**<u>Report of Findings</u>** Prairie Pointe Estates Groundwater Availability Certification for Platting: Burnet County, Texas

For: Duane Davis 2000 IH 35 S, Suite Q11 Round Rock, Texas 78681





Wet Rock Groundwater Services, L.L.C. Groundwater Specialists TBPG Firm No: 50038 317 Ranch Road 620 South, Suite 203 Austin, TX 78734 Ph: 512.773.3226 www.wetrockgs.com

## REPORT OF FINDINGS WRGS 21-005

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for

Duane Davis 2000 IH 35 South, Suite Q11 Round Rock, TX 78681

> Burnet County, Texas April 2021

WRGS Project No. 159-001-21



Wet Rock Groundwater Services, L.L.C.

Groundwater Specialists 317 Ranch Road 620 South, Suite 203 Austin, Texas 78734 • Phone: 512-773-3226 www.wetrockgs.com TBPG Firm No: 50038 The seal appearing on this document was authorized by Kaveh Khorzad, P.G. 1126 on April 7, 2021:



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Kaveh Khorzad, P.G. License No. 1126

Wet Rock Groundwater Services, LLC TBPG Firm Registration No. 50038



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## Section I: Introduction

This report details the results of a groundwater availability study for the proposed Prairie Pointe Estates (Prairie Pointe) to meet the requirements of the Certification of Groundwater Availability for Platting Form (*Title 30, Texas Administrative Code, Chapter 230, Sections 230.2 through and including 230.11*). Appendix A provides the completed Certification of Groundwater Availability for Platting Form.

Prairie Pointe is located along County Road 274 approximately 3 miles east of the City of Bertram in eastern Burnet County (Figure 1). The proposed subdivision is documented within the Burnet County Tax Assessor as Property IDs: 53854 and 112970. Mr. Duane Davis (2000 IH 35 South, Suite Q11 Round Rock, TX 78681) is the plat applicant.



Figure 1: Location map

Mr. Duane Davis proposes to develop the approximately 241.18 acre property as a subdivision including 67 single family residential lots. The average lot size is 3.60 acres; each lot will be served by an individual water well. The subdivision is located within the jurisdiction of the Central Texas Groundwater Conservation District (CTGCD). Figure 2 provides a map showing the general location of the subdivision with the county and groundwater district boundaries.





Figure 2: Groundwater Conservation District map



## Section II: Projected Water Demand Estimate

In to estimate the water demand within the proposed subdivision, US Census data and per capita water use estimates from communications with Central Texas Groundwater Conservation District were utilized to determine the number of persons per household in Burnet County (2.69) and the per capita usage per day (135 gallons per person per day; gpd):

Equation 1: Total Water Demand

 $Q_s = n \ x \ 2.69 \ x \ 135 \ x \ 365 \ days = 8,880,833 \ gallons/year \ or \ 27.25 \ acre-feet/year$ 

Where:

 $Q_s$  = Total Water Demand at full build out for the subdivision;

n = Number of connections (67 lots);

2.69 = Average number of persons per household; and

135 = The average per capita usage of water per day in gallons.

Equation 2: Water Demand per Housing Unit

$$Q_h = 2.69 \text{ x } 135 \text{ x } 365 \text{ days} = 132,549.75 \text{ gallons/year or } 0.41 \text{ acre-feet/year}$$

Where:

 $Q_h$  = Total Water Demand per house per year

Equation 1 assumes 2.69 persons per household using 135 gallons per person per day which results in a total water demand for the subdivision of 27.25 acre-feet/year. Equation 2 results in a water demand per housing unit of 0.41 acre-feet/year. There are no planned non-residential water demands.



## Section III: General Groundwater Resource Information

#### **III.1. Introduction**

There are both minor and major aquifers that underlie the subdivision and are utilized as groundwater resources. The Texas Water Development Board (TWDB) defines a minor aquifer as an aquifer that supplies large quantities of water in small areas or relatively small quantities in large areas. A major aquifer is defined as an aquifer that produces large amounts of water over large areas. The Hickory and Ellenburger-San Saba Aquifers are minor aquifers composed of Paleozoic rock that extend laterally across a major geologic feature known as the Llano Uplift, which is centered across Llano and Mason Counties. The Trinity and Edwards Aquifers are part of a thick and regionally extensive aquifer systems composed of Cretaceous carbonates that were deposited throughout central Texas and are classified as major aquifers.

#### **III.2.** Stratigraphy and Geologic History

The Prairie Pointe Estates property overlies the Cretaceous-aged sedimentary rocks comprising the Trinity Aquifer. The property also overlies the Hickory Aquifer; however, for the purposes of this report, the Hickory Aquifer will not be investigated due to prohibitively expensive test well construction. The Trinity Aquifer is composed of three distinct hydrogeologic units: the Upper, Middle and Lower Trinity Aquifers. The Upper Trinity, composed of the Upper Glen Rose Limestone is overlain by limestones and dolomites of the Edwards Aquifer to the south. All units of the Edwards and Trinity aquifers are karstic carbonates and mudstones. Separating the Middle and Lower Trinity aquifers is the Hammett Shale, which is a regional confining layer underlying the Cow Creek Member. Each of the aquifers are separated by a confining bed made up of relatively impermeable limestones and mudstones. Figure 3 provides a geologic map and stratigraphic column illustrating the hydrogeologic units in the vicinity of Prairie Pointe Estates.

The Pennsylvanian system makes up the base of the study area, and are overlain by Cretaceous aged rocks. The Cretaceous sediments comprising the Trinity, Fredericksburg, and Washita Groups were deposited by a shallow Cretaceous sea that once covered the entire region. The Trinity Group is divided into three aquifers from oldest to youngest: the Lower, Middle and Upper Trinity Aquifers. Formations comprising the Lower Trinity Aquifer include, from oldest to youngest, the Hosston Sand Member and Sligo Limestone Member of the Travis Peak Formation (Figure 3). Updip in some parts of the outcrop, the equivalent rocks of the Hosston and Sligo are called the Sycamore Sand. Above the Lower Trinity Aquifer is a confining unit separating the Lower Trinity Aquifer from the Middle Trinity Aquifer called the Hammett Shale. The Middle Trinity Aquifer is composed of from oldest to youngest, the Cow Creek Member, the Bexar Shale, and the Hensell Sand Members of the Travis Peak Formation and the Lower Glen Rose Formation (Figure 3). Above the Middle Trinity Aquifer is the Upper Trinity Aquifer composed of the Upper Glen Rose Formation, which completes the Trinity Group. Above the Trinity Group lies the Fredericksburg Group, which consists of the Fort Terrett and Segovia Formations (collectively known as Edwards Limestone).

At the Prairie Pointe Estates property, the Bee Cave Marl of the Fredericksburg Group is present at the surface over the majority of the property with the Upper Glen Rose of the Trinity Group present at the surface in the western portion of the property (Figure 3).





Figure 3: Geologic map and stratigraphic column (modified from McGeehee. 1979; Preston et. al, 1996)



#### **III.3. Hydrogeology**

The formations comprising the Trinity Aquifer become thicker downdip (southeast) approaching the Balcones Fault Zone to the south (Ashworth, 1983). The Trinity Aquifer in the Hill Country area spans as far north as Gillespie County and as far south as Medina, Bexar, and Comal counties where fresh water can be produced. As the name suggests, the Trinity is composed of three aquifers, Upper, Middle and Lower Trinity Aquifers. Figure 4 shows the location of the Trinity Aquifer with respect to other aquifers in the area. The solid green portion reflects the unconfined zone of the Trinity Aquifer. The Upper Trinity is confined in some areas and unconfined in the western portion of Prairie Pointe Estates; and the Middle and Lower Trinity aquifers are under confined conditions.



Figure 4: Aquifer map

The Upper Trinity typically produces low quantities of poor quality water due to the presence of gypsum and anhydrite layers within the Upper Glen Rose Formation. The Middle Trinity contains the Lower Glen Rose Limestone, Hensell Sand, and Cow Creek Limestone and is separated from the Upper Trinity Aquifer by the presence of a fossil marker bed called the Corbula Bed. The Corbula bed is a heavily fossiliferous layer that contains the small fossil clam called *Corbula martinae*.

Typically, the highest yielding portion of the Trinity Aquifer is the Middle Trinity Aquifer, specifically the Lower Glen Rose Formation and the Cow Creek Limestone Member of the Travis Peak Formation. These formations are, in some localities, heavily fractured limestone, making them more productive because of their enhanced ability to transmit groundwater. In some areas, the Lower Glen Rose



Formation contains the presence of a reef deposit which greatly increases the yield of a well due to its high transmissivity. Well yield may be increased through acidization, which increases of two or three fold obtained in some instances.

The Lower Trinity Aquifer is composed of conglomerate and sandstones that are, in some instances, heavily cemented. The degree of cementing of these sediments controls the ability of water to move through the aquifer, thereby limiting the ability to produce large yielding wells. In localized areas, wells in the Lower Trinity Aquifer may produce moderate yields, although regionally the Middle Trinity Aquifer produces higher yielding wells with better quality water as compared to the Lower Trinity Aquifer.

The water quality of a well completed within the Middle Trinity Aquifer depends upon several factors, including the degree of fracturing, the amount of time the groundwater is in contact with the rock it is flowing through, and the minerals that compose the rock. For example, groundwater that flows through gypsum and anhydrite beds, which are composed of calcium sulfate (CaSO<sub>4</sub>), will typically contain elevated levels of sulfate (Ashworth, 1983). Additionally, groundwater that had traveled a longer distance and has had longer contact time with the aquifer sediments will also typically contain higher Total Dissolved Solids (TDS) than groundwater that has been in contact with the same rock for a shorter amount of time.



## Section IV: Aquifer Testing

## IV.1. Well Details

There are a total of five (5) wells located within the proposed subdivision, all are newly constructed wells by Tom Arnold Drilling. Figure 5 provides a map showing the locations of the Prairie Pointe Estates' wells along with all documented wells within one mile of the property boundary. Wells No. 1, 3, and 5 were utilized as pumping wells during this study; Wells No. 2 and 4 were used for observation during aquifer testing. Figures 6 through 8 provide well profiles showing well construction, formation depths picked from drill cuttings and aquifer depths interpreted from geophysical logs; Appendix B provides geophysical logs the details of the sixty-four (62) existing wells within 1-mile of the property not used for testing; Table 2 provides a well construction summary for wells used in the aquifer testing.



Figure 5: Well location map

Table 1: Summary of wells within 1-mile.

Map ID	State Well ID	Owner	Well Depth (ft.)	Well Type
6	5716903	High Sierra Water Sys. (Well B2) Bill Swinney	480	Public Supply
7	5716904	High Sierra Water Sys. (Well A1) Bill Swinney	465	Plugged or Destroyed
8	5809701	Ctgcd / Koencci	550	Monitor
9	5836	Don Carlson	450	Domestic



10	14845	Austin 2000, Inc.	415	Domestic
11	15829	Tim Mikulencak	420	Domestic
12	31899	John Trovato	410	Domestic
13	32180	Sean Zapara	445	Domestic
14	59997	Larry Tucker	485	Domestic
15	76955	Robert Samford	480	Domestic
16	77109	Greg Belford	460	Domestic
17	77113	Greg Belford	460	Domestic
18	81987	Shirley Taylor	480	Domestic
19	98879	Satori Inc. Dbpt	500	Domestic
20	126453	Ron Rhea	440	Domestic
21	183816	Angela Rhoades	520	Domestic
22	270491	Rich Basinger Dba Square B Ranch	440	Domestic
23	278080	Steve Everage	180	Stock
24	279155	Bill Albert	445	Domestic
25	286100	Joe Smitherman	490	Domestic
26	309361	Ronnie Potts	520	Domestic
27	310237	Floyd Watson	520	Domestic
28	318072	Jim Michael	520	Domestic
29	323899	Cory Raymer, Sr.	425	Domestic
30	379573	Holly Bartosh Sarcinella	520	Domestic
31	422528	Shelly Davis	470	Domestic
32	438147	Ctgcd / Koencci	940	Monitor
33	438152	Ctgcd / Koencci	550	Monitor
34	445910	D.W. Beckham	505	Domestic
35	462328	Ramiro Aylal	520	Domestic
36	461618	High Sierra Water System	505	Public Supply
37	469737	Hometown Renovations, Llc. (Welch)	520	Domestic
38	469738	Hometown Renovations, Llc. (Welch)	525	Domestic
39	470679	Drenaday Custom Homes	430	Domestic
40	481292	Reese Kulhman	480	Domestic
41	483121	Rick Kouns	430	Domestic
42	487713	Amber Werhane	390	Domestic
43	487788	Hometown Renovations, Llc	430	Domestic
44	494095	Dallas Wallace	500	Domestic
45	494400	Todd Cox	490	Domestic
46	491797	Hometown Renovations, Llc	500	Domestic
47	497958	Keith Borders	470	Domestic
48	478848	Frank And Debra Feland	510	Domestic
49	503964	Holly Sarcinella	440	Domestic
50	506489	Deron Whitecotton	440	Domestic



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51	506492	Dream Finders Home, Llc	420	Domestic
52	507882	Gregory & Eugenia Reynolds	470	Domestic
53	512441	Mark Polansky	510	Domestic
54	512473	Llano Youth Soccer Assn.	200	Irrigation
55	514669	Lee Gaskin	450	Domestic
56	515169	Ralph & Noelalee Ragle	490	Domestic
57	520548	Bob & Mary Flynn	500	Domestic
58	533963	Clifton M .And Kathryn B. Bean	500	Domestic
59	536107	Leslie Freeman	440	Domestic
60	541741	Derek Alan Grant	460	Domestic
61	548345	Eduardo Santana	460	Domestic
62	569410	Keene Family LLC	460	Domestic
63	569411	Keene Family LLC	460	Domestic
64	568816	Keene Family LLC	440	Domestic
65	568817	Keene Family LLC	460	Domestic
66	568818	Keene Family LLC	385	Domestic
67	568819	Keene Family LLC	440	Domestic
68	568820	Keene Family LLC	480	Domestic
69	568821	Keene Family LLC	480	Domestic

To meet the guidelines for the Burnet County development rules and regulations and to adequately assess the availability of groundwater within the vicinity of the proposed subdivision, three (3) aquifer tests were conducted. The aquifer tests consisted of pumping one well for at least 24 hours followed by a recovery phase while measuring water levels in both the pumping and observation wells. This is in accordance with the testing procedures of the Texas Administrative Code (TAC) Title 30 Part 1 Chapter 230.8. Based on the state well reports, drillers' lithology logs, and geophysical logs conducted by CTGCD staff on Wells No. 2 and 4, all wells used in the aquifer testing are completed in the Middle Trinity Aquifer. The following provides a summary of the well construction for the wells used in the tests:

## Well No. 1

According to the State Well Report (Tracking No. Pending; Appendix C), Well No. 1 was completed by Tom Arnold Drilling on January 26, 2021. The well was drilled to a total depth of 520 feet below ground level (ft. bgl) with a 10-inch borehole from 0 to 19 ft. bgl and a 6 1/2-inch borehole from 19 to 520 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 400 ft. bgl, 440 to 480 ft. bgl, and 500 to 520 ft. bgl with 4 1/2-inch screen from 400 to 440 ft. bgl and 480 to 500 ft. bgl. According to the driller's lithology log, the well was completed in the Travis Peak Formation within the Middle Trinity Aquifer. According to the well report, the well was jetted at an estimated rate of 20 gallons per minute (gpm) upon completion (Figure 6; Appendix C).

## Well No. 2

According to the State Well Report (Tracking No. Pending; Appendix C), Well No. 2 was completed by Tom Arnold Drilling on January 26, 2021. The well was drilled to a total depth of 510 ft. bgl with a 10-inch borehole from 0 to 19 ft. bgl and a 6 1/2-inch borehole from 19 to 510 ft. bgl. The well was completed



with 4 1/2-inch PVC casing set from +2 to 390 ft. bgl, 430 to 470 ft. bgl, and 490 to 510 ft. bgl with 4 1/2-inch screen from 390 to 430 ft. bgl and 470 to 490 ft. bgl. According to the driller's lithology log and the geophysical log, the well was completed in the Travis Peak Formation within the Middle Trinity Aquifer. According to the well report, the well was jetted at an estimated rate of 20 gallons per minute (gpm) upon completion (Figure 6; Appendix C).

## Well No. 3

According to the State Well Report (Tracking No. Pending; Appendix C), Well No. 3 was completed by Tom Arnold Drilling on January 27, 2021. The well was drilled to a total depth of 510 ft. bgl with a 10-inch borehole from 0 to 19 ft. bgl and a 6 1/2-inch borehole from 19 to 510 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 390 ft. bgl, 430 to 470 ft. bgl, and 490 to 510 ft. bgl with 4 1/2-inch screen from 390 to 430 ft. bgl and 470 to 490 ft. bgl. According to the driller's lithology log, the well was completed in the Travis Peak Formation within the Middle Trinity Aquifer. According to the well report, the well was jetted at an estimated rate of 20 gallons per minute (gpm) upon completion (Figure 7: Appendix C).

#### Well No. 4

According to the State Well Report (Tracking No. Pending; Appendix C), Well No. 4 was completed by Tom Arnold Drilling on February 1, 2021. The well was drilled to a total depth of 470 ft. bgl with a 10inch borehole from 0 to 19 ft. bgl and a 6 1/2-inch borehole from 19 to 470 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 350 ft. bgl and 390 to 450 ft. bgl with 4 1/2-inch screen from 350 to 390 ft. bgl and 450 to 470 ft. bgl. According to the driller's lithology log and the geophysical log, the well was completed in the Travis Peak Formation within the Middle Trinity Aquifer. According to the well report, the well was jetted at an estimated rate of 20 gallons per minute (gpm) upon completion (Figure 7; Appendix C).

#### Well No. 5

According to the State Well Report (Tracking No. Pending; Appendix C), Well No. 5 was completed by Tom Arnold Drilling on January 29, 2021. The well was drilled to a total depth of 470 ft. bgl with a 10-inch borehole from 0 to 19 ft. bgl and a 6 1/2-inch borehole from 19 to 5100 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 350 ft. bgl, 390 to 430 ft. bgl, and 450 to 470 ft. bgl with 4 1/2-inch screen from 350 to 390 ft. bgl and 430 to 450 ft. bgl. According to the driller's lithology log, the well was completed in the Travis Peak Formation within the Middle Trinity Aquifer. According to the well report, the well was jetted at an estimated rate of 20 gallons per minute (gpm) upon completion (Figure 8; Appendix C).



