54	FM	
INORGANICS (E200.8, ICP-MS Prep/E200.8, ICP-MS)										
Aluminum Total	<0.00500	mg/L	0.00500	0.0020	1	07/25/19 14:13	ME	07/26/19 11:40	FO	
Arsenic Total	<0.00100	mg/L	0.00100	0.0004	0.01	1	07/25/19 14:13	ME	07/26/19 11:40	FO
Copper Total	0.00387	mg/L	0.00100	0.0004	1	1	07/25/19 14:13	ME	07/26/19 11:40	FO
Lead Total	<0.00100	mg/L	0.00100	0.0004	0.015	1	07/25/19 14:13	ME	07/26/19 11:40	FO
Manganese Total	<0.00100	mg/L	0.00100	0.0004	1	07/25/19 14:13	ME	07/26/19 11:40	FO	
Zinc Total	0.00864	mg/L	0.00500	0.0020	1	07/25/19 14:13	ME	07/26/19 11:40	FO	
INORGANICS (E2340B, Hardness Calc.)										
Hardness	279	mg/L			1			CW 07/30/19 09:27	CW	*
Hardness, Calcium	169	mg/L			1			CW 07/29/19 07:42	CW	
INORGANICS (E300.0, Anions)										
Chloride	12.8	mg/L	1.00	0.500	1	07/24/19 06:47	ML	07/23/19 13:50	ML	
Fluoride	0.256	mg/L	0.0100	0.0050	4	1	07/24/19 06:47	ML	07/23/19 13:50	ML
Nitrite (as N)	<0.0100	mg/L	0.0100	0.0050	1	1	07/24/19 06:47	ML	07/23/19 13:50	ML
Nitrate (as N)	0.518	mg/L	0.0100	0.0050	10	1	07/24/19 06:47	ML	07/23/19 13:50	ML
ortho-Phosphate (as P)	<0.0100	mg/L	0.0100	0.0050	1	1	07/24/19 06:47	ML	07/23/19 13:50	ML
Sulfate	36.0	mg/L	1.00	0.500	1	1	07/24/19 06:47	ML	07/23/19 13:50	ML
TOTAL DISSOLVED SOLIDS (SM2540C, TDS)										
Total Dissolved Solids(TDS)	298	mg/L	25.0	10.0	10	07/25/19 09:40	AD G	07/25/19 11:40	AD G	
TOTAL PHOSPHATE AS P (E365.4 Water Prep/E365.4 Phosphorus, Total)										
Phosphorus, Total (As P)	<0.0200	mg/L	0.0200	0.0080	1	07/24/19 11:21	ME	07/25/19 00:00	AD G	*



LCRA Environmental Laboratory Services
 3505 Montopolis Drive
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 Phone: (512) 730-6022
 Fax: (512) 730-6021

Analytical Results (cont.)

Lab ID: Q1946541001	Date Received: 7/23/2019 11:28	Matrix: Drinking Water
Sample ID: EDWARDS NO 4	Date Collected: 7/23/2019 10:15	Sample Type: SAMPLE
Project ID: RUBY RANCH STEP 4 ANALYSIS		

Parameter	Results	Units	MRL	LOD	DF	Prepared	By	Analyzed	By	Qual
<i>Total Coliform by Colilert (SM9223, IDEXX)</i>										
Residual Chlorine	<0.5	mg/L			1	07/23/19 15:52	AD	07/23/19 16:04	AD	*
Total Coliform	Absent	PIA	1.00	1.00	1	07/23/19 15:52	G	07/23/19 16:04	G	
Ecoli	Absent	PIA	1.00	1.00	1	07/23/19 15:52	G	07/23/19 16:04	G	
<i>pH (SM4500-H+B, pH @ 25°C)</i>										
pH	7.60	pH	0.00	0.00	1	07/24/19 08:46	AD	07/25/19 15:26	AD	*
Temperature	20.2	°C			1	07/24/19 08:46	G	07/25/19 15:26	G	

Sample Comments

Sample Type: SAMPLE

- General Comments for METHOD SM4500-H+B, pH - Defined as a field parameter, measurement must be taken within 15 minutes of collection. Results are provided for information purposes only.



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Analytical Results (cont.)

Lab ID: Q1946541002	Date Received: 7/23/2019 11:28	Matrix: Drinking Water
Sample ID: SYSTEM	Date Collected: 7/23/2019 10:25	Sample Type: SAMPLE
Project ID: RUBY RANCH STEP 4 ANALYSIS		