Table 2	2: Summary	of Prairie	<b>Pointe Estates</b>	well	construction
	•				

Well	Tracking No.	Latitude	Longitude	Elevation (ft. MSL)	Date Completed	Aquifer	Well Depth (ft. bgl)	Static Water Level (ft. bgl; date; ft. MSL)	Borehole (diameter; ft. bgl)	Casing (diameter; material; ft. bgl)	Screen (diameter; material; ft. bgl)
Well No. 1	Pending	30° 45' 13" N	98° 00' 02" W	1,120	1/26/2021	Middle Trinity	520	354.15 (3/3/2021) 765.85	10" (0-19) 6 1/2" (19-520)	4 1/2" PVC (+2-400) (440-480)	4 1/2" PVC Screen (400-440) (480-520)
Well No. 2	Pending	30° 45' 08" N	98° 00' 01" W	1,117	1/26/2021	Middle Trinity	510	353.61 (3/3/2021) 763.39	10" (0-19) 6 1/2" (19-510)	4 1/2" PVC (+2-390) (430-470) (490-510)	4 1/2" PVC Screen (390-430) (470-490)
Well No. 3	Pending	30° 45' 02" N	97° 59' 59" W	1,115	1/27/2021	Middle Trinity	510	351.41 (3/9/2021) 763.59	10" (0-19) 6 1/2" (19-510)	4 1/2" PVC (+2-390) (430-470) (490-510)	4 1/2" PVC Screen (390-430) (470-490)
Well No. 4	Pending	30° 44' 44" N	98° 00' 04" W	1,083	2/1/2021	Middle Trinity	470	292.11 (3/12/2021) 790.89	10" (0-19) 6 1/2" (19-510)	4 1/2" PVC (+2-350) (390-450)	4 1/2" PVC Screen (350-390) (450-470)
Well No. 5	Pending	30° 44' 39" N	98° 00' 02" W	1,073	1/29/2021	Middle Trinity	470	312.88 (3/12/2021) 760.12	10" (0-19) 6 1/2" (19-470)	4 1/2" PVC (+2-350) (390-430) (450-470)	4 1/2" PVC Screen (350-390) (430-450)





Notes: - Well profiles created with the information from State Well Reports and downhole geophysical logs (1-27-21). - Figure for schematic purposes; not drawn to scale.

Figure 6: Well construction profiles of Wells No. 1 and No. 2.



Notes: - Well profiles created with the information from State Well Reports and downhole geophysical logs (3-2-21). - Figure for schematic purposes; not drawn to scale.

Figure 7: Well construction profiles of Wells No. 3 and No. 4

## Prairie Pointe Estates Well No. 5



Notes: - Well profiles created with the information from State Well Reports and downhole geophysical logs (3-2-21). - Figure for schematic purposes; not drawn to scale.

Figure 8: Well construction profile of Wells No. 5



#### **IV.2.** Aquifer Testing

Three (3) aquifer tests were performed utilizing five wells to assess the hydrogeologic properties of the Middle Trinity Aquifer within the proposed subdivision. The objective was to perform each aquifer test with a 24-hour pumping phase followed by a recovery phase in which the pumping well achieved 90% recovery. For each aquifer test, J & J Water Well and Wind Mill Services set a submersible pump within the pumping well that was capable of varying its discharge rate. Prior to the start of the aquifer test, pressure transducers capable of measuring the water level and temperature at one-minute intervals were placed in the pumping and observation wells to gather data for the duration of each test. Flow meter readings and water levels were taken prior to, during, and at the conclusion of the tests. Each aquifer test had at least a 24-hour pumping phase followed by a recovery phase. The data from the aquifer test was analyzed using the Cooper-Jacob method. Table 3 provides a summary of the aquifer testing results; Appendix D provides the results of the aquifer analysis; and Appendix E provides well efficiency calculations for each well.

#### IV.2.1. Aquifer Test of Well No. 1 (March 3, 2021)

The aquifer test of Well No. 1 (pumping well) was conducted on March 3, 2021 with Well No. 2 serving as the observation well approximately 550 feet away. A 2 horsepower (HP) submersible pump was set in the pumping well on 460 feet of 1 1/4-inch PVC column pipe. The pump was started at 1:36 P.M. on March 3, 2021; the water level was monitored for 24.20 hours of pumping and 24.00 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level of the pumping well was measured at 351.2 ft. bgl (765.8 ft. MSL) and the static water level of the observation well was measured at 353.6 ft. bgl (763.4 ft. MSL). Figure 9 provides a hydrograph of the pumping well and temperature over the duration of the aquifer test; Figure 10 provides a hydrograph of both the pumping and observation wells over the duration of the test.

Well No. 1 was pumped at an average rate of 12 gpm and the final measured pumping rate was 11 gpm with 24.27 feet of drawdown, resulting in a specific capacity of 0.45 gpm/ft. When compared to the theoretical specific capacity (0.48 gpm/ft.), Well No. 1 exhibited an efficiency of 94%. The Cooper-Jacob analysis resulted in a transmissivity of 138.0 ft<sup>2</sup>/day, and a hydraulic conductivity of 0.38 ft./day. A maximum drawdown of 3.50 feet was observed in Well No. 2, indicating a hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value of  $6.7 \times 10^{-5}$  for Well No. 2.

More than half of the total drawdown for Well No. 5 was observed within the first three hours of the pumping phase (13.1 feet; Figure 9). Throughout the rest of the pumping phase, the water level slowly declined 11.17 feet before pump shutoff (Figure 9). The water level in the observation well displayed an observable response related to starting and stopping the pump in Well No. 1 (Figure 10). After the pump was shut off, recovery was measured in both wells; the water level in the pumping well recovered 90% in approximately 3 hours. There were no aquifer boundary conditions observed during the testing.







Figure 10: Aquifer test hydrograph of Well No. 1 and Observation Well No. 2 (March 3, 2021)

## IV.2.2. Aquifer Test of Well No. 3 (March 9, 2021)

The aquifer test of Well No. 3 (pumping well) was conducted on March 9, 2021 with Well No. 2 serving as the observation well approximately 550 feet away. A 2 HP submersible pump was set in the pumping well on 460 feet of 1 1/4-inch PVC column pipe. The pump was started at 9:18 A.M. on March 9, 2021; the water level was monitored for 24.12 hours of pumping and 22.95 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level of the pumping well was measured at 351.4 ft. bgl (763.6 ft. MSL) and the static water level of the observation well was measured at 353.8 ft. bgl (763.2 ft. MSL). Figure 11 provides a hydrograph of the pumping and observation wells over the duration of the aquifer test.

Well No. 3 was pumped at an average rate of 11 gpm and the final measured pumping rate was 11 gpm with 22.49 feet of drawdown, resulting in a specific capacity of 0.49 gpm/ft. When compared to the theoretical specific capacity (0.45 gpm/ft.), Well No. 3 exhibited an efficiency of 109%. The Cooper-Jacob analysis resulted in a transmissivity of 128.3 ft<sup>2</sup>/day, and a hydraulic conductivity of 0.81 ft./day. A maximum drawdown of 2.45 feet was observed in Well No. 2, indicating a hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value of 8.1 x  $10^{-5}$  for Well No. 2.

The majority of drawdown for Well No. 3 was observed within the first four hours of the pumping phase (20.8 feet; Figure 11). Throughout the rest of the pumping phase, the water level remained stable, only decreasing by 1.69 feet before pump shutoff (Figure 11). The water level in the observation well displayed an observable response related to starting and stopping the pump in Well No. 3 (Figure 12). After the pump was shut off, recovery was measured in both wells; the water level in the pumping well recovered 90% in approximately 8 hours. There were no aquifer boundary conditions observed during the testing.





Figure 11: Aquifer test hydrograph of Well No. 3 (March 9, 2021)





## IV.2.3. Aquifer Test of Well No. 5 (March 12, 2021)

The aquifer test of Well No. 5 (pumping well) was conducted on March 12, 2021 with Well No. 4 serving as the observation well approximately 563 feet away. A 2 HP submersible pump was set in the pumping well on 460 feet of 1 1/4-inch PVC column pipe. The pump was started at 8:49 A.M. on March 12, 2021; the water level was monitored for 24.08 hours of pumping and 23.63 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level of the pumping well was measured at 312.9 ft. bgl (760.1 ft. MSL) and the static water level of the observation well was measured at 292.1 ft. bgl (790.9 ft. MSL). Figure 13 provides a hydrograph of the pumping and observation wells over the duration of the aquifer test.

Well No. 5 was pumped at an average rate of 12 gpm and the final measured pumping rate was 12 gpm with 22.24 feet of drawdown, resulting in a specific capacity of 0.54 gpm/ft. When compared to the theoretical specific capacity (0.65 gpm/ft.), Well No. 5 exhibited an efficiency of 83%. The Cooper-Jacob analysis resulted in a transmissivity of 165.8 ft<sup>2</sup>/day, and a hydraulic conductivity of 1.06 ft./day. A maximum drawdown of 0.80 feet was observed in Well No. 1, indicating a minimal hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value of 5.7 x  $10^{-4}$  for Well No. 4.

Approximately 70% of the total drawdown for Well No. 5 was observed within the first three hours of the pumping phase (14.9 feet; Figure 13). Throughout the rest of the pumping phase, the water level slowly declined 7.34 feet reaching a stable pumping level before pump shutoff (Figure 13). After the pump was shut off, recovery was measured in both wells; the water level in the pumping well recovered 90% in approximately 10 hours. There were no aquifer boundary conditions observed during the testing.





Figure 13: Aquifer test hydrograph of Well No. 5 (March 12, 2021)





#### Table 3: Summary of aquifer test results

Date	Well	Average Pump Rate (gpm)	Final Pump Rate (gpm)	Drawdown (ft.)	Specific Capacity (gpm/ft.)	Transmissivity (ft <sup>2</sup> /d)	Storativity	Hydraulic Conductivity (ft./d)	Well Efficiency	Aquifer Thickness (ft.)	Aquifer Boundary Detected
3/3/2021	PW No. 1	12	11	24.27	0.45	138.0	-	0.38	94%	166	No
5/5/2021	OW No. 2	-	-	3.50	-	157.6	6.7E-5	1.01	-	156	No
2/0/2021	PW No. 3	11	11	22.49	0.49	128.3	-	0.81	109%	159	No
5/9/2021	OW No. 2	-	-	2.45	-	196.6	8.1E-5	1.26	-	156	No
3/12/2021	PW No. 5	12	12	22.24	0.54	165.8	-	1.06	83%	157	No
5/12/2021	OW No. 4	-	-	0.80	-	346.4	5.7E-4	1.95	-	178	No

Note: PW = Pumping Well; OW = Observation Well; ft. = feet; gpm = gallons per minute; d = day;



#### **IV.3.** Water Quality

Water quality samples were collected from each pumping well at the end of the 24-hour pumping phase of each aquifer test. The samples were collected by J & J Water Well and Wind Mill Service staff in sealed containers and stored on ice in a cooler. The samples for each of the wells were transported to Environmental Monitoring Laboratories, LLC and were tested in accordance with Texas Administrative Code 230.9 (Determination of Groundwater Quality). Appendix F provides a copy of the water quality reports.

Table 4 provides the water quality summary of the samples. The results were compared to Texas Commission on Environmental Quality (TCEQ) Maximum Contaminant Levels (MCL) and Secondary Contaminant Levels (SCL). The results show all samples met the TCEQ MCLs. However, in Well No. 1 the concentration for iron exceeded the TCEQ SCL (Table 4).

The water samples were also tested for the presence or absence of total coliform and *E. coli*. Total coliform bacteria were found to be present in all wells; *E. coli* was not present in any of the wells. Presence of total coliform bacteria within a well that has recently been drilled is not uncommon. With additional proper chlorination of the wells, we anticipate that future samples will indicate the absence of total coliform bacteria.

Concentrations above the TCEQ SCL standards are not considered health risks but may affect the taste and/or odor of the water. On-site treatment systems such as reverse osmosis have the capability of reducing constituents concentrations below TCEQ SCLs if desired by the homeowner however, treatment is not required.

		Cl	Conductivity (mhos/cm)	F	Fe	NO3	Mn	рН	SO4	Hardness (as CaCO3)	TDS	TC/E. coli			
Wall	Sample		TCEQ MCLs & SCLs												
wen	Data	<b>300</b> <sup>2</sup>		4 <sup>1</sup> & 2 <sup>2</sup>	0.3 <sup>2</sup>	<b>1</b> <sup>1</sup>	0.05 <sup>2</sup>	6.5-8.5 <sup>2</sup>	<b>300</b> <sup>2</sup>		1000 <sup>2</sup>	Presence			
1	3/16/2021	57.1	1,370	1.77	0.382	<0.4	< 0.02	8.41	43.2	140	430	Present/Absent			
3	3/16/2021	82.8	1,630	1.34	0.281	<0.4	< 0.02	8.37	117	270	608	Present/Absent			
5	3/16/2020	77.0	1,690	1.08	<0.2	<0.4	< 0.02	8.39	157	300	661	Present/Absent			

#### Table 4: Summary of the water quality analysis results

Note: 1 = TCEQ Maximum Contaminant Level; 2 = TCEQ Secondary Contaminant Level; Concentrations in red are above TCEQ SCLs; All units expressed in mg/L (except pH & E.C.);



#### **IV.4. Groundwater Availability**

Based upon the analyses of the aquifer tests, drawdown estimates from different pumping scenarios were made at various distances from each pumping well after 10 years and 30 years. Figures 15 through 17 provide distance-drawdown plots for a single pumping well producing at a rate of 5 gpm for 1.22 hours per day (365 gallons per day). Figures 18 through 20 provide distance-drawdown plots for a single pumping well producing at a rate of 15 gpm for 0.41 hours per day (365 gallons per day) to represent well owners that may pump at a higher rate for a shorter duration. These pumping volumes represent the total water demand at full build out of the subdivision per housing unit (0.41 acre-feet/year for each housing unit).

Assumptions used in the drawdown calculations and overall groundwater availability to the proposed subdivision include inherent uncertainties such as:

- Future pumpage from the aquifer or from interconnected aquifers from area wells outside of the subdivision or any other factor that cannot be predicted that will affect the storage of water in the aquifer;
- Long-term impacts to the aquifer based on climatic variations; and/or,
- Future impacts to usable groundwater due to unforeseen or unpredictable contamination.

Drawdown estimates were calculated using the Theis equation. The Theis equation employs the following assumptions:

- 1. The water bearing formation is uniform in character and the hydraulic conductivity is the same in all directions;
- 2. The formation is uniform in thickness and infinite in areal extent;
- 3. The formation receives no recharge from any source;
- 4. The pumped well penetrates, and receives water from, the full thickness of the water bearing formation;
- 5. The water removed from storage is discharges instantaneously when the head is lowered;
- 6. The pumping well is 100% efficient;
- 7. All water removed from the well comes from aquifer storage;
- 8. Laminar flow exists throughout the well and aquifer; and
- 9. The water table or potentiometric surface has no slope.

It is important to note that several of the assumptions used to derive the Theis equation are not necessarily appropriate for the Middle Trinity Aquifer. These include assumptions 1, 3, 7 and 8. The Middle Trinity Aquifer can be a karst aquifer in some areas, not uniform or homogenous in character or in its hydrogeologic properties (transmissivity and storativity). In addition, the Theis assumptions that (i) the formation receives no recharge from any source and (ii) that all water removed from the well comes from aquifer storage leads to inaccuracies in estimating drawdown. Driscoll (1986) states, "The assumption that an aquifer receives no recharge during the pumping period is one of the six fundamental conditions upon which the non-equilibrium formulas (Theis) are based. Therefore, all water discharged from a well is assumed to be taken from storage within the aquifer. It is known, however that most formations receive



recharge. Hydrographs from long-term observation wells monitored by the US Geological Survey, various state agencies, and similar data-gathering agencies in other parts of the world show that most water-bearing formations receive continual or intermittent recharge."

Furthermore, contrary to the Theis assumptions, Konikow and Leake (2014) note that with increased pumping time, (i) the fraction of pumpage derived from storage tends to decrease, and (ii) the fraction derived from capture (recharge) increases. Eventually a new equilibrium will be achieved when no more water is derived from storage and heads, or water levels, in the aquifer stabilize. This result is achieved when the initial cone of depression formed by discharge reaches a new source of water, typically the recharge zone of the aquifer. The actual response time for an aquifer system to reach a new equilibrium is a function of the dimensions, hydraulic properties, and boundary conditions for each specific aquifer. For example, the response time will decrease as the hydraulic diffusivity of the aquifer increases (Theis 1940; Barlow and Leake 2012). The response time can range from days to millennia (Bredehoeft and Durbin 2009; Walton 2011).

Since the Theis equation assumes (i) that all water is derived from storage and (ii) that the aquifer receives no recharge, the Theis equation may overestimate drawdown within a well that is located in an aquifer that receives recharge rapidly. For this reason, using the Theis equation to calculate drawdown over periods of time greater than when water from capture exceeds water from storage leads to an exaggerated estimate of drawdown.

Tables 5 and 6 provide a summary of the results from the distance-drawdown calculations. Estimates of drawdown are based on the following assumptions:

- Total daily water demand (entire subdivision) = 27.25 acre-feet/year
- Total daily water demand (per housing unit) = 0.41 acre-feet/year = 365 gpd;
- The individual well will first be pumped at 5 gpm for 1.22 hours per (Table 5), and again at 15 gpm for 0.41 hours per day (Table 6); and
- Transmissivity and storativity values calculated from each respective aquifer test were used in the drawdown estimates.

The edge of the cone of depression was estimated by taking the distance from the pumped well where the drawdown flattened out or was minimal.

## IV.4.1. 5 gpm Production

Based upon the average drawdown calculated from the distance-drawdown projections, the drawdown after 10 years of production at 5 gpm and a well spacing of 100 feet results in an average of 1.7 feet. At a spacing of 250 feet, the well interference reduces to an average of 0.8 feet. At a spacing of 500 feet, the well interference reduces of 0.4 feet.

Based upon the average drawdown calculated from the distance-drawdown projections, the drawdown after 30 years of production at 5 gpm and a well spacing of 100 feet results in an average of 1.7



feet. At a spacing of 250 feet, the well interference reduces to an average of 0.9 feet. At a spacing of 500 feet, the well interference reduces further to an average of 0.5 feet.

#### IV.4.2. 15 gpm Production

Based upon the average drawdown calculated from the distance-drawdown projections, the drawdown after 10 years of production at 15 gpm and a well spacing of 100 feet results in an average of 2.9 feet. At a spacing of 250 feet, the well interference reduces to an average of 0.9 feet. At a spacing of 500 feet, the well interference reduces further to an average of 0.5 feet.

Based upon the average drawdown calculated from the distance-drawdown projections, the drawdown after 30 years of production at 15 gpm and a well spacing of 100 feet results in an average of 2.9 feet. At a spacing of 250 feet, the well interference reduces to an average of 1.0 feet. At a spacing of 500 feet, the well interference further to an average of 0.6 feet.

Based upon the distance drawdown calculations we recommend that the Prairie Pointe Estates Subdivision wells be spaced a minimum distance of 250 feet for wells pumped at rates up to 15 gpm. If landowners are able, we recommend spacing wells as far as possible to limit drawdown from well interference. Some well interference may be more pronounced in areas of the subdivision where the aquifer units are more strongly connected; conversely, well interference may not occur in some areas where the aquifer is either disconnected or where there is high permeability.

	Drawdown at Pumped Well After 10-Years of Pumping	Drawdown at Pumped Well After 30-Years of Pumping	Drawdow Property Bo 10-Years	n at Nearest oundary After of Pumping	Drawdown at Nearest Property Boundary After 30-Years of Pumping		Dist. to Outer Edges of Cone of Depression - 10 years	Dist. to Outer Edges of Cone of Depression - 30 years
Well	(ft)	(ft)	Property Boundary Distance (ft)	Drawdown (ft)	Property Boundary Distance (ft)	Drawdown (ft)	(feet)	(feet)
No. 1	8.72	8.75	585	0.53	585	0.56	200	200
No. 3	9.22	9.25	648	0.45	648	0.49	200	200
No. 5	6.35	6.38	375	0.28	375	0.31	200	200

#### Table 5: Summary of distance-drawdown calculations (5 gpm)

#### Table 6: Summary of distance-drawdown calculations (15 gpm)

-	Drawdown at Pumped Well After 10-Years of Pumping	Drawdown at Pumped Well After 30-Years of Pumping	Drawdown at Nearest Property Boundary After 10-Years of Pumping		Drawdown at Nearest Property Boundary After 30-Years of Pumping		Dist. to Outer Edges of Cone of Depression - 10 years	Dist. to Outer Edges of Cone of Depression - 30 years
Well	(ft)	(ft)	Property Boundary Distance (ft)	Drawdown (ft)	Property Boundary Distance (ft)	Drawdown (ft)	(feet)	(feet)
No. 1	23.72	23.75	585	0.50	585	0.53	200	200
No. 3	25.04	25.07	648	0.72	648	0.75	200	200
No. 5	17.04	17.06	375	0.23	375	0.26	200	200





#### Distance From Center of Pumping (ft)

Figure 15: Distance drawdown plot for Well No. 1 (5 gpm)

Wet Rock Groundwater Services, LLC & Groundwater Specialists


Figure 16: Distance drawdown plot for Well No. 3 (5 gpm)

Wet Rock Groundwater Services, LLC  $\Diamond$  Groundwater Specialists



Figure 17: Distance drawdown plot for Well No. 5 (5 gpm)

Wet Rock Groundwater Services, LLC *(a) (c) (c)*



Figure 18: Distance drawdown plot for Well No. 1 (15 gpm)

Wet Rock Groundwater Services, LLC  $\Diamond$  Groundwater Specialists



Figure 19: Distance drawdown plot for Well No. 3 (15 gpm)



Figure 20: Distance drawdown plot for Well No. 5 (15 gpm)

### Section V: Certification

I, Kaveh Khorzad, Texas Licensed Professional Geoscientist, certificate number 1126, based on best judgment, current groundwater conditions, and the information developed and presented in this form, certify that adequate groundwater is available from the underlying aquifer to supply the anticipated use of the proposed subdivision.

The Middle Trinity Aquifer at the proposed Prairie Pointe Estates Subdivision is under confined conditions, exhibits variable yield and water quality, and is susceptible to reduction in yield during prolonged drought. For these reasons we recommend that i) each homeowner construct their well as deep as practical to the base of the Middle Trinity Aquifer to provide the maximum possible yield and; ii) to set their pumps as deep as practical to protect from decreasing water levels during drought. On-site treatment systems such as reverse osmosis and/or water softeners may be installed by the home owner to reduce the potential effects from poor-quality groundwater, if encountered; however, it is not required.



### Section VI: References

- Ashworth, J. B., 1983, Ground-water availability of the Lower Cretaceous formations in the Hill Country of south-central Texas: Texas Department of Water Resources Report 273,173 p.
- Barlow, P.M., and Leake, S.A., 2012. Streamflow depletion by wells—Understanding and managing the effects of groundwater pumping on streamflow. U.S. Geological Survey Circular 1376. Reston, Virginia: USGS.
- Bredehoeft, J.D., and T.J. Durbin. 2009. Ground water development—The time to full capture problem. Ground Water 47, no. 4: 506–514. DOI:10.1111/j.1745-6584.2008. 00538.x
- Driscoll, F.G., 1986. Groundwater and Wells (2<sup>nd</sup>. Ed.): Johnson Division, St. Paul, Minnesota, p. 1021.
- Jones, I.C., 2003, Groundwater availability modeling: northern segment of the Edwards Aquifer, Texas: TWDB, Report 358,
- Klemt, W.R., Perkins, R.D., and Alvarez, H.J., 1975, Ground-water resources of part of central Texas with emphasis on the Antlers and Travis Peak formations, Volume 1: TWDB, Report 195, Austin, TX.
- Konikow L.F. and Leake S.A., 2014, Depletion and Capture: Revisiting "The Source of Water Derived from Wells", Vol. 52, Groundwater–Focus Issue 2014, p. 100–111.
- McGeehee, R.V., 1979. Precambrian Rocks of the Southeastern Llano Region, Texas. Texas Bureau of Economic Geology, Geological Circular 79-3, 36 p.
- Preston, R.D., Pavilcek, D.J., Bluntzer, R.L., and Derton, J., 1996. The Paleozoic and Related Aquifers of Central Texas. TWDB Report 346, 77 p.
- Theis, C.V. 1940. The source of water derived from wells—Essential factors controlling the response of an aquifer to development. Civil Engineering 10: 277–280.
- Walton, W.C. 2011. Aquifer system response time and groundwater supply management. Ground Water 49, no. 2: 126–127.



## Appendix A

Certification of Groundwater Availability for Platting Form



### **CERTIFICATION OF GROUNDWATER AVAILABILITY FOR PLATTING FORM**

U se of this form: If required by a municipal authority pursuant to \$212.0101, Texas Local Government Code or a county authority pursuant to \$232.0031, Texas Local Government Code, the plat applicant and the Texas licensed professional engineer or Texas licensed professional geoscientist shall use this form based upon the requirements of Title 30, Texas Administrative Code, Chapter 230 to certify that adequate groundwater is available to provide water to the land to be subdivided (if the source of water for the subdivision is groundwater under the subdivision) for any subdivision subject to platting under \$\$212.004 and 232.001, Texas Local Government Code. The form and Chapter 230 do not replace state requirements applicable to public drinking water supply systems or the authority of counties or groundwater conservation districts under either \$35.019 or Chapter 36 of the Texas Water Code.

Administrative Information (30 TAC, §230.4).

	Property Owner's Name(s): Duane Davis								
	Address: 2000 IH 35 South, Suite QII Round Rock, TX /8681								
	Phone:								
	Plat Amplicant's Name: Duane Davis								
	Address: 2000 IH 35 South, Suite Oll Round Rock, TX 78681								
	Phone:								
	Fax:								
	Licensed Professional Engineer or Geoscientist								
	Name: <u>Kaveh Khorzad, P.G.</u>								
	Address:317 Ranch Road 620 S., Suite 203, Lakeway, TX 78734								
	Phone: 512-773-3226								
	Fax:								
	Certificate Number: TBPG License No: 1126								
	Location and Property Description of Proposed Subdivision: <u>approximately 3.0 miles east of</u>								
	the City of Bertram, TX located on County Road 274.								
	Tax Assessor Parcel Number(s).								
	Book:								
	Map:								
	Parcel: Burnet County: 53854 and 112970								
D	sed Subdivision Information (30 TAC, §230.5).								
	Purpose of Proposed Subdivision (single family/multi-family residential, non-residential, commercial):								
	Size of Proposed Subdivision (acres): 241.18								
	Number of Proposed Lots: 67								
	Average Size of Proposed Lots (acres): 3.60								
	Anticipated Method of Water Distribution.								
	Expansion of Existing Public Water Supply System: Vec (1)								
	Expansion of Existing Fubic Water Supply System. Tes								
	New (Proposed) Public Water Supply System: Yes No								
	New (Proposed) Public Water Supply System: Yes No Individual Water Wells to Serve Individual Lots: No								
	New (Proposed) Public Water Supply System: Individual Water Wells to Serve Individual Lots: Combination of Methods: Yes								

Note: If public water supply system is anticipated, written application for service to existing water providers within a ½-mile radius should be attached to this form (30 TAC §230.5(f)).

#### Projected Water Demand Estimate (30 TAC, §230.6).

14. Residential Water Demand Estimate at Full Build Out (includes both single family and multi-family residential). Number of Proposed Housing Units (single and multi-family): 67 single family housing units

Average Number of Persons per Housing Unit: 2.69 persons Gallons of Water Required per Person per Day: 135 gallons per capita per day (gpcd) Water Demand per Housing Unit per year (acre feet/year):0.41 acre-ft (assuming 135 gpcd) Total Expected Residential Water Demand per Year (acre feet/year): 27.25 acre-ft 15. Non-residential Water Demand Estimate at Full Build Out. Type(s) of Non-residential Water Uses: N/A Water Demand per Type per Year (acre feet/year): 27.25 Total Water Demand Estimate at Full Build Out (acre feet/year): 27.25 acre-ft/year 16. Sources of Information Used for Demand Estimates: CTGCD and U.S. Census data 17. General Groundwater Resource Information (30 TAC, §230.7). 18. Identify and describe, using Texas Water Development Board names, the aquifer(s) which underlies the proposed subdivision: Note: Users may refer to Aquifers of Texas (Texas Water Development Board Report 345, 1995) to obtain general information pertaining to the state's aquifers. This reference is available via the Internet (www.twdb.state.tx.us). Trinity Aquifer Obtaining Site-Specific Groundwater Data (30 TAC, §230.8). Have all known existing, abandoned, and inoperative wells within the proposed subdivision been located, identified, and shown 19. (e) on the plat as required under §230.8(b)? No Were the geologic and groundwater resource factors identified under §230.7(b) considered in planning and designing the aquifer 20. test required under §230.8(c)? ¥e9 No 21. Have test and observation wells been located, drilled, logged, completed, developed, and shown on the plat as required by §230.8(c)(1 though 4)? (re) No 22. Have all reasonable precautions been taken to ensure that contaminants do not reach the subsurface environment and that undesirable groundwater has been confined to the zone(s) of origin (§230.8(c)(5))? No Has an aquifer test been conducted which meets the requirements of §§230.8(c)(1 and 6)? 23. No 24. Were existing wells or previous aquifer test data used? Yes (N)If yes, did they meet the requirements of 230.8(c)? Yes No 25.M Were additional observation wells or aquifer testing utilized? Yes 26. Note: If expansion of an existing public water supply system or a new public water supply system is the anticipated method of water distribution for the proposed subdivision, site-specific groundwater data shall be developed under the requirements of 30 TAC, Chapter 290, Subchapter D (related to Rules and Regulations for Public Water Systems) and the applicable information and correspondence developed in meeting those requirements shall be attached to this form pursuant to §230.8(a). Determination of Groundwater Quality (30 TAC, §230.9). 27. Have water quality samples been collected as required by §230.9? ¥e\$ No Has a water quality analysis been performed which meets the requirements of §230.9? 28. (es No Determination of Groundwater Availability (30 TAC, §230.10). Have the aquifer parameters required by §230.10(c) been determined? 29. No 30. If so, provide the aquifer parameters as determined. Rate of yield and drawdown: (See attached Table 3) Specific capacity: (See attached Table 3 & Appendix D) Efficiency of the pumped well: (See attached Table 3 & Appendix E) Transmissivity: (See attached Table 3 & Appendix D) Coefficient of storage: (See attached Table 3) Hydraulic conductivity: (See attached Table 3 & Appendix D) Were any recharge or barrier boundaries detected? Yes (N)If yes, please describe: Thickness of aquifer(s): (See attached Table 3 & Appendix D) 31. Have time-drawdown determinations been calculated as required under §230.10(d)(1) No Have distance-drawdown determinations been calculated as required under §230.10(d)(2)? 32. No 33. Have well interference determinations been made as required under §230.10(d)(3)? No Has the anticipated method of water delivery, the annual groundwater demand estimates at full build out, and geologic and 34. (Ye) groundwater information been taken into account in making these determinations? No Has the water quality analysis required under §230.9 been compared to primary and secondary public drinking water standards 35. as required under §230.10(e)? No ¥e9

#### Does the concentration of any analyzed constituent exceed the standards?

If yes, please list the constituent(s) and concentration measure(s) which exceed standards: See Section IV.3

Groundwater Availability and Usability Statements (30 TAC, §230.11(a)and (b)).

- 36. Drawdown of the aquifer at the pumped well(s) is estimated to be \_\_\_\_\_\_ feet over a 10-year period and \_\_\_\_\_\_ feet over a 30-year period. See Attached Tables 5 & 6
- 37. Drawdown of the aquifer at the property boundary is estimated to be \_\_\_\_\_\_ feet over a 10-year period and \_\_\_\_\_\_ feet over a 30-year period. See Attached Tables 5 & 6
- 38. The distance from the pumped well(s) to the outer edges of the cone(s)-of-depression is estimated to be \_\_\_\_\_\_ feet over a 10-year period and \_\_\_\_\_\_ feet over a 30-year period. See Attached Tables 5 & 6
- 39. The recommended minimum spacing limit between wells is <u>250</u> feet with a recommended well yield of <u>15</u> gallons per minute per well.
- 40. Available groundwater is / is not (circle one) of sufficient quality to meet the intended use of the platted subdivision.
- 41. The groundwater availability determination does not consider the following conditions (identify any assumptions or uncertainties that are inherent in the groundwater availability determination): See Appendices.

Certification of Groundwater Availability (30 TAC, §230.11(c)). Must be signed by a Texas Licensed Professional Engineer or a Texas Licensed Professional Geoscientist.

42. I, <u>Kaveh Khorzad</u>, Texas Licensed Professional Engineer or Texas Licensed Professional Geoscientist (circle which applies), certificate number <u>1126</u>, based on best professional judgement, current groundwater conditions, and the information developed and presented in this form, certify that adequate groundwater is available from the underlying aquifer(s) to supply the anticipated use of the proposed subdivision. Date: <u>4/7/2021</u> (affix seal)

Adopted January 23, 2003

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Effective February 13, 2003



# <u>Appendix B</u>

Geophysical Logs



### **Geophysical Log**

# Central Texas Groundwater Conservation District

Borehole Name or #: Prairie Pointe Estates Well #2

Logs: GR RES

Logging Dates: 1-28-2021



225 S Pierce P.O. Box 870, Burnet, TX, 78611 - (512) 756-4900 - sodek@centraltexasgcd.org												
Well Owner:	Prairie Poir	nte Estates			Well Regist. #:	7863						
Latitude: 30	) 45' 7.91" N	Longitude	e: 98 0' 0.83" W		Burnet County	, Texas						
Elevation MS	L: Topo:	GPS:	Google I	Earth:	GPS Datum:	WGS 84 NA	D 27					
Drilling Con	tractor: Ton	n Arnold Drilling	Boreh	ole Data	Date Drilled:	1-27-21						
Measuring I	Point: 1	Feet Above	Ground Level		Driller TD:	500						
Depth Refe	rence:	Ground Lev		Logger TD:	499							
Water Level: 354 Feet Below Measuring Point												
Bit Record Casing Record												
Run	Bit Size	From	То	PVC / Steel	Size	From	То					
1				PVC	4.5"	+2.5	500					
2												
3												
			Loggi	ng Data ————								
Logged By:	Mitchell So	dek		Witness: P	aul Babb							
Log	Туре	Run #	Up / Down	From	То	Fe	et / Min.					
GR F	RES	1	Up	499	6.15	;	15					
		2										
		3										
		4										
Comments:												
G	amma	Dept	th		SP							

	Garrina		Dopai	1	0.	
0	cps	100	1ft:240ft	0	mV	1500
	Current				R8	



### **Geophysical Log**

# Central Texas Groundwater Conservation District

Borehole Name or #: Prairie Pointe Estates Well #4 Logs: GR RES

Logging Dates: 3-2-2021



Nell Owner:	Prairie Pointe	Estates			Well Regist, #	#:7865						
_atitude: 30	) 44' 44.14" N	Longitude:	98 0' 4.31" W	Burnet County, Texas								
Elevation MS	L: Topo:	GPS:	Google I	Earth:	GPS Datum:	WGS 84	NAD 27					
Drilling Con	tractor: Tom A	Arnold Drilling	Boreh	ole Data	Date Drilled:							
Measuring F	Point: 1	Feet Above G	round Level		Driller TD:							
Depth Refer	rence:	Ground Leve	61		Logger TD:	465						
Water Level	l: 291	Feet Below M	easuring Point									
	Bit	Record			Casing	Record						
Run	Bit Size	From	То	PVC / Steel	Size	From	То					
1				PVC	4.5"	+2.5	465					
2												
3		й					÷.					
i.	2 2	22	Loggi	ng Data		-10 -	22.					
Logged By:	Mitchell Sode	k		Witness: P	aul <mark>Babb</mark>							
Log	Туре	Run #	Up / Down	From	T	0	Feet / Min.					
GR F	RES	1	Up	465	6.1	5	15					
		2			21 21							
		3										
				*	8							