Parameter	Results	Units	MRL	LOD	DF	Prepared	By	Analyzed	By	Qual
ALKALINITY (SM2320B, Alkalinity)										
Total Alkalinity (CaCO3)	269	mg/L	20.0	20.0	1	07/23/19 09:06	ME	07/29/19 00:00	ME	*
Conductance @ 25°C (SM2510B, Conductivity @ 25°C)										
Specific Conductance	743	umho/cm	10.0	10.0	1	07/29/19 14:03	ME	07/29/19 14:20	ME	
INORGANICS (E200.7 Prep/E200.7 Metals, Trace Elements)										
Calcium Total	87.1	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 19:00	FM	*
Iron Total	0.482	mg/L	0.0500	0.0200	1	07/25/19 14:19	ME	07/25/19 19:00	FM	
Magnesium Total	38.7	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 19:00	FM	
Sodium Total	11.1	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 19:00	FM	
INORGANICS (E200.8, ICP-MS Prep/E200.8, ICP-MS)										
Aluminum Total	0.00517	mg/L	0.00500	0.0020	1	07/25/19 14:13	ME	07/26/19 11:42	FO	
Arsenic Total	0.00278	mg/L	0.00100	0.0004	0.01	1	07/25/19 14:13	ME	07/26/19 11:42	FO
Copper Total	0.00481	mg/L	0.00100	0.0004	1	1	07/25/19 14:13	ME	07/26/19 11:42	FO
Lead Total	<0.00100	mg/L	0.00100	0.0004	0.015	1	07/25/19 14:13	ME	07/26/19 11:42	FO
Manganese Total	0.0264	mg/L	0.00100	0.0004	1	07/25/19 14:13	ME	07/26/19 11:42	FO	
Zinc Total	0.0146	mg/L	0.00500	0.0020	1	07/25/19 14:13	ME	07/26/19 11:42	FO	
INORGANICS (E2340B, Hardness Calc.)										
Hardness	377	mg/L			1			CW 07/30/19 09:27	CW	*
Hardness, Calcium	218	mg/L			1			CW 07/29/19 07:42	CW	
INORGANICS (E300.0, Anions)										
Chloride	15.6	mg/L	1.00	0.500	1	07/24/19 06:47	ML	07/23/19 14:07	ML	
Fluoride	0.481	mg/L	0.0100	0.0050	4	1	07/24/19 06:47	ML 07/23/19 14:07	ML	
Nitrite (as N)	<0.0100	mg/L	0.0100	0.0050	1	1	07/24/19 06:47	ML 07/23/19 14:07	ML	
Nitrate (as N)	0.253	mg/L	0.0100	0.0050	10	1	07/24/19 06:47	ML 07/23/19 14:07	ML	
ortho-Phosphate (as P)	0.117	mg/L	0.0100	0.0050	1	1	07/24/19 06:47	ML 07/23/19 14:07	ML	*
Sulfate	118	mg/L	5.00	2.50	5	07/24/19 13:13	ML	07/25/19 14:32	ML	
TOTAL DISSOLVED SOLIDS (SM2540C, TDS)										
Total Dissolved Solids(TDS)	378	mg/L	25.0	10.0	10	07/25/19 09:40	AD G	07/25/19 11:40	AD G	
TOTAL PHOSPHATE AS P (E365.4 Water Prep/E365.4 Phosphorus, Total)										
Phosphorus, Total (As P)	0.503	mg/L	0.0200	0.0080	1	07/24/19 11:21	ME	07/25/19 00:00	AD G	*



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Analytical Results (cont.)

Lab ID: Q1946541002	Date Received: 7/23/2019 11:28	Matrix: Drinking Water
Sample ID: SYSTEM	Date Collected: 7/23/2019 10:25	Sample Type: SAMPLE
Project ID: RUBY RANCH STEP 4 ANALYSIS		

Parameter	Results	Units	MRL	LOD	DF	Prepared	By	Analyzed	By	Qual
Total Coliform by Colilert (SM9223, IDEXX)										
Residual Chlorine	<0.5	mg/L			1	07/23/19 15:52	AD G	07/23/19 16:04	AD G	*
Total Coliform	Absent	P/A	1.00	1.00	1	07/23/19 15:52	AD G	07/23/19 16:04	AD G	
Ecoli	Absent	P/A	1.00	1.00	1	07/23/19 15:52	AD G	07/23/19 16:04	AD G	
pH (SM4500-H+B, pH @ 25°C)										
pH	7.56	pH	0.00	0.00	1	07/24/19 08:46	AD G	07/25/19 15:26	AD G	*
Temperature	20.0	c			1	07/24/19 08:46	AD G	07/25/19 15:26	AD G	*

Sample Comments

Sample Type: SAMPLE

- General Comments for METHOD SM4500-H+B, pH - Defined as a field parameter, measurement must be taken within 15 minutes of collection. Results are provided for information purposes only.



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Analytical Results (cont.)