# <u>Appendix C</u>

State Well Reports



### Well Report

Attention Own Confidentiality on reverse side	ner: Privilege No of owner's co	tice opy.	Texas P.O. Box 121 H	<b>Departr</b> Water W 157 Austin, 1 Email addre	icen np Ins (512) ) 803 ell@] EP(	<b>cense and Regulation</b> <i>p Installer Program</i> (512) 463-7880 FAX (512) 463-8616 803-9202 Il@license.state.tx.us <b>EPORT</b>						leted ment 's well.	
1) OWNER			A. WEL	L IDENTI	FICATION	N AN	AND LOCATION DATA						
Name Prairie Point	te Estates	Well 1	Address 2000 S. IH35	Suite #O1	1	City Rou	ind Rock	X		State Texas		Zip 78681	
2) WELL L (	CATION			<u>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ </u>									
County			Physical Address			City				State		Zip	
Burnet			SW corner o	f CR 274 &	& 276	Ber	ertram Texas 78654						
3) Type of W	ork		Lat. 30°	45	13	Lon	ong. 098° 00 02 Grid # 57-16-9						
🗵 New Well	☑ New Well □ Deepening 4) Proposed Use (check) □ Monito								oil Boring 🗖	Domestic	5)		N↑
C Reconditionii	ng		□ Industrial □	Irrigation	Injection		Public Sup	ply 🗖	De-watering	🗵 Testwell			
	-		If Public Supply	well, were pla	ns submitted to	o the ]	INRCC?		es 🗆 No				
6) Drilling D	ate		Di	ameter of	Hole		7) Drilli	ng Met	hod (check)	Driven			
Started	1.26	91	Dia. (in)	From (ft)	To (f	t)		e στα	Mud Potora				
Started_	1-20-2		10	0	19	-)							
	1.000		6 <sup>1</sup> ⁄	10	520		L Air Ha	mmer L					
Completed_	1-26-2	21	0 /2	1)	520		□ Other				-		
	<b>T</b> (A)	<u> </u>		0.0			() D 1					<b>1</b> a	
From (ft)	10 (ft)	Descrip	otion and color	of formation	on material		8) Borel	hole Co	mpletion		ole 🗵	Straigh	it Wall
0	17	1 op So Vollow	I imostono	DCK				r-reame	a 🗆 Grave		Other	·	0
17	212	Grav I	imestone				If Gravel Packed give the interval from ft. to ft. Casing Blank Pine and Well Screen Data						π.
212	212	Brown	Limestone				Casing	New	Steel, Plastic,	etc.	Sett	ing (ft)	Gage
212	227	Grav I	limestone				Dia.	Or	Perf., Slotted,	etc.	Enom	Та	Casing
227	310	Gray	Sandstone				(in.) 4 1/2	N N	Plastic	11 commercial	From 0	520	Screen
310	410	Gray S	Sandstone & S	and Strins	1		<b>4</b> /2	N	Screen		480	500	032
410	435	Gray S	Sandstone & S	and Strips				N	Screen		400	440	032
435	460	Gray S	Sandstone & S	Sand				11	Serven		100		
460	480	Gray S	Sandstone & S	Shale			9) Ceme	enting I	Data		I		1
480	490	Gray S	Sandstone & S	and			Cementi	ng from	<b>0</b> ft. t	o <b>20</b> ft.	# of sa	cks used	6
490	520	Gray I	Limestone						ft. 1	oft.	# of sa	cks used	
	(Use rever	se side of V	Well Owner's copy	y, If necessary	)		Method Used Hand Poured						
13) Plugged		Well plu	gged within 48	3 hours			Cementing By Tom Arnold Drilling						
Casing left in we	ell:	Cei	ment/Bentonite pla	aced in well:			Distance to septic system field or other concentrated contamination 150						1 <u>50</u> ft.
From (ft)	To (ft)	Fro	m (ft)	To (ft)	Sacks use	d	Method of	verificati	ion of above di	stance <u>Tape</u>	Measu	re	
							*None V	Within G	This Distan	ce Found			
							10) Suri	face Co	mpletion				
14) T	Non a							ed Surfac	e Slab Installed	1			
14) Typepun	np None		Submar	sible 🛛	Culinder			Adapter I	ce Sleeve Instal	led			
$\square$ Other					Cyllinder			ved Alterr	useu native Procedur	e Used			
Depth to nump h	owls cylinde	er jet etc		ft			11) Wat	er Lev		e osea			
15) Water To	est	1, jei, eie.,		11.			Static leve		ft helow	Date /		/	
Typetest	Pump DB	ailer 🛛	Jetted 🗵 Estin	mated			Artesian F	low	n. oelo n	n. Date /		/	
Yield: 20	gpm with		ft. drawdown at	fter	hrs.				8r**				
16) Water Q	uality						12) Pacl	kers		Type		Depth	
Did you knowing	gly penetrate	any strata	which contain und	lesirable const	ituents?		Shale T	rap		480',380',2	280',20	,	
Solution State Sta													
Type of water Was a chemical	analysis mod	$\sim \square \mathbf{v}$	Depth of St	rata		-							
Company or	Individual	s Name I	(type or print)	Tom Arn	old Drilling	,	I		T	ic No 209	6		
Address 27	50 South 4	$\mathbf{W}$	rimes Blvd.	I UIII AI III	Citv	, Rour	nd Rock		Sta	te Texas	Zin	78664	
Signaturo	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~			1	/								
Lice	Licensed Driller/Pump Installer Date Date					gnature / / / Apprentice Date							

### IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

Section 32.005 of the Texas Water Code, concerning confidential information in the Reporting of Well Logs, reads as follows:

"Every licensed driller drilling, deepening, or otherwise altering a water well within this State shall make and keep a legible and accurate well log in accordance with the department rule on forms prescribed by the department. Not later than the 60th day after the completion or cessation of drilling, deepening, or otherwise altering the well, the licensed driller shall deliver or transmit by certified mail a copy of the well log to the department and to the owner of the well or the person for whom the well was drilled. Each copy of a well log, other than a department copy, must include the name, mailing address, and telephone number of the department. The well log shall be recorded at the time of drilling, and must show the depth, thickness, and character of the strata penetrated, the location of water-bearing strata, the depth, size, and character of casing installed, and any other information required by department rule. The department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner or person for whom the well was drilled.

The last sentence specifies the means whereby you may, if you wish, assure that logs of your wells will be kept confidential.

From (ft.)	To (ft.)	Description and color of formation material
490	520	Gray Limestone

### Well Report

Attention Own Confidentiality on reverse side	<b>ter:</b> Privilege No of owner's co	tice opy.	Texas P.O. Box 12 H	<b>S Departr</b> Water W 157 Austin, 7 Email addre	Lice imp Ir (512 10) 80 vell@ REP	<b>Sicense and Regulation</b> <i>np Installer Program</i> (512) 463-7880 FAX (512) 463-8616 2) 803-9202 ell@license.state.tx.us <b>REPORT</b>					st be comp the depart thin 60 day ion of the v	leted ment 's well.	
1) OWNER			A. WEL	L IDENTI	FICATIO	N A	ND LOCA	ATION	DATA				
Name Prairie Point	te Estates	Well 2	Address 2000 S. IH35	Suite #O1	1	City Ro	ound Rock	4		State Texas		Zip 78681	
2) WELL 1 (		J		<u> </u>				_					
County	JUANON	•	Physical Address			City	r			State		Zip	
Burnet			SW corner o	f CR 274 8	& 276	Be	rtram			Texas		78654	
3) Type of W	ork		Lat. 30°	45	08	Lo	ng. 098	8°   0	0 01	Grid # 5	7-16-9		
X New Well	Deep	ening	4) Proposed	Use (check)	) 🛛 Mor	nitor	Environ	mental Sc	il Boring 🔲 I	Domestic	5)		N↑
	$\square \text{Reconditioning} \qquad \square \text{Industrial} \square \text{Irrigation} \square \text{Injection}$								De-watering	X Testwell			
	115		If Dublic Sumply			to the	TNDCC2						
6) Drilling D	ate			ameter of	Hole	to the	7) <b>D</b> .::	ng Mot	bod (abaale)		_		
0) Drining D	all		Dia (in)			<u>6</u> )			nou (check)	Driven			
Started	1-26-2	21	Dia. (in)	From (II)	) 10(	11)	Air Ro	otary L	Mud Rotary	□ Bored			
			10	0	19		🗖 Air Ha	mmer 🕻	Cable Tool	□ Jetted			
Completed	1-26-2	21	6 <sup>1</sup> / <sub>2</sub>	19	51	)	□ Other						
_											-		
From (ft)	To (ft)	Descrip	otion and color	of formation	on materia	1	8) Borel	nole Co	mpletion	🗆 Open H	lole 🗵	Straigh	t Wall
0	2	Top Sc	oil				Unde	r-reame	d 🛛 Grave	l Packed	] Other	. 0	
2	33	Yellow	/ Limestone				If Gravel Packed give the interval from ft. to ft.						ft.
33	210	Gray I	Limestone				Casing, Blank Pipe, and Well Screen Data						
210	229	Brown	Limestone				D.	New	Steel, Plastic,	etc.	Sett	ing (ft)	Gage
229	311	Gray I	Limestone				(in.)	Used	Screen Mfg.,	etc. if commercial	From	То	Screen
311	346	Gray S	Sandstone				4 1/2	Ν	Plastic		0	510	
346	358	Gray S	Sandstone & S	Sand Strips	5			Ν	Screen		470	490	.032
358	365	Gray S	Sandstone					Ν	Screen		390	430	.032
365	389	Gray S	Sandstone & S	Shale									
389	408	Gray S	Sand & Sands	tone			9) Ceme	enting I	Data				
408	429	Gray I	Limestone				Cementi	ng from _	<b>0</b> ft. t	o <u>20</u> ft	. # of sa	cks used	6
429	445	Gray S	Sandstone & S	Sand	<u>)</u>		ft. to ft. # of sacks used						
10) DI	(Use rever	se side of	well Owner's copy	y, II necessary	)		Method U	Jsed Ha	and Poured	D 111			
13) Plugged		Well plu	gged within 48	s hours			Cementing By Tom Arnold Drilling						50
Casing left in we	ell:	Cei	ment/Bentonite pla	aced in well:	<u> </u>		Distance to septic system field or other concentrated contamination 150 fi						1 <u>50</u> ft.
From (ft)	To (ff)	Fro	m (ft)	To (ff)	Sacks us	ed	Method of	verificati	on of above dis	stance <u>1ape</u>	Measu	re	
									mulation	ce round			
							10) Suri	ace Co	a Slah Installas	1			
14) Typopun	n Nono									l 11			
Turbine	$\prod_{i=1}^{n} \prod_{i=1}^{n} \prod_{j=1}^{n} \prod_{j=1}^{n} \prod_{j=1}^{n} \prod_{i=1}^{n} \prod_{j=1}^{n} \prod_{j$		Submer	sible 🗌	<b>C</b> vlinder		□ Specifi □ Pitless	Adapter I	Ised	ieu			
	<b>_</b> 300				• Cymaei			ved Alterr	ative Procedur	e Used			
Depth to pump b	owls cylinde	er iet etc		ft			11) Wat	er Leve	el				
15) Water To	est	, jet, etc.,		10.			Static leve	1	ft. below	Date /	1	/	
Typetest	Pump 🛛 B	ailer 🛛	Jetted 🗵 Estin	mated			Artesian F	low	gpm	n. Date /	1	/	
Yield: 20	gpm with		ft. drawdown a			01							
16) Water Q	uality						12) Pacl	kers		Туре		Depth	
Did you knowing	gly penetrate	any strata	which contain und	lesirable const	ituents?		Shale T	rap		470',390',2	290',20	,	
Use KINO If yes, did you submit a REPORT OF UNDESIRABLE WATER?													
Type of water	analycic mod	v v	Depth of Si	trata		_							
Company or	Individual'	s Name	(type or print)	Tom Arn	old Drillin	g	1		T	ic. No. 209	6		
Address 2750 South A. W. Grimes Blvd. City Round								Round Rock State Texas Zip 78664					
Signatura				1	1	c:.							
Lice	Licensed Driller/Pump Installer Date					ignature / / / Apprentice Date							

### IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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The last sentence specifies the means whereby you may, if you wish, assure that logs of your wells will be kept confidential.

From (ft.)	To (ft.)	Description and color of formation material
445	468	White Limestone & Sandstone
468	477	Gray Limestone & Shale
477	491	Gray Sand
491	510	Gray Sandstone

### Well Report

Attention Own Confidentiality on reverse side	ner: Privilege No of owner's co	tice opy.	Texas P.O. Box 121 H	<b>S Departm</b> Water We 157 Austin, To Email addres	Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.									
1) OWNER			A. WEL	L IDENTI	FICATION	N AN	AND LOCATION DATA							
Name Prairie Point	te Estates	Well 3	Address 2000 S. IH35	Suite #O11	1	City Rou	ind Rock	{		State Texas		Zip 78681		
2) WELL LO	CATION	I		<u>~~~~~</u>	-	1		-						
County			Physical Address			City				State		Zip		
Burnet			SW corner o	f CR 274 &	276	Bert	ertram Texas 78654							
3) Type of W	ork		Lat. 30°	45	02	Lon	ong. 098° 59 59 Grid # 57-16-9							
🗵 New Well	Deepo	ening	4) Proposed	Use (check)	tor <b>C</b>	Environ	mental Sc	oil Boring 🗖	Domestic	5)		N↑		
Reconditioni	ng		□ Industrial □	Irrigation	Injection		Public Sup	ply 🗖	De-watering	🗵 Testwell				
	0		If Public Supply	well, were plar	ns submitted to	o the T	INRCC?		es 🗆 No					
6) Drilling D	ate		Di	ameter of H	Iole		7) Drilli	ng Met	hod (check)	Driven				
Started	1.27	)1	Dia. (in)	From (ft)	To (ft	t)		atom F	Mud Potora					
Started_	1-2/-2		10	0	19	-)								
0 1 1 1	1 05 6		6 <sup>1</sup> ⁄	10	510		L Air Ha	mmer L						
Completed_	1-2/-2	21	0 /2	17	510		□ Other				-			
<b>F</b> (0)	<b>T</b> ( <b>C</b> )			<u> </u>					1.4		1 5		. 337 11	
From (ft)	10 (ft)	Descrip	otion and color	of formatio	n material		8) Borel	nole Co	mpletion		ole ⊵	Straigh	it Wall	
0	1	1 op So Vollow	)]] . Limostono					r-reame	a 🗆 Grave		J Other		0	
32	174	Grav I	imestone				If Gravel Packed give the interval from ft. to ft. Casing Blank Pine and Well Screen Data						π.	
174	100	Brown	Limestone				Casing	New	Steel, Plastic,	etc.	Sett	ing (ft)	Gage	
1/4	233	Grav I	limestone				Dia.	Or	Perf., Slotted,	etc.	Enom	Та	Casing	
233	233	Gray I Gray I	imestone &	Shale String			(in.) 4 1/2	N	Plastic	11 commercial	From	<u> </u>	Screen	
233	310	Gray S	Sandstone	share Strips			- 72	N	Screen		470	490	032	
310	340	Gray S	Sandstone & S	Shale Strins				N	Screen		390	430	032	
340	381	Gray S	Sandstone & S	Sand Strips				11	Serven		070	100		
381	386	White	Limestone				9) Ceme	enting I	Data		l			
386	427	Gray S	Sandstone & S	and Strips			Cementi	ng from	<b>0</b> ft. t	o <b>20</b> ft.	# of sa	icks used	6	
427	443	Gray I	Limestone					-	ft. 1	to ft.	# of sa	cks used		
	(Use rever	se side of V	Well Owner's copy	y, If necessary)			Method Used Hand Poured							
13) Plugged		Well plu	gged within 48	3 hours			Cementing By Tom Arnold Drilling							
Casing left in we	ell:	Cei	ment/Bentonite pla	aced in well:			Distance to septic system field or other concentrated contamination 150						1 <u>50</u> ft.	
From (ft)	To (ft)	Fro	m (ft)	To (ft)	Sacks use	d	Method of	verificati	ion of above di	stance <u>Tape</u>	Measu	re		
							*None V	Vithin	I his Distan	ce Found				
							10) Suri	face Co	mpletion					
14) T	Non a							ed Surfac	e Slab Installed	1				
14) Typepun	np None		Submar	sible 🗖	Culinder			ied Surfac	ce Sleeve Instal	led				
$\square$ Other					Cyllinder			red Alterr	useu native Procedur	e Used				
Depth to pump h	owls cylinde	er iet etc		ft			11) Wat	er Leve		e osea				
15) Water To	est	<i>,</i> , <i>jci</i> , <i>cic.</i> ,		11.			Static leve		ft helow	Date /		1		
Typetest	Pump DB	ailer 🛛	Jetted 🗵 Estin	nated			Artesian F	low	n. oelo n	n. Date /		/		
Yield: 20	gpm with		ft. drawdown at	fter	hrs.				8r**					
16) Water Q	uality						12) Pacl	kers		Type		Depth		
Did you knowing	gly penetrate	any strata	which contain und	lesirable consti	tuents?		Shale T	rap		470',390',2	290',20	),		
See														
Type of water Was a chemical	analysis mod	$\sim \square \mathbf{v}$	Depth of St	rata		-								
Company or	Individual	s Name I	(type or print)	Tom Arno	ld Drilling	,	I		T	ic No 209	6			
Address 27	50 South 4	$\mathbf{W}$	rimes Blvd.		City 1	, Rour	nd Rock		Sta	te Texas	Zip 78664			
Signature														
Lice	Iccensed Driller/Pump Installer Date						ignature / / / Apprentice Date					·		

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The last sentence specifies the means whereby you may, if you wish, assure that logs of your wells will be kept confidential.

From (ft.)	To (ft.)	Description and color of formation material
443	450	Green & Red Limestone & Shale
450	471	Gray Shale
471	488	Gray Sand
488	510	<b>Gray Sandstone &amp; Limestone</b>

### Well Report

Attention Owr Confidentiality on reverse side	ner: Privilege No of owner's co	tice opy.	Texas P.O. Box 12: I	<b>Departr</b> Water W 157 Austin, 1 Email addre	<b>ice</b> <i>np In</i> (512 (512 (512 (512) (	<b>cense and Regulation</b> <i>b Installer Program</i> 512) 463-7880 FAX (512) 463-8616 803-9202 1@license.state.tx.us <b>CPORT</b>					leted ment <sup>7</sup> s well.		
1) OWNER			A. WEL	L IDENTI	FICATIO	N Al	AND LOCATION DATA						
Name Prairie Point	te Estates	Well 4	Address 2000 S. IH35	Suite #O1	1	City Ro	und Rock	{		State Texas		Zip 78681	
2) WELL L (	CATION	1		<u>~ ~ ~ ~ ~ ~</u>		1							
County			Physical Address			City				State		Zip	
Burnet			SW corner o	f CR 274 &	& 276	Bei	ertram Texas 786						
3) Type of W	ork		Lat. 30°	44	44	Lo	ong. 098° 00 04 Grid # 57-16-9						
🗵 New Well	■ New Well □ Deepening 4) Proposed Use (check) □ Monitor								oil Boring 🗖	Domestic	5)		N↑
C Reconditionit	ng		□ Industrial □	Irrigation	□ Injection		Public Supp	ply 🗖	De-watering	X Testwell			
			If Public Supply	well, were pla	ins submitted t	o the	TNRCC?		es 🛛 No				
6) Drilling D	ate		Di	ameter of	Hole		7) Drilli	ng Met	hod (check)	Driven			
Started	2_1_2	1	Dia. (in)	From (ft)	To (f	t)	X Air Ro	otary Γ	Mud Rotary	□ Bored			
Started_	2-1-2	<u> </u>	10	0	19	/		лагу <b>с</b> Г	Cable Teel				
Comulated	212	1	6 1/2	19	470								
Completed	2-1-2	1	0 / 2	17							-		
<b>E</b> ns. ( <b>A</b> )	$T_{-}(\Phi)$	Dereil					0) Devel	ala Ca	1-4		-1- IV	C 64	4 117-11
	10 (II) 1	Top Sc		of formatio	on material		o) borer	iole Co	d D Grave		l Other	a Straign	it wall
1	19	Yellow	z Limestone				If Gravel I	Packed av	$u \square Olave$		ft to		Ĥ
19	208	Grav I	Limestone				Casing. Blank Pipe, and Well Screen Data						п.
208	244	Grav I	Limestone & S	Shale				New	Steel, Plastic,	etc.	Sett	ing (ft)	Gage
244	346	Gray I	Limestone				Dia. (in.)	Or Used	Perf., Slotted, Screen Mfg.,	etc. if commercial	From	То	Casing Screen
346	350	Gray S	Sandstone				4 <sup>1</sup> / <sub>2</sub>	N	Plastic		0	510	
350	361	White	& Brown Lin	nestone				Ν	Screen		450	470	.032
361	378	White	Sandstone &	Sand				Ν	Screen		390	350	.032
378	391	Gray S	Sand & Sands	tone									
391	400	Gray I	Limestone & S	Shale			9) Ceme	enting I	Data	•••			
400	410	White Crow I	& Gray Lime	stone			Cementi	ng from _	<u> </u>	o <u>20</u> ft.	# of sa	icks used	6
410	(Use rever	se side of	Well Owner's copy	v. If necessarv	)		ft. toft. # of sacks used						
13) Plugged		Well plu	gged within 48	hours	)		Camenting By Tom Arnold Drilling						
Casing left in we	-11- -	Cer	ment/Bentonite nl	aced in well			Distance to sentic system field or other concentrated contamination 150 t						150 ft
From (ft)	To (ft)	Fro	m (ft)	To (ft)	Sacks use	ed	Method of verification of above distance <b>Tape Measure</b>						
							*None V	Vithin '	This Distan	ce Found			
							10) Surf	face Co	mpletion				
							□ Specifi	ed Surfac	e Slab Installed	1			
14) Typepun	np None		_				Specif	ied Surfac	ce Sleeve Instal	led			
	⊔ Jet			sible L	Cylinder			Adapter U	Used	TT 1			
	1 1 1	•		0			11) Wet	ed Alterr	ative Procedur	e Used			
Depth to pump b	owls, cylinde	er, jet, etc.,		ft.			Statia lawa		ft halaw	Data /		1	
Typetest □	$\frac{1}{2} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^$	ailer 🗖	letted X Estin	mated			Artesian F	1 10w	II. below	Date /		/	
Yield: 20	gpm with		ft. drawdown a	fter	hrs.		Ancolairi	10 W	gpn	I. Date <u>,</u>		,	
16) Water Q	uality						12) Pacl	kers		Type		Depth	
Did you knowing	gly penetrate	any strata	which contain und	lesirable const	ituents?		Shale T	rap		450',340',1	150',20	),	
See													
Type of water Was a chemical	analysis made	$\sim 2$	Depth of Si es X No	rata		-							
Company or	Individual'	s Name	(type or print)	Tom Arn	old Drilling	Ţ	1		I	ic. No. 209	6		
Address 27:	50 South A	4. W. G	rimes Blvd.	Round Rock State Texas Zip 78664									
Signature				1		Sie	nature				/		/
Lice	Licensed Driller/Pump Installer Date						nature	Арг	orentice			Date	·

### IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

Section 32.005 of the Texas Water Code, concerning confidential information in the Reporting of Well Logs, reads as follows:

"Every licensed driller drilling, deepening, or otherwise altering a water well within this State shall make and keep a legible and accurate well log in accordance with the department rule on forms prescribed by the department. Not later than the 60th day after the completion or cessation of drilling, deepening, or otherwise altering the well, the licensed driller shall deliver or transmit by certified mail a copy of the well log to the department and to the owner of the well or the person for whom the well was drilled. Each copy of a well log, other than a department copy, must include the name, mailing address, and telephone number of the department. The well log shall be recorded at the time of drilling, and must show the depth, thickness, and character of the strata penetrated, the location of water-bearing strata, the depth, size, and character of casing installed, and any other information required by department rule. The department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner or person for whom the well was drilled.

The last sentence specifies the means whereby you may, if you wish, assure that logs of your wells will be kept confidential.

From (ft.)	To (ft.)	Description and color of formation material
420	430	Gray Sandstone
430	450	White Sandstone
450	465	Gray Sand
465	470	Gray Sandstone

### Well Report

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.						ense and Regulation nstaller Program 2) 463-7880 FAX (512) 463-8616 03-9202 2) license.state.tx.usThis form must be completed and filed with the department and owner within 60 days 						leted ment 's well.		
1) OWNER A. WELL IDENTIFICATION AND LOCATION DATA														
Name Address City Projrie Pointe Estates Well 5 2000 S 1H35 Suite #O11 Pou						, und Rock	State Texas				Zip 78681			
2) WELL 1 (		I	2000 87 1100		-	110		-		1 01100		10001		
County	JUANON		Physical Address			City	7			State		Zip		
Burnet			SW corner o	f CR 274 & 276 Ber			rtram	rtram				78654		
3) Type of W	ork		Lat. 30°	44	39	Lo	ong. 098	ng. 098° 00 02			7-16-9	6-9		
X New Well	Deep	ening	4) Proposed Use (check)				Environ	il Boring	Domestic	5)		N↑		
	<b>—</b> 2009	uning	Industrial	J Irrigation	□ Injection		Dublic Sup	ntv 🗖	De watering	X Tectwell	Í			
	ng					. <b>_</b>								
6) Drilling D	ata		If Public Supply	well, were pla	ell, were plans submitted to the TNRCC?					_	_			
0) Di liling D	ale				(0)		ng Met	nou (cneck)	☐ Driven					
Started	1-29-2	21	Dia. (in)	From (ft	) 10	(ff)	X Air Ro	otary 🛛	Mud Rotary	Bored				
			10	0	1	9	🗖 Air Ha	mmer 🛛	Cable Tool	□ Jetted				
Completed	1-29-2	21	6 1/2	19	47	<b>'</b> 0	□ Other							
								1			-			
From (ft)	To (ft)	Descrit	tion and colo	r of formati	on materia	al	8) Borel	nole Co	mpletion	🗆 Open H	ole 🗵	] Straigh	t Wall	
0	1	Top Sc	oil				Under	r-reame	d 🛛 Grave	l Packed	] Other			
1	4	Brown	Limestone				If Gravel H	If Gravel Packed give the interval from ft to ft						
4	22	Yellow	/ Limestone				Casing	, Blank	Pipe, and	Well Screer	1 Data			
22	225	Gray I	Limestone					New	Steel, Plastic,	etc.	Sett	ing (ft)	Gage	
225	225     250     Gray Limestone       225     250     Gray Limestone & Shale							Or Used	Perf., Slotted, Screen Mfg.,	etc. if commercial	From	То	Casing Screen	
250	307	Gray S	Sandstone				4 ½	Ν	Plastic		0	470		
307	346	Gray &	& White & Sa	ndstone				Ν	Screen		450	430	.032	
346	386	Gray S	Sandstone & S	Sand Strips	8			Ν	Screen		390	350	.032	
386	386 390 Gray Sand													
390	402	Green	Limestone &	Shale			9) Ceme	enting I	Data					
402 420 White & Gray Limestone							Cementi	ng from	<b>0</b> ft. t	o <u>20</u> ft	. # of sa	cks used	6	
420 430 Gray Limestone & Shale							_		ft. t	o ft	. # of sa	cks used		
	(Use rever	se side of	Well Owner's cop	y, If necessary	7)		Method U	Jsed Ha	and Poured					
13) Plugged		Well plu	gged within 4	8 hours			Cementir	ng By <u>T</u>	om Arnold	Drilling				
Casing left in we	ell:	Cei	ment/Bentonite pl	aced in well:			Distance to	Distance to septic system field or other concentrated contamination <b>150</b> ft.						
From (ft)	To (ft)	Fro	m (ft)	To (ft)	Sacks u	sed	Nethod of verification of above distance 1 ape Nieasure							
		+					"None v	*None Within This Distance Found						
		+					[10] Suri	ace Co	mpletion	1				
14) Typopun	n None						Specified Surface Shares Lastellad							
Turbine	IP None		Submer	sible	Cylinder		Pitless Adapter Used							
	- 500						Approved Alternative Procedure Used							
Depth to pump h	owls cylinde	er iet etc		ft			11) Water Level							
15) Water Test						Static level ft. below Date / /								
Typetest  Pump  Bailer  Jetted  Fstimated						Artesian Flow gpm. Date / /								
Yield: 20	Yield: 20 gpm with ft. drawdown after hrs.								01					
16) Water Q	uality						12) Packers Type Depth							
Did you knowingly penetrate any strata which contain undesirable constituents?							Shale Trap         450',350',190',20'							
□ Yes ⊠NO If yes, did you submit a REPORT OF UNDESIRABLE WATER?														
Type of water Depth of Strata														
Company or Individual's Name (type or print) Tom Arnold Drilling							<b>I</b>		I	ic. No. 209	6			
Address 2750 South A. W. Grimes Blvd.						und Rock State Texas Zip 78664								
Signature	Signature / / Sim						onature				/		/	
Lice	Licensed Driller/Pump Installer Date							Арг	orentice		1	Date		

### IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

Section 32.005 of the Texas Water Code, concerning confidential information in the Reporting of Well Logs, reads as follows:

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The last sentence specifies the means whereby you may, if you wish, assure that logs of your wells will be kept confidential.

From (ft.)	To (ft.)	Description and color of formation material
430	433	Gray & White Limestone
433	451	White & Gray Sand
451	470	Gray Limestone

# <u>Appendix D</u>

Aquifer Test Data and Analysis



### Aquifer Test

### Prairie Pointe Estates Well No. 1 - Aquifer Test (March 3, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 1 Temperature (F)	PW Well No. 1 Water Level (ft bgs)	PW Well No. 1 Water Level (ft MSL)	PW Well No. 1 Drawdown (ft)	PW Well No. 1 Pump Rate (gpm)	PW Well No. 1 Specific Capacity (gpm/ft)	Comments	OW Well No. 2 Water Level (ft MSL)	OW Well No. 2 Drawdown (ft)
3/3/21 1:36 PM	0		75.91	354.15	765.85	0.00			Pump Start	763.39	0.00
3/3/21 1:37 PM	1		75.42	358.73	761.27	4.58	12	2.62	Meter: 84.9 gallons	763.38	0.01
3/3/21 1:38 PM	2		74.76	361.28	758.72	7.13	12	1.68		763.40	-0.01
3/3/21 1:39 PM	3		74.26	362.18	757.82	8.03	12	1.49		763.41	-0.02
3/3/21 1:40 PM	4		73.89	362.51	757.49	8.36	12	1.44		763.40	-0.01
3/3/21 1:41 PM	5		73.54	362.89	757.11	8.74	12	1.37		763.41	-0.02
3/3/21 1:42 PM	6		73.32	363.00	757.00	8.85	12	1.36		763.40	-0.01
3/3/21 1:43 PM	7		73.12	363.25	756.75	9.10	12	1.32		763.40	-0.01
3/3/21 1:44 PM	8		73.00	363.45	756.55	9.30	12	1.29		763.39	0.00
3/3/21 1:45 PM	9		72.86	363.61	756.39	9.46	12	1.27		763.37	0.02
3/3/21 1:46 PM	10		72.79	363.60	756.40	9.45	12	1.27		763.39	0.00
3/3/21 1:47 PM	11		72.71	363.76	756.24	9.61	12	1.25		763.30	0.09
3/3/21 1:48 PM	12		72.63	363.99	756.01	9.84	12	1.22		763.32	0.07
3/3/21 1:49 PM	13		72.60	363.96	756.04	9.81	12	1.22		763.33	0.06
3/3/21 1:50 PM	14		72.59	364.12	755.88	9.97	12	1.20		763.32	0.07
3/3/21 1:51 PM	15		72.55	364.23	755.78	10.08	12	1.19	pH: 8.23/ EC: 0.88	763.33	0.06
3/3/21 1:56 PM	20		72.42	364.45	755.56	10.30	12	1.17	pH: 8.21/ EC: 0.89	763.26	0.13
3/3/21 2:01 PM	25		72.40	364.73	755.27	10.58	12	1.13	pH: 8.30/ EC: 0.88	763.22	0.17
3/3/21 2:06 PM	30		72.36	364.96	755.04	10.81	12	1.11	pH: 8.15/ EC: 0.88	763.17	0.22
3/3/21 2:11 PM	35		72.38	365.14	754.86	10.99	12	1.09	pH: 8.56/ EC: 0.88	763.15	0.24
3/3/21 2:16 PM	40		72.38	365.35	754.65	11.20	12	1.07	pH: 8.15/ EC: 0.89	763.09	0.30
3/3/21 2:21 PM	45		72.36	365.41	754.59	11.26	12	1.07	pH: 8.25/ EC: 0.89	763.04	0.35
3/3/21 2:36 PM	60		72.33	365.95	754.05	11.80	12	1.02	pH: 8.22/ EC: 0.88	762.95	0.44
3/3/21 2:51 PM	75		72.34	366.27	753.74	12.12	12	0.99	pH: 8.50/ EC: 0.88	762.82	0.57
3/3/21 3:06 PM	90		72.33	366.11	753.89	11.96	12	1.00	pH: 8.36/ EC: 0.88	762.75	0.64
3/3/21 3:21 PM	105		72.39	366.32	753.68	12.17	12	0.99	pH: 8.86/ EC: 0.88	762.66	0.73
3/3/21 3:36 PM	120		72.30	366.57	753.43	12.42	12	0.97	pH: 8.15/ EC: 0.88	762.60	0.79
3/3/21 4:06 PM	150		72.32	366.97	753.03	12.82	12	0.94	pH: 8.11/ EC: 0.90	762.44	0.94
3/3/21 4:36 PM	180		72.31	367.24	752.76	13.09	12	0.92	pH: 8.07/ EC: 0.89	762.33	1.06
3/3/21 5:06 PM	210		72.27	367.97	752.03	13.82				762.23	1.16
3/3/21 5:36 PM	240		72.23	368.63	751.37	14.48				762.10	1.29
3/3/21 6:36 PM	300		72.29	369.68	750.32	15.53				761.88	1.51
3/3/21 7:36 PM	360		72.31	370.55	749.45	16.40				761.69	1.70
3/3/21 8:36 PM	420		72.35	371.23	748.77	17.08				761.46	1.93
3/3/21 9:36 PM	480		72.30	371.94	748.06	17.79				761.37	2.01

Note: bgs = below ground surfaceColumn Pipe Diameter = 1 1/4 inchesHorsepower = 2 HPMSL = Mean Sea LevelPump Setting = 460 ftEC=Electrical conductivity (mS/cm)

### Prairie Pointe Estates Well No. 1 - Aquifer Test (March 3, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 1 Temperature (F)	PW Well No. 1 Water Level (ft bgs)	PW Well No. 1 Water Level (ft MSL)	PW Well No. 1 Drawdown (ft)	PW Well No. 1 Pump Rate (gpm)	PW Well No. 1 Specific Capacity (gpm/ft)	Comments	OW Well No. 2 Water Level (ft MSL)	OW Well No. 2 Drawdown (ft)
3/3/21 10:36 PM	540		72.31	372.43	747.57	18.28				761.22	2.17
3/3/21 11:36 PM	600		72.29	373.26	746.74	19.11				761.13	2.26
3/4/21 12:36 AM	660		72.28	373.89	746.11	19.74				761.02	2.37
3/4/21 1:36 AM	720		72.33	374.38	745.62	20.23				760.91	2.48
3/4/21 2:36 AM	780		72.35	374.84	745.16	20.69				760.81	2.58
3/4/21 3:36 AM	840		72.29	375.45	744.55	21.30				760.70	2.69
3/4/21 4:36 AM	900		72.33	375.82	744.18	21.67				760.62	2.76
3/4/21 5:36 AM	960		72.35	376.10	743.91	21.95				760.53	2.86
3/4/21 6:36 AM	1,020		72.31	376.58	743.42	22.43				760.51	2.88
3/4/21 7:36 AM	1,080		72.33	376.99	743.01	22.84				760.37	3.02
3/4/21 8:36 AM	1,140		72.34	377.25	742.75	23.10				760.33	3.06
3/4/21 9:36 AM	1,200		72.32	377.42	742.59	23.27				760.26	3.13
3/4/21 10:36 AM	1,260		72.37	377.69	742.31	23.54				760.15	3.24
3/4/21 11:36 AM	1,320		72.35	377.97	742.03	23.82				760.08	3.31
3/4/21 12:36 PM	1,380		72.33	378.14	741.86	23.99				760.06	3.33
3/4/21 1:36 PM	1,440		72.30	378.32	741.68	24.17				759.95	3.44
3/4/21 1:48 PM	1,452	0	72.34	378.42	741.58	24.27	11	0.45	Pump Stop	759.91	3.48
3/4/21 1:49 PM	1,453	1	72.38	372.64	747.36	18.49			Meter: 16,989.7 gallons	759.91	3.48
3/4/21 1:50 PM	1,454	2	72.79	368.55	751.45	14.40			Avg. Pump Rate: 12	759.89	3.50
3/4/21 1:51 PM	1,455	3	73.34	366.92	753.08	12.77				759.90	3.49
3/4/21 1:52 PM	1,456	4	73.78	366.00	754.00	11.85				759.91	3.48
3/4/21 1:53 PM	1,457	5	74.11	365.33	754.67	11.18				759.92	3.47
3/4/21 1:54 PM	1,458	6	74.25	364.95	755.05	10.80				759.89	3.50
3/4/21 1:55 PM	1,459	7	74.49	364.45	755.55	10.30				759.91	3.48
3/4/21 1:56 PM	1,460	8	74.76	364.28	755.72	10.13				759.93	3.46
3/4/21 1:57 PM	1,461	9	74.88	363.87	756.14	9.72				759.94	3.45
3/4/21 1:58 PM	1,462	10	74.87	363.70	756.30	9.55				759.92	3.47
3/4/21 1:59 PM	1,463	11	74.84	363.36	756.64	9.21				759.93	3.46
3/4/21 2:00 PM	1,464	12	74.82	363.12	756.88	8.97				759.97	3.42
3/4/21 2:01 PM	1,465	13	74.77	362.98	757.02	8.83				759.95	3.44
3/4/21 2:02 PM	1,466	14	74.71	362.81	757.19	8.66				760.01	3.38
3/4/21 2:03 PM	1,467	15	74.59	362.59	757.41	8.44				759.98	3.41
3/4/21 2:08 PM	1,472	20	74.13	361.71	758.29	7.56				760.05	3.34
3/4/21 2:13 PM	1,477	25	73.64	361.07	758.93	6.92				760.11	3.28
3/4/21 2:18 PM	1,482	30	73.20	360.53	759.47	6.38				760.16	3.23

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP MSL = Mean Sea Level

Pump Setting = 460 ft EC=Electrical conductivity (mS/cm)
### Prairie Pointe Estates Well No. 1 - Aquifer Test (March 3, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 1 Temperature (F)	PW Well No. 1 Water Level (ft bgs)	PW Well No. 1 Water Level (ft MSL)	PW Well No. 1 Drawdown (ft)	PW Well No. 1 Pump Rate (gpm)	PW Well No. 1 Specific Capacity (gpm/ft)	Comments	OW Well No. 2 Water Level (ft MSL)	OW Well No. 2 Drawdown (ft)
3/4/21 2:23 PM	1,487	35	72.91	360.13	759.87	5.98				760.23	3.16
3/4/21 2:28 PM	1,492	40	72.75	359.97	760.03	5.82				760.29	3.10
3/4/21 2:33 PM	1,497	45	72.61	359.52	760.48	5.37				760.33	3.06
3/4/21 2:48 PM	1,512	60	72.47	358.74	761.26	4.59				760.49	2.90
3/4/21 3:03 PM	1,527	75	72.41	358.31	761.69	4.16				760.63	2.76
3/4/21 3:18 PM	1,542	90	72.36	357.85	762.15	3.70				760.76	2.63
3/4/21 3:33 PM	1,557	105	72.27	357.61	762.39	3.46				760.87	2.52
3/4/21 3:48 PM	1,572	120	72.27	357.31	762.69	3.16				760.97	2.42
3/4/21 4:18 PM	1,602	150	72.32	356.92	763.09	2.77				761.17	2.22
3/4/21 4:48 PM	1,632	180	72.27	356.51	763.49	2.36				761.35	2.04
3/4/21 5:18 PM	1,662	210	72.31	356.15	763.85	2.00				761.44	1.95
3/4/21 5:48 PM	1,692	240	72.25	355.89	764.11	1.74				761.62	1.77
3/4/21 6:48 PM	1,752	300	72.32	355.61	764.39	1.46				761.83	1.56
3/4/21 7:48 PM	1,812	360	72.34	355.30	764.70	1.15				762.00	1.39
3/4/21 8:48 PM	1,872	420	72.34	355.12	764.88	0.97				762.15	1.24
3/4/21 9:48 PM	1,932	480	72.32	354.82	765.18	0.67				762.29	1.10
3/4/21 10:48 PM	1,992	540	72.33	354.85	765.15	0.70				762.41	0.98
3/4/21 11:48 PM	2,052	600	72.36	354.69	765.31	0.54				762.48	0.91
3/5/21 12:48 AM	2,112	660	72.38	354.54	765.46	0.39				762.60	0.79
3/5/21 1:48 AM	2,172	720	72.40	354.37	765.63	0.22				762.64	0.75
3/5/21 2:48 AM	2,232	780	72.52	354.26	765.74	0.11				762.68	0.71
3/5/21 3:48 AM	2,292	840	72.55	354.22	765.78	0.07				762.74	0.65
3/5/21 4:48 AM	2,352	900	72.61	354.16	765.84	0.01				762.82	0.57
3/5/21 5:48 AM	2,412	960	72.62	354.13	765.87	-0.02				762.85	0.54
3/5/21 6:48 AM	2,472	1,020	72.60	354.20	765.80	0.05				762.93	0.46
3/5/21 7:48 AM	2,532	1,080	72.61	354.03	765.97	-0.12				762.96	0.43
3/5/21 8:48 AM	2,592	1,140	72.57	353.99	766.01	-0.16				763.03	0.36
3/5/21 9:48 AM	2,652	1,200	72.60	353.99	766.01	-0.16				763.02	0.37
3/5/21 10:48 AM	2,712	1,260	72.57	353.85	766.15	-0.30				763.08	0.31
3/5/21 11:48 AM	2,772	1,320	72.54	353.92	766.08	-0.23				763.07	0.32
3/5/21 12:48 PM	2,832	1,380	72.55	353.93	766.07	-0.22				763.12	0.27
3/5/21 1:48 PM	2,892	1,440	72.51	353.95	766.05	-0.20				763.15	0.24





# Aquifer Test

#### Prairie Pointe Estates Well No. 3 - Aquifer Test (March 9, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 3 Temperature (F)	PW Well No. 3 Water Level (ft bgs)	PW Well No. 3 Water Level (ft MSL)	PW Well No. 3 Drawdown (ft)	PW Well No. 3 Pump Rate (gpm)	PW Well No. 3 Specific Capacity (gpm/ft)	Comments	OW Well No. 2 Water Level (ft MSL)	OW Well No. 2 Drawdown (ft)
3/9/21 9:18 AM	0		72.43	351.41	763.59	0.00			Pump Start	763.21	0.00
3/9/21 9:19 AM	1		72.46	352.57	762.43	1.16	13	11.18	Meter: 16,989.7 gallons	763.22	-0.01
3/9/21 9:20 AM	2		72.47	360.18	754.82	8.77	12	1.37		763.19	0.02
3/9/21 9:21 AM	3		72.50	361.91	753.09	10.50	12	1.14		763.19	0.02
3/9/21 9:22 AM	4		72.50	362.60	752.40	11.19	12	1.07		763.21	0.00
3/9/21 9:23 AM	5		72.49	363.26	751.74	11.85	12	1.01		763.20	0.01
3/9/21 9:24 AM	6		72.48	363.84	751.16	12.43	12	0.97		763.19	0.02
3/9/21 9:25 AM	7		72.46	364.26	750.74	12.85	12	0.93		763.19	0.02
3/9/21 9:26 AM	8		72.43	364.51	750.49	13.11	12	0.92		763.20	0.01
3/9/21 9:27 AM	9		72.41	364.73	750.27	13.32	12	0.90		763.21	0.00
3/9/21 9:28 AM	10		72.40	364.97	750.03	13.56	11	0.81		763.19	0.02
3/9/21 9:29 AM	11		72.35	365.04	749.96	13.63	11	0.81		763.21	0.00
3/9/21 9:30 AM	12		72.36	365.21	749.79	13.80	11	0.80		763.18	0.03
3/9/21 9:31 AM	13		72.35	365.32	749.68	13.91	11	0.79		763.19	0.02
3/9/21 9:32 AM	14		72.31	365.25	749.75	13.84	11	0.79		763.20	0.01
3/9/21 9:33 AM	15		72.33	365.43	749.57	14.02	11	0.78		763.19	0.02
3/9/21 9:38 AM	20		72.24	365.52	749.48	14.11	11	0.78		763.15	0.06
3/9/21 9:43 AM	25		72.21	365.84	749.16	14.43	11	0.76	pH: 8.11/ EC: 1.12	763.14	0.07
3/9/21 9:48 AM	30		72.18	366.43	748.57	15.02	11	0.73	pH: 8.59/ EC: 1.11	763.13	0.08
3/9/21 9:53 AM	35		72.09	366.85	748.15	15.44	11	0.71	pH: 8.27/ EC: 1.09	763.12	0.09
3/9/21 9:58 AM	40		72.10	367.20	747.80	15.79	11	0.70	pH: 8.75/ EC: 1.11	763.08	0.13
3/9/21 10:03 AM	45		72.05	368.75	746.25	17.34	11	0.63	pH: 8.18/ EC: 1.10	763.08	0.13
3/9/21 10:18 AM	60		72.05	370.16	744.84	18.76	11	0.59	pH: 8.15/ EC: 1.12	763.02	0.19
3/9/21 10:33 AM	75		72.06	370.30	744.70	18.89	11	0.58	pH: 8.20/ EC: 1.12	762.94	0.27
3/9/21 10:48 AM	90		72.12	370.77	744.23	19.37	11	0.57	pH: 8.06/ EC: 1.11	762.87	0.34
3/9/21 11:03 AM	105		72.07	370.60	744.40	19.19	11	0.57	pH: 8.80/ EC: 1.13	762.75	0.46
3/9/21 11:18 AM	120		72.08	370.92	744.08	19.51	11	0.56	pH: 8.03/ EC: 1.11	762.69	0.52
3/9/21 11:48 AM	150		72.04	371.28	743.72	19.87	11	0.55	pH: 8.16/ EC: 1.11	762.55	0.66
3/9/21 12:18 PM	180		72.06	371.53	743.47	20.12	11	0.55	pH: 8.24/ EC: 1.11	762.46	0.75
3/9/21 12:48 PM	210		72.03	371.93	743.07	20.52				762.33	0.88
3/9/21 1:18 PM	240		72.02	372.18	742.82	20.78				762.26	0.95
3/9/21 2:18 PM	300		72.02	372.31	742.69	20.90				762.07	1.14
3/9/21 3:18 PM	360		72.02	371.78	743.22	20.37				761.92	1.29
3/9/21 4:18 PM	420		72.01	372.36	742.64	20.95				761.80	1.41
3/9/21 5:18 PM	480		72.04	372.50	742.50	21.09				761.67	1.54

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP MSL = Mean Sea Level

Pump Setting = 460 ft EC=Electrical conductivity (mS/cm)

### Prairie Pointe Estates Well No. 3 - Aquifer Test (March 9, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 3 Temperature (F)	PW Well No. 3 Water Level (ft bgs)	PW Well No. 3 Water Level (ft MSL)	PW Well No. 3 Drawdown (ft)	PW Well No. 3 Pump Rate (gpm)	PW Well No. 3 Specific Capacity (gpm/ft)	Comments	OW Well No. 2 Water Level (ft MSL)	OW Well No. 2 Drawdown (ft)
3/9/21 6:18 PM	540		72.04	372.88	742.13	21.47				761.61	1.60
3/9/21 7:18 PM	600		72.07	372.96	742.04	21.55				761.48	1.73
3/9/21 8:18 PM	660		72.05	373.18	741.82	21.77				761.42	1.79
3/9/21 9:18 PM	720		72.06	373.30	741.70	21.89				761.34	1.87
3/9/21 10:18 PM	780		72.06	373.67	741.34	22.26				761.27	1.94
3/9/21 11:18 PM	840		72.02	373.89	741.11	22.49				761.17	2.04
3/10/21 12:18 AM	900		72.02	374.05	740.95	22.64				761.13	2.08
3/10/21 1:18 AM	960		72.06	373.93	741.07	22.52				761.11	2.10
3/10/21 2:18 AM	1,020		72.05	374.02	740.98	22.61				760.99	2.22
3/10/21 3:18 AM	1,080		72.03	374.00	741.00	22.59				760.98	2.23
3/10/21 4:18 AM	1,140		72.03	373.56	741.44	22.15				760.96	2.25
3/10/21 5:18 AM	1,200		72.06	373.85	741.15	22.44				760.91	2.30
3/10/21 6:18 AM	1,260		72.03	373.63	741.37	22.23				760.85	2.36
3/10/21 7:18 AM	1,320		72.09	373.73	741.27	22.32				760.85	2.36
3/10/21 8:18 AM	1,380		72.04	373.78	741.22	22.37				760.83	2.38
3/10/21 9:18 AM	1,440		72.08	373.93	741.07	22.52				760.79	2.42
3/10/21 9:25 AM	1,447	0	72.15	373.90	741.10	22.49	11	0.49	Pump Stop	760.76	2.45
3/10/21 9:26 AM	1,448	1	72.08	367.27	747.73	15.86			Meter: 33,421.7 gallons	760.79	2.42
3/10/21 9:27 AM	1,449	2	72.31	362.82	752.19	11.41			Avg. Pump Rate: 11	760.80	2.41
3/10/21 9:28 AM	1,450	3	72.47	361.28	753.72	9.87				760.78	2.43
3/10/21 9:29 AM	1,451	4	72.59	360.55	754.45	9.14				760.80	2.41
3/10/21 9:30 AM	1,452	5	72.70	360.13	754.88	8.72				760.78	2.43
3/10/21 9:31 AM	1,453	6	72.81	359.80	755.21	8.39				760.80	2.41
3/10/21 9:32 AM	1,454	7	72.89	359.58	755.42	8.17				760.79	2.42
3/10/21 9:33 AM	1,455	8	72.95	359.48	755.52	8.07				760.80	2.41
3/10/21 9:34 AM	1,456	9	73.04	359.32	755.68	7.91				760.79	2.42
3/10/21 9:35 AM	1,457	10	73.06	359.16	755.84	7.75				760.77	2.44
3/10/21 9:36 AM	1,458	11	73.05	358.97	756.03	7.56				760.79	2.42
3/10/21 9:37 AM	1,459	12	73.11	358.85	756.15	7.44				760.78	2.43
3/10/21 9:38 AM	1,460	13	73.12	358.66	756.34	7.25				760.84	2.38
3/10/21 9:39 AM	1,461	14	73.12	358.69	756.31	7.28				760.80	2.41
3/10/21 9:40 AM	1,462	15	73.14	358.61	756.39	7.20				760.78	2.43
3/10/21 9:45 AM	1,467	20	73.21	358.29	756.72	6.88				760.78	2.43
3/10/21 9:50 AM	1,472	25	73.26	358.00	757.00	6.59				760.74	2.47
3/10/21 9:55 AM	1,477	30	73.31	357.82	757.18	6.41				760.78	2.43

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP

MSL = Mean Sea Level

Pump Setting = 460 ft EC=Electrical conductivity (mS/cm)

### Prairie Pointe Estates Well No. 3 - Aquifer Test (March 9, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 3 Temperature (F)	PW Well No. 3 Water Level (ft bgs)	PW Well No. 3 Water Level (ft MSL)	PW Well No. 3 Drawdown (ft)	PW Well No. 3 Pump Rate (gpm)	PW Well No. 3 Specific Capacity (gpm/ft)	Comments	OW Well No. 2 Water Level (ft MSL)	OW Well No. 2 Drawdown (ft)
3/10/21 10:00 AM	1,482	35	73.36	357.61	757.39	6.20				760.83	2.38
3/10/21 10:05 AM	1,487	40	73.42	357.34	757.66	5.93				760.85	2.36
3/10/21 10:10 AM	1,492	45	73.50	357.31	757.69	5.90				760.87	2.34
3/10/21 10:25 AM	1,507	60	73.60	356.60	758.41	5.19				760.92	2.29
3/10/21 10:40 AM	1,522	75	73.42	356.32	758.68	4.91				761.02	2.19
3/10/21 10:55 AM	1,537	90	73.03	356.06	758.94	4.65				761.07	2.14
3/10/21 11:10 AM	1,552	105	72.87	355.95	759.05	4.54				761.12	2.09
3/10/21 11:25 AM	1,567	120	72.76	355.72	759.29	4.31				761.20	2.01
3/10/21 11:55 AM	1,597	150	72.71	355.31	759.69	3.90				761.29	1.92
3/10/21 12:25 PM	1,627	180	72.68	355.00	760.00	3.59				761.40	1.81
3/10/21 12:55 PM	1,657	210	72.60	354.88	760.13	3.47				761.47	1.74
3/10/21 1:25 PM	1,687	240	72.61	354.65	760.35	3.24				761.56	1.65
3/10/21 2:25 PM	1,747	300	72.58	354.34	760.66	2.93				761.70	1.51
3/10/21 3:25 PM	1,807	360	72.60	354.06	760.94	2.65				761.83	1.38
3/10/21 4:25 PM	1,867	420	72.61	353.80	761.20	2.39				761.93	1.28
3/10/21 5:25 PM	1,927	480	72.57	353.64	761.36	2.23				762.06	1.15
3/10/21 6:25 PM	1,987	540	72.58	353.47	761.53	2.06				762.10	1.11
3/10/21 7:25 PM	2,047	600	72.60	353.32	761.68	1.91				762.18	1.03
3/10/21 8:25 PM	2,107	660	72.60	353.31	761.69	1.90				762.22	0.99
3/10/21 9:25 PM	2,167	720	72.57	353.12	761.88	1.71				762.28	0.93
3/10/21 10:25 PM	2,227	780	72.55	353.02	761.98	1.61				762.34	0.88
3/10/21 11:25 PM	2,287	840	72.56	352.96	762.04	1.56				762.36	0.85
3/11/21 12:25 AM	2,347	900	72.59	352.94	762.06	1.53				762.42	0.79
3/11/21 1:25 AM	2,407	960	72.58	352.81	762.19	1.40				762.50	0.71
3/11/21 2:25 AM	2,467	1,020	72.57	352.74	762.26	1.33				762.56	0.65
3/11/21 3:25 AM	2,527	1,080	72.56	352.69	762.31	1.28				762.60	0.61
3/11/21 4:25 AM	2,587	1,140	72.57	352.63	762.37	1.22				762.64	0.57
3/11/21 5:25 AM	2,647	1,200	72.58	352.54	762.46	1.13				762.67	0.54
3/11/21 6:25 AM	2,707	1,260	72.54	352.46	762.54	1.05				762.71	0.50
3/11/21 7:25 AM	2,767	1,320	72.58	352.47	762.53	1.06				762.70	0.51





# Aquifer Test

#### Prairie Pointe Estates Well No. 5 - Aquifer Test (March 12, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 5 Temperature (F)	PW Well No. 5 Water Level (ft bgs)	PW Well No. 5 Water Level (ft MSL)	PW Well No. 5 Drawdown (ft)	PW Well No. 5 Pump Rate (gpm)	PW Well No. 5 Specific Capacity (gpm/ft)	Comments	OW Well No. 4 Water Level (ft MSL)	OW Well No. 4 Drawdown (ft)
3/12/21 8:49 AM	0		72.56	312.88	760.12	0.00			Pump Start	790.89	0.00
3/12/21 8:50 AM	1		72.60	316.37	756.63	3.49	13	3.72	Meter: 34,094.7 gallons	790.87	0.02
3/12/21 8:51 AM	2		72.62	317.19	755.81	4.31	12	2.78		790.90	-0.01
3/12/21 8:52 AM	3		72.61	317.61	755.40	4.73	12	2.54		790.90	0.00
3/12/21 8:53 AM	4		72.57	317.96	755.04	5.08	12	2.36		790.87	0.02
3/12/21 8:54 AM	5		72.54	318.26	754.74	5.38	12	2.23		790.90	0.00
3/12/21 8:55 AM	6		72.50	318.41	754.59	5.53	12	2.17		790.88	0.01
3/12/21 8:56 AM	7		72.50	318.65	754.35	5.77	12	2.08		790.88	0.01
3/12/21 8:57 AM	8		72.42	318.91	754.09	6.03	12	1.99		790.89	0.00
3/12/21 8:58 AM	9		72.40	318.98	754.02	6.10	12	1.97		790.90	-0.01
3/12/21 8:59 AM	10		72.38	319.09	753.92	6.21	12	1.93		790.88	0.01
3/12/21 9:00 AM	11		72.33	319.33	753.67	6.45	12	1.86		790.89	0.00
3/12/21 9:01 AM	12		72.30	319.49	753.51	6.61	12	1.81		790.90	-0.01
3/12/21 9:02 AM	13		72.21	319.86	753.14	6.98	12	1.72		790.89	0.00
3/12/21 9:03 AM	14		72.18	319.90	753.10	7.02	12	1.71		790.90	-0.01
3/12/21 9:04 AM	15		72.21	319.99	753.01	7.11	12	1.69	pH: 9.03/ EC: 0.98	790.90	-0.01
3/12/21 9:09 AM	20		72.15	320.50	752.50	7.62	12	1.57	pH: 8.75/ EC: 0.90	790.90	0.00
3/12/21 9:14 AM	25		72.13	321.06	751.95	8.18	12	1.47	pH: 8.65/ EC: 0.91	790.92	-0.03
3/12/21 9:19 AM	30		72.10	321.49	751.51	8.61	12	1.39	pH: 8.65/ EC: 0.92	790.89	0.00
3/12/21 9:24 AM	35		72.09	321.91	751.09	9.03	12	1.33	pH: 8.71/ EC: 0.93	790.89	0.00
3/12/21 9:29 AM	40		72.08	322.37	750.63	9.50	12	1.26	pH: 8.68/ EC: 0.94	790.91	-0.02
3/12/21 9:34 AM	45		72.11	322.71	750.29	9.83	12	1.22	pH: 8.81/ EC: 0.95	790.92	-0.03
3/12/21 9:49 AM	60		72.07	323.45	749.55	10.57	12	1.14	pH: 8.62/ EC: 0.96	790.90	0.00
3/12/21 10:04 AM	75		72.06	324.24	748.76	11.36	12	1.06	pH: 8.45/ EC: 0.97	790.90	-0.01
3/12/21 10:19 AM	90		72.05	325.05	747.95	12.17	12	0.99	pH: 8.56/ EC: 0.97	790.87	0.02
3/12/21 10:34 AM	105		72.10	325.61	747.39	12.73	12	0.94	pH: 8.36/ EC: 0.96	790.89	0.00
3/12/21 10:49 AM	120		72.11	326.06	746.94	13.19	12	0.91	pH: 8.36/ EC: 0.96	790.86	0.03
3/12/21 11:19 AM	150		72.05	326.90	746.10	14.02	12	0.86	pH: 8.45/ EC: 0.95	790.83	0.06
3/12/21 11:49 AM	180		72.12	327.79	745.21	14.91	12	0.80	pH: 8.75/ EC: 0.95	790.79	0.10
3/12/21 12:19 PM	210		72.08	328.45	744.56	15.57				790.82	0.07
3/12/21 12:49 PM	240		72.03	328.95	744.05	16.07				790.77	0.12
3/12/21 1:49 PM	300		72.06	330.04	742.96	17.16				790.72	0.17
3/12/21 2:49 PM	360		72.03	330.77	742.23	17.89				790.68	0.21
3/12/21 3:49 PM	420		72.03	331.34	741.67	18.46				790.65	0.24
3/12/21 4:49 PM	480		72.05	331.86	741.14	18.98				790.65	0.24

Note: bgs = below ground surfaceColumn Pipe Diameter = 1 1/4 inchesHorsepower = 2 HPMSL = Mean Sea LevelPump Setting = 460 ftEC=Electrical conductivity (mS/cm)

### Prairie Pointe Estates Well No. 5 - Aquifer Test (March 12, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 5 Temperature (F)	PW Well No. 5 Water Level (ft bgs)	PW Well No. 5 Water Level (ft MSL)	PW Well No. 5 Drawdown (ft)	PW Well No. 5 Pump Rate (gpm)	PW Well No. 5 Specific Capacity (gpm/ft)	Comments	OW Well No. 4 Water Level (ft MSL)	OW Well No. 4 Drawdown (ft)
3/12/21 5:49 PM	540		72.07	332.15	740.86	19.27				790.60	0.29
3/12/21 6:49 PM	600		72.03	332.60	740.40	19.72				790.56	0.33
3/12/21 7:49 PM	660		72.05	333.16	739.84	20.28				790.50	0.39
3/12/21 8:49 PM	720		72.04	333.28	739.72	20.40				790.49	0.40
3/12/21 9:49 PM	780		72.04	333.67	739.33	20.79				790.43	0.46
3/12/21 10:49 PM	840		71.99	333.89	739.11	21.01				790.39	0.50
3/12/21 11:49 PM	900		72.05	334.09	738.91	21.21				790.36	0.53
3/13/21 12:49 AM	960		72.06	334.35	738.65	21.48				790.29	0.60
3/13/21 1:49 AM	1,020		72.05	334.44	738.56	21.56				790.26	0.63
3/13/21 2:49 AM	1,080		72.06	334.55	738.45	21.67				790.23	0.66
3/13/21 3:49 AM	1,140		72.02	334.69	738.31	21.81				790.19	0.70
3/13/21 4:49 AM	1,200		72.02	334.69	738.32	21.81				790.18	0.71
3/13/21 5:49 AM	1,260		72.03	334.86	738.14	21.98				790.18	0.71
3/13/21 6:49 AM	1,320		72.03	334.86	738.14	21.98				790.12	0.77
3/13/21 7:49 AM	1,380		72.04	335.00	738.00	22.12				790.14	0.75
3/13/21 8:49 AM	1,440		72.07	335.12	737.88	22.24				790.12	0.77
3/13/21 8:54 AM	1,445	0	72.10	335.11	737.89	22.24	12	0.54	Pump Stop	790.09	0.81
3/13/21 8:55 AM	1,446	1	72.14	331.78	741.22	18.90			Meter: 51,152.1 gallons	790.14	0.75
3/13/21 8:56 AM	1,447	2	72.14	330.95	742.05	18.07			Avg. Pump Rate: 12	790.09	0.80
3/13/21 8:57 AM	1,448	3	72.17	330.60	742.40	17.72				790.10	0.79
3/13/21 8:58 AM	1,449	4	72.46	330.24	742.76	17.36				790.11	0.78
3/13/21 8:59 AM	1,450	5	72.92	329.85	743.15	16.97				790.08	0.81
3/13/21 9:00 AM	1,451	6	73.45	329.75	743.26	16.87				790.10	0.79
3/13/21 9:01 AM	1,452	7	73.93	329.46	743.54	16.58				790.11	0.78
3/13/21 9:02 AM	1,453	8	74.26	329.24	743.77	16.36				790.11	0.78
3/13/21 9:03 AM	1,454	9	74.33	329.08	743.92	16.21				790.12	0.77
3/13/21 9:04 AM	1,455	10	74.46	328.87	744.13	15.99				790.11	0.78
3/13/21 9:05 AM	1,456	11	74.64	328.81	744.19	15.93				790.13	0.76
3/13/21 9:06 AM	1,457	12	74.78	328.71	744.29	15.83				790.09	0.80
3/13/21 9:07 AM	1,458	13	74.97	328.58	744.42	15.70				790.07	0.82
3/13/21 9:08 AM	1,459	14	75.08	328.32	744.68	15.44				790.10	0.79
3/13/21 9:09 AM	1,460	15	75.23	328.26	744.74	15.38				790.10	0.79
3/13/21 9:14 AM	1,465	20	75.27	327.62	745.38	14.74				790.10	0.79
3/13/21 9:19 AM	1,470	25	74.83	327.18	745.82	14.30				790.09	0.80
3/13/21 9:24 AM	1,475	30	74.47	326.67	746.33	13.79				790.05	0.84

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP MSL = Mean Sea Level

Pump Setting = 460 ft EC=Electrical conductivity (mS/cm)

### Prairie Pointe Estates Well No. 5 - Aquifer Test (March 12, 2021)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 5 Temperature (F)	PW Well No. 5 Water Level (ft bgs)	PW Well No. 5 Water Level (ft MSL)	PW Well No. 5 Drawdown (ft)	PW Well No. 5 Pump Rate (gpm)	PW Well No. 5 Specific Capacity (gpm/ft)	Comments	OW Well No. 4 Water Level (ft MSL)	OW Well No. 4 Drawdown (ft)
3/13/21 9:29 AM	1,480	35	74.13	326.29	746.71	13.42				790.12	0.77
3/13/21 9:34 AM	1,485	40	73.89	325.91	747.09	13.04				790.07	0.82
3/13/21 9:39 AM	1,490	45	73.56	325.55	747.46	12.67				790.08	0.81
3/13/21 9:54 AM	1,505	60	73.23	324.65	748.35	11.77				790.10	0.79
3/13/21 10:09 AM	1,520	75	73.28	323.89	749.11	11.01				790.09	0.80
3/13/21 10:24 AM	1,535	90	73.20	323.24	749.76	10.36				790.08	0.81
3/13/21 10:39 AM	1,550	105	72.98	322.65	750.35	9.77				790.07	0.82
3/13/21 10:54 AM	1,565	120	72.97	322.21	750.79	9.33				790.10	0.79
3/13/21 11:24 AM	1,595	150	72.85	321.30	751.71	8.42				790.08	0.81
3/13/21 11:54 AM	1,625	180	72.82	320.48	752.52	7.60				790.09	0.80
3/13/21 12:24 PM	1,655	210	72.74	319.82	753.18	6.94				790.07	0.82
3/13/21 12:54 PM	1,685	240	72.69	319.21	753.79	6.33				790.13	0.76
3/13/21 1:54 PM	1,745	300	72.61	318.46	754.54	5.58				790.11	0.78
3/13/21 2:54 PM	1,805	360	72.58	317.68	755.32	4.80				790.13	0.76
3/13/21 3:54 PM	1,865	420	72.54	317.17	755.83	4.29				790.15	0.74
3/13/21 4:54 PM	1,925	480	72.56	316.15	756.85	3.27				790.22	0.67
3/13/21 5:54 PM	1,985	540	72.56	315.60	757.40	2.72				790.27	0.63
3/13/21 6:54 PM	2,045	600	72.58	315.15	757.85	2.27				790.26	0.63
3/13/21 7:54 PM	2,105	660	72.57	314.76	758.24	1.88				790.28	0.61
3/13/21 8:54 PM	2,165	720	72.56	314.54	758.47	1.66				790.30	0.59
3/13/21 9:54 PM	2,225	780	72.56	314.10	758.90	1.22				790.29	0.60
3/13/21 10:54 PM	2,285	840	72.55	314.00	759.00	1.12				790.31	0.58
3/13/21 11:54 PM	2,345	900	72.53	313.84	759.16	0.96				790.27	0.62
3/14/21 12:54 AM	2,405	960	72.59	313.73	759.27	0.85				790.33	0.56
3/14/21 1:54 AM	2,465	1,020	72.56	313.35	759.66	0.47				790.37	0.52
3/14/21 3:54 AM	2,525	1,080	72.57	312.91	760.09	0.03				790.42	0.47
3/14/21 4:54 AM	2,585	1,140	72.59	312.51	760.49	-0.37				790.44	0.45
3/14/21 5:54 AM	2,645	1,200	72.53	312.36	760.64	-0.52				790.47	0.42
3/14/21 6:54 AM	2,705	1,260	72.55	312.28	760.72	-0.60				790.47	0.42
3/14/21 7:54 AM	2,765	1,320	72.57	312.18	760.82	-0.70				790.48	0.41
3/14/21 8:54 AM	2,825	1,380	72.53	312.11	760.89	-0.77				790.50	0.39





# <u>Appendix E</u>

Well Efficiency Calculation



# Well Efficiency



#### Well Efficiency Calculations Well No. 1

From: Driscoll, F.G., 1986: Groundwater and Wells: second Ed. Pp.575-579

Well Efficiency = (Actual specific capacity / Theoretical specific capacity)

Actual Specific Capacity = Q/s

Where: Q = Discharge of well, in gpm; and s = drawdown, in feet

#### Actual Specific Capacity = 11 gpm / 24.27 ft = 0.45 gpm/ft

Theoretical Specific Capacity =  $\frac{Q}{s} = \frac{T}{264 \log \frac{0.3Tt}{r^2 S}} = \frac{T}{2000}$ 

Where: T = Transmissivity, in gpd/ft t = Time of pumping, in days S = Storage Coefficient, =  $6.70 \times 10^{-5}$ r = radius of well, in ft.

Theoretical Specific Capacity =  $\frac{1,032.37}{264\log \frac{0.3(1,032.32)(1)}{0.1875^2(6.70 \times 10^{-5})}} = 0.48$ 

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.45 / 0.48 = 94%

## Well Efficiency



www.wetrockgs.com

Well Efficiency Calculations Well No. 3

From: Driscoll, F.G., 1986: Groundwater and Wells: second Ed. Pp.575-579

Well Efficiency = (Actual specific capacity / Theoretical specific capacity)

Actual Specific Capacity = Q/s

Where: Q = Discharge of well, in gpm; and s = drawdown, in feet

#### Actual Specific Capacity = 11 gpm / 22.49 ft = 0.49 gpm/ft

Theoretical Specific Capacity =  $\frac{Q}{s} = \frac{T}{264 \log \frac{0.3Tt}{r^2 S}} = \frac{T}{2000}$ 

Where: T = Transmissivity, in gpd/ft t = Time of pumping, in days S = Storage Coefficient, =  $8.12 \times 10^{-5}$ r = radius of well, in ft.

Theoretical Specific Capacity =  $\frac{959.81}{264\log \frac{0.3(959.81)(1)}{0.1875^2(8.12 \times 10^{-5})}} = 0.45$ 

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.49 / 0.45 = 109%

## Well Efficiency



www.wetrockgs.com

#### Well Efficiency Calculations Well No. 5

From: Driscoll, F.G., 1986: Groundwater and Wells: second Ed. Pp.575-579

Well Efficiency = (Actual specific capacity / Theoretical specific capacity)

Actual Specific Capacity = Q/s

Where: Q = Discharge of well, in gpm; and s = drawdown, in feet

### Actual Specific Capacity = 12 gpm / 22.24 ft = 0.54 gpm/ft

Theoretical Specific Capacity =  $\frac{Q}{s} = \frac{T}{264 \log \frac{0.3Tt}{r^2 S}} = \frac{T}{2000}$ 

Where: T = Transmissivity, in gpd/ft t = Time of pumping, in days S = Storage Coefficient, =  $5.67 \times 10^{-4}$ r = radius of well, in ft.

Theoretical Specific Capacity =  $\frac{1,240.34}{264\log \frac{0.3(1,240.34)(1)}{0.1875^2(5.67 \times 10^{-4})}} = 0.65$ 

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.54 / 0.65 = 83%

# Appendix F

Water Quality Report



# Water Quality



March 31, 2021



T104704247-20-20

ENVIRONMENTAL MONITORING LABORATORY, L.L.C.

BIOLOGICAL & CHEMICAL ANALYSIS / UTILITIES MANAGEMENT & OPERATION / WATERWELL DRILLING & SERVICE / GEOLOGICAL INVESTIGATION

J & J Water Well PO BOX 213 Cherokee, TX 78632

Re: Well 1 - PPE - 870-179-1

Dear Client:

EML collected samples on 03/16/21. These samples were submitted for analysis on 03/17/21. The following is the result of the analytical procedures performed on this sample and listed on the following pages they include, QA/QC information, chain of custody form, and other lab identification information.

Respectfully Submitted,

John Scott B. S. General Manager

ENVIRONMENTAL SCIENTIST President C.C "Chuck" Blair, M.S. P.G. ~ 8/B shanie Soward – Administrative Assistant

KEY ACCOUNTS MANAGER Vice President Clint Blair, B.A. ~ Analyst, C

Clint Blar, B.A. - Analyst, C *LABORATORY* General Manager Technical Manager John Scott B.S., C/C Asculant GM, Technical & Co Manager Serissa Beck, A.A., D Sateriological Managert in Sharon Huncke - Technical Manager Mark Sinkle - Leb Tech IV Polyanna Thiodesu - Lab Tech IV Dean-as Higgs - Lab Tech II Miñaya Soward - Lab Tech II Haley Johnston - Leb Tech II

DATA Data Manager April Merritt – Data Assistant

FIELD OPERATIONS Operations Manager Jim Scott, A S . C/C Glenn Tidwell, Jr. D/D Jeff Bullock Joseph Wright

HOME OFFICE Machell Plummer ~ Office/HR Manager Brittney Perkins ~ Office/HR Assistant

PANHANDLE DIVISION Van Willis – Division Manager. D/D Greg Willis – Field Operator, 5 Justin Duvall - Field Operator Kaitlin Hendercon – Office Assistant

SOUTH WEST DIVISION Waller - Division Manager, D/D a Jacobs - Office/Field Operation

EAST TEXAS, DIVISION nuller Gresham – Division Manager, Edward Gresham, Division Ops D/D

# eurofins

Environment Testing America

# ANALYTICAL REPORT

Eurofins Dallas 9701 Harry Hines Blvd Dallas, TX 75220 Tel: (214)902-0300

## Laboratory Job ID: 870-179-1

Client Project/Site: J&J Water Wells Revision: 3

For

Environmental Monitoring Laboratory, LLC 6145 State Highway 171 PO BOX 477 Hillsboro, Texas 76645

Attn: Hillsboro Office

Authorized for release by: 3/31/2021 9:46:38 PM

John Builes, Project Manager (281)240-4200 john.builes@eurofinset.com

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.

..... LINKS ..... **Review your project** results through Total Access Have a Question? Ask-The Expert Visit us at: www.eurofinsus.com/Env

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## **Definitions/Glossary**

Client: Environmental Monitoring Laboratory, LLC Project/Site: J&J Water Wells

Job ID: 870-179-1

No.

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

#### Job ID: 870-179-1

Laboratory: Eurofins Dallas

#### Narrative

Job Narrative 870-179-1

#### Comments

No additional comments.

#### Revision

The report being provided is a revision of the original report sent on 3/23/2021. The report (revision 1) is being revised due to missing pH results.

#### Receipt

The samples were received on 3/17/2021 11:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.2° C.

#### Subcontract non-Sister

See attached subcontract report.

#### Subcontract Work

Method General Subcontract Method: This method was subcontracted to Eurofins Stafford. The subcontract laboratory certification is different from that of the facility issuing the final report.

## **Detection Summary**

Client: Environmental Monitoring Laboratory, LLC Project/Site: J&J Water Wells

## Client Sample ID: Well 1 - PPE

Job ID: 870-179-1

No Detections.

Lab Sample ID: 870-179-1

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This Detection Summary does not include radiochemical test results.

**Eurofins Dallas** 

Job ID: 870-179-1

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Lab Sample ID: 870-179-1 Matrix: Drinking Water

Client Sample ID: Well 1 - PPE Date Collected: 03/16/21 12:00 Date Received: 03/17/21 11:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	32.8		0.200		mg/L		03/22/21 10:00	03/22/21 20:24	1
Iron	0.382		0.200		mg/L		03/22/21 10:00	03/22/21 20:24	1
Magnesium	15.3		0.200		mg/L		03/22/21 10:00	03/22/21 20:24	1
Manganese	<0.0200	U	0.0200		mg/L		03/22/21 10:00	03/22/21 20:24	1
Method: E300 Chloride Fluorio	le Sulfate -	EPA 300.0							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	57.1		0.500		mg/L	_	03/22/21 09:30	03/22/21 13:32	1
Fluoride	1.77		0.500		mg/L		03/22/21 09:30	03/22/21 13:32	1
Sulfate	43.2		0.500		mg/L		03/22/21 09:30	03/22/21 13:32	1
_ Method: Local Method - SM 25	10B Condu	uctivity. Spe	cific Conduct	а					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific conductance @ 25C	1370		10.0		umhos/cm	<	03/28/21 16:43	03/28/21 16:43	1
Method: pH SM4500 - SM 4500	H+ B (pH)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	8.41	ĸ			SU		03/21/21 15:50	03/21/21 15:50	1
Temperature	20.0	К			Deg C		03/21/21 15:50	03/21/21 15:50	1
Method: SM2320 Alkalinity Ri	Carb, Tota	I - SM 2320B	Alkalinity (Tr	itratio	on)				
moundar omavay rununnity Di,	Result	Qualifier	RL	MDI	Unit		Branarad	Applyzod	
Analyte					Unit	U	Frepared	Analyzeu	Dil Fac
Analyte Alkalinity, Total (CaCO3)	326		4.00		mg/L	<u>D</u>	03/22/21 12:26	03/22/21 15:02	Dil Fac 1
Analyte Alkalinity, Total (CaCO3) Method: SM2340 Hardness Ca	326 , Mg, Total	- SM 2340B	4.00 Hardness by	Calc	mg/L ulation	<u> </u>	03/22/21 12:26	03/22/21 15:02	Dil Fac 1
Analyte Alkalinity, Total (CaCO3) Method: SM2340 Hardness Ca Analyte	326 , Mg, Total Result	- SM 2340B Qualifier	4.00 Hardness by RL	Calc	mg/L Ulation Unit	D	03/22/21 12:26 Prepared	Analyzed 03/22/21 15:02	Dil Fac 1 Dil Fac
Analyte Alkalinity, Total (CaCO3) Method: SM2340 Hardness Ca Analyte Hardness, Total (CaCO3)	326 , Mg, Total Result 140	- SM 2340B Qualifier	4.00 Hardness by RL 1.3	Calc	mg/L Unit mg/L	D	Prepared 03/22/21 12:26 Prepared 03/22/21 20:24	Analyzed 03/22/21 15:02 Analyzed 03/22/21 20:24	Dil Fac 1 Dil Fac 1
Analyte Alkalinity, Total (CaCO3) Method: SM2340 Hardness Ca Analyte Hardness, Total (CaCO3) Method: TDS - SM 2540C Total	326 , Mg, Total Result 140 Dissolved	- SM 2340B Qualifier Solids (TDS	4.00 Hardness by RL 1.3	Calc	mg/L Unit mg/L	D	Prepared   03/22/21 12:26   Prepared   03/22/21 20:24	Analyzed 03/22/21 15:02 Analyzed 03/22/21 20:24	Dil Fac 1 Dil Fac 1
Analyte Alkalinity, Total (CaCO3) Method: SM2340 Hardness Ca Analyte Hardness, Total (CaCO3) Method: TDS - SM 2540C Total Analyte	326 , Mg, Total Result 140 Dissolved Result	- SM 2340B Qualifier Solids (TDS Qualifier	4.00 Hardness by RL 1.3	Calc MDL MDL	mg/L Unit mg/L Unit	D	Prepared 03/22/21 12:26 Prepared 03/22/21 20:24 Prepared	Analyzed 03/22/21 15:02 Analyzed 03/22/21 20:24 Analyzed	Dil Fac 1 Dil Fac 1 Dil Fac

#### Job ID: 870-179-1

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Lab Sample ID: 7723826-1-BLK									С	lie	nt Samp	ole ID: M	ethod	Blank
Matrix: WATER												Prep Ty	pe: To	tal/NA
Analysis Batch: 3154458											Pre	p Batch	: 3154	458_P
-	BLANK	BLANK												
Analyte	Result	Qualifier		RL		MDL	Unit		D	Pr	epared	Analyz	ed.	Dil Fac
Calcium	<.2	U		.2			mg/L		0	3/22	2/21 10:00	03/22/21	18:17	1
Iron	<.2	U		.2			mg/L		0	3/22	2/21 10:00	03/22/21	18:17	1
Magnesium	<.2	U		.2			mg/L		0	3/22	2/21 10:00	03/22/21	18:17	1
Manganese	<.02	U		.02			mg/L		0	3/22	2/21 10:00	03/22/21	18:17	1
Lab Sample ID: 7723826-1-BKS								Clie	ent S	San	ple ID:	Lab Cor	trol S	ample
Matrix: WATER												Ргер Ту	pe: To	tal/NA
Analysis Batch: 3154458											Pre	p Batch	: 3154	458_P
			Spike		LCS	LCS	S					%Rec.		
Analyte			Added		Result	Qua	alifier	Unit		D	%Rec	Limits		
Calcium			25		23.9			mg/L			96	85 - 115		
Iron			5		4.78			mg/L			96	85 - 115		
Magnesium			25		23.7			mg/L			95	85 - 115		
Manganese			1		0.919			mg/L			92	85 - 115		
Lab Sample ID: 7723826-1-BSD							С	lient S	amp	le	D: Lab	Control	Sampl	e Dup
Matrix: WATER												Prep Ty	pe: To	tal/NA
Analysis Batch: 3154458											Pre	p Batch	: 3154	458_P
			Spike		LCSD	LCS	SD					%Rec.		RPD
Analyte			Added		Result	Qua	alifier	Unit		D	%Rec	Limits	RPD	Limit
Calcium			25		23.9	-		mg/L			96	85 - 115	0	20
Iron			5		4.78			mg/L			96	85 - 115	0	20
Magnesium			25		23.7			mg/L			95	85 - 115	0	20
Manganese			1		0.920			mg/L			92	85 - 115	0	20
Method: E300 Chloride Fluor	ride Su	lfate - E	EPA 30	0.0										
Lab Sample ID: 7723787-1-BLK									С	lie	nt Samp	ole ID: M	ethod	Blank
Matrix: WATER												Prep Ty	pe: To	tal/NA
Analysis Batch: 3154444											Pre	p Batch	: 3154	444_P
-														

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<.5	U	.5		mg/L		03/22/21 09:30	03/22/21 07:05	1
Fluoride	<.5	U	.5		mg/L		03/22/21 09:30	03/22/21 07:05	1
Sulfate	<.5	U	.5		mg/L		03/22/21 09:30	03/22/21 07:05	1

Lab Sample ID: 7723787-1-BKS Matrix: WATER Analysis Batch: 3154444

#### Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analysis Batch: 3154444					Prep Batch: 3154444_P				
	Spike	LCS	LCS				%Rec.		
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	10	10.2		mg/L		102	80 - 120		
Fluoride	10	10.0		mg/L		100	80 - 120		
Sulfate	10	9.44		mg/L		94	80 - 120		

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Method: E300 Chloride Fluoride Sulfate - EPA 300.0 (Continued)

#### Lab Sample ID: 7723787-1-BSD **Client Sample ID: Lab Control Sample Dup** Matrix: WATER Prep Type: Total/NA Prep Batch: 3154444 P Analysis Batch: 3154444 LCSD LCSD Spike %Rec RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit Chloride 10 10.2 ma/L 102 80 - 120 0 20 Fluoride 10 20 10.0 mg/L 100 80 - 120 0 Sulfate 10 9.45 mg/L 95 80 - 120 ۵ 20 Method: Local Method - SM 2510B Conductivity, Specific Conducta Lab Sample ID: 3154774-1-BLK Client Sample ID: Method Blank **Prep Type: Total/NA** Matrix: WATER Analysis Batch: 3154774 Prep Batch: 3154774 P BLANK BLANK **Result Qualifier** RL MDL Unit Analyte D Prepared Analyzed **Dil Fac** Specific conductance @ 25C <10 U 10 umhos/cm 03/28/21 16:43 03/28/21 16:43 1 Lab Sample ID: 3154774-1-BKS **Client Sample ID: Lab Control Sample Matrix: WATER** Prep Type: Total/NA Analysis Batch: 3154774 Prep Batch: 3154774 P Spike LCS LCS %Rec. Limits Analyte Added Result Qualifier Unit D %Rec Specific conductance @ 25C 1410 1420 umhos/cm 101 80 - 120 Lab Sample ID: 3154774-1-BSD Client Sample ID: Lab Control Sample Dup Matrix: WATER Prep Type: Total/NA Analysis Batch: 3154774 Prep Batch: 3154774 P Spike LCSD LCSD %Rec. RPD Analyte Added Result Qualifier Unit %Rec Limits RPD Limit D Specific conductance @ 25C 1410 1420 umhos/cm 101 80 - 120 0 20 Method: SM2320 Alkalinity Bi, Carb, Total - SM 2320B Alkalinity (Tritration) Lab Sample ID: 7723804-1-BLK Client Sample ID: Method Blank Matrix: WATER Prep Type: Total/NA Analysis Batch: 3154425 Prep Batch: 3154425 P BLANK BLANK **Result Qualifier** RL MDI Unit D Prepared Analyzed Dil Fac Analyte Alkalinity, Total (CaCO3) <4 U 4 03/22/21 12:26 03/22/21 12:40 mg/L 1 Lab Sample ID: 7723804-1-BKS **Client Sample ID: Lab Control Sample** Matrix: WATER Prep Type: Total/NA Analysis Batch: 3154425 Prep Batch: 3154425 P Spike LCS LCS %Rec. Added Result Qualifier Limits Analyte Unit D %Rec 250 Alkalinity, Total (CaCO3) 255 mg/L 102 85 - 115 Lab Sample ID: 7723804-1-BSD Client Sample ID: Lab Control Sample Dup Matrix: WATER Prep Type: Total/NA Analysis Batch: 3154425 Prep Batch: 3154425 P LCSD LCSD %Rec. RPD Spike Analyte Added **Result Qualifier** Unit D %Rec Limits RPD Limit Alkalinity, Total (CaCO3) 250 257 mg/L 103 85 - 115 20

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## QC Sample Results

Client: Environmental Monitoring Laboratory, LLC Project/Site: J&J Water Wells Job ID: 870-179-1

F

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

Lab Sample ID: 3154426-1-BLK Matrix: WATER Analysis Batch: 3154426									Clie	ent Sam Pr	ple ID: M Prep Ty ep Batch	ethod pe: To : 3154	Blank tal/NA 426_P
	BLANK	BLANK											
Analyte	Result	Qualifier		RL		MDL	Unit	D	P	repared	Analy	zed	Dil Fac
Total Dissolved Solids	<5	U		5			mg/L		03/2	2/21 17:58	3 03/22/21	17:58	1
Lab Sample ID: 3154426-1-BKS Matrix: WATER Analysis Batch: 3154426								Clien	t Sa	mple ID: Pr	Lab Cou Prep Ty ep Batch	ntrol Sa pe: Tot : 3154	ample tal/NA 426_P
9			Spike		LCS	LCS					%Rec.		
Analyte			Added		Result	Qual	lifier	Unit	D	%Rec	Limits		
Total Dissolved Solids			1000		1030			mg/L		103	80 - 120		
Lab Sample ID: 3154426-1-BSD Matrix: WATER Analysis Batch: 3154426							C	lient San	nple	ID: Lab Pr	Control Prep Ty ep Batch	Sampl pe: To : 3154	e Dup tal/NA 426_P
			Spike		LCSD	LCSI	D				%Rec.		RPD
Analyte			Added		Result	Qual	lifier	Unit	D	%Rec	Limits	RPD	Limit
Total Dissolved Solids			1000		978			mg/L		98	80 - 120	5	10

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## Subcontract

Analysis Batch: 3154290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	pH SM4500	3154290_P
Analysis Batch: 31	54425				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	SM2320	3154425_P
				Alkalinity Bi,	
7700004 4 DUK	Math ed Diards	T-4-1/010		Carb, Total	2454495 D
//23804-1-BLK	Method Blank	Iotal/INA	WATER	SIVI2320 Alkalinity Bi	3154425_P
				Carb. Total	
7723804-1-BKS	Lab Control Sample	Total/NA	WATER	SM2320	3154425_P
				Alkalinity Bi,	
		<b>T</b> ( 1014		Carb, Total	
7723804-1-BSD	Lab Control Sample Dup	Total/NA	WATER	SM2320 Alkalinity Bi	3154425_P
				Carb. Total	
ta America Defeire Od	54400				
Analysis Batch: 31	54426				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	TDS	3154426_P
3154426-1-BLK	Method Blank	Total/NA	WATER	TDS	3154426_P
3154426-1-BKS	Lab Control Sample	Total/NA	WATER	TDS	3154426_P
3154426-1-BSD	Lab Control Sample Dup	Total/NA	WATER	TDS	3154426_P
Analysis Batch: 31	54444				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	E300 Chloride	3154444_P
				Fluoride Sulfate	
7723787-1-BLK	Method Blank	Total/NA	WATER	E300 Chloride	3154444_P
7723787-1-BKS	Lab Control Sample	Total/NA	WATER	Fluoride Sulfate	3154444 P
	Lub control cample	TO CAPITY Y		Fluoride Sulfate	0101111_1
7723787-1-BSD	Lab Control Sample Dup	Total/NA	WATER	E300 Chloride	3154444_P
				Fluoride Sulfate	
Analysis Batch: 31	54458				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	E200.7 Ca Mg	3154458_P
				Mn Na Fe	
7723826-1-BLK	Method Blank	Total/NA	WATER	E200.7 Ca Mg	31 <b>5445</b> 8_P
7702006 4 DKC	Lob Control Somple	Tatal/NIA		Mn Na Fe	2464460 0
1123020-1-010	Lab Control Sample	Total/INA	VVALER	E200.7 Calvig Mn Na Fe	3154450_F
7723826-1-BSD	Lab Control Sample Dup	Total/NA	WATER	E200.7 Ca Mg	3154458 P
				Mn Na Fe	_
Analysis Batch: 31	54485				
Lah Sample ID	Client Sample ID	Pron Type	Matrix	Method