Lab ID: Q1946541003	Date Received: 7/23/2019 11:28	Matrix: Drinking Water
Sample ID: RUBY RANCH WSC NO 5	Date Collected: 7/23/2019 09:50	Sample Type: SAMPLE
Project ID: RUBY RANCH STEP 4 ANALYSIS		

Parameter	Results	Units	MRL	LOD	DF	Prepared	By	Analyzed	By	Qual
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ALKALINITY (SM2320B, Alkalinity)

Total Alkalinity (CaCO3)	285	mg/L	20.0	20.0	1	07/23/19 09:06	ME	07/29/19 00:00	ME	*
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Conductance @ 25°C (SM2510B, Conductivity @ 25°C)

Specific Conductance	897	umho/cm	10.0	10.0	1	07/29/19 14:03	ME	07/29/19 14:22	ME	
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INORGANICS (E200.7 Prep/E200.7 Metals, Trace Elements)

Calcium Total	107	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 19:05	FM	*
Iron Total	1.59	mg/L	0.0500	0.0200	1	07/25/19 14:19	ME	07/25/19 19:05	FM	
Magnesium Total	50.9	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 19:05	FM	
Sodium Total	11.0	mg/L	0.200	0.0700	1	07/25/19 14:19	ME	07/25/19 19:05	FM	

INORGANICS (E200.8, ICP-MS Prep/E200.8, ICP-MS)

Aluminum Total	<0.00500	mg/L	0.00500	0.0020	1	07/25/19 14:13	ME	07/26/19 11:44	FO	
Arsenic Total	0.00515	mg/L	0.00100	0.0004	0.01	1	07/25/19 14:13	ME	07/26/19 11:44	FO
Copper Total	0.00145	mg/L	0.00100	0.0004	1	1	07/25/19 14:13	ME	07/26/19 11:44	FO
Lead Total	<0.00100	mg/L	0.00100	0.0004	0.015	1	07/25/19 14:13	ME	07/26/19 11:44	FO
Manganese Total	0.0578	mg/L	0.00100	0.0004	1	1	07/25/19 14:13	ME	07/26/19 11:44	FO
Zinc Total	0.00823	mg/L	0.00500	0.0020	1	1	07/25/19 14:13	ME	07/26/19 11:44	FO

INORGANICS (E2340B, Hardness Calc.)

Hardness	477	mg/L			1			CW 07/30/19 09:27	CW	*
Hardness, Calcium	267	mg/L			1			CW 07/29/19 07:42	CW	

INORGANICS (E300.0, Anions)

Chloride	13.6	mg/L	1.00	0.500	1	07/24/19 06:47	ML	07/23/19 14:25	ML	
Fluoride	0.684	mg/L	0.0100	0.0050	4	1	07/24/19 06:47	ML 07/23/19 14:25	ML	
Nitrite (as N)	<0.0100	mg/L	0.0100	0.0050	1	1	07/24/19 06:47	ML 07/23/19 14:25	ML	
Nitrate (as N)	<0.0100	mg/L	0.0100	0.0050	10	1	07/24/19 06:47	ML 07/23/19 14:25	ML	
ortho-Phosphate (as P)	0.0406	mg/L	0.0100	0.0050	1	1	07/24/19 06:47	ML 07/23/19 14:25	ML	*
Sulfate	206	mg/L	5.00	2.50	5	07/24/19 13:13	ML	07/25/19 14:50	ML	

TOTAL DISSOLVED SOLIDS (SM2540C, TDS)

Total Dissolved Solids(TDS)	557	mg/L	25.0	10.0	10	07/25/19 09:40	AD G	07/25/19 11:40	AD G	
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TOTAL PHOSPHATE AS P (E365.4 Water Prep/E365.4 Phosphorus, Total)

Phosphorus, Total (As P)	0.852	mg/L	0.0200	0.0080	1	07/24/19 11:21	ME	07/25/19 00:00	AD G	*
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LCRA Environmental Laboratory Services
 3505 Montopolis Drive
 Austin, TX 78744
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Analytical Results (cont.)

Lab ID: Q1946541003	Date Received: 7/23/2019 11:28	Matrix: Drinking Water
Sample ID: RUBY RANCH WSC NO 5	Date Collected: 7/23/2019 09:50	Sample Type: SAMPLE
Project ID: RUBY RANCH STEP 4 ANALYSIS		

Parameter	Results Units	MRL	LOD	DF	Prepared	By	Analyzed	By	Qual
Total Coliform by Colilert (SM9223, IDEXX)									
Residual Chlorine	<0.5 mg/L			1	07/23/19 15:52	AD	07/23/19 16:04	AD	*
						G		G	
Total Coliform	Absent P/A	1.00	1.00	1	07/23/19 15:52	AD	07/23/19 16:04	AD	
						G		G	
Ecoli	Absent P/A	1.00	1.00	1	07/23/19 15:52	AD	07/23/19 16:04	AD	
						G		G	
pH (SM4500-H+B, pH @ 25°C)									
pH	7.52 pH	0.00	0.00	1	07/24/19 08:46	AD	07/25/19 15:26	AD	*
						G		G	
Temperature	20.2 c			1	07/24/19 08:46	AD	07/25/19 15:26	AD	*
						G		G	

Sample Comments

Sample Type: SAMPLE

- General Comments for METHOD SM4500-H+B, pH - Defined as a field parameter, measurement must be taken within 15 minutes of collection. Results are provided for information purposes only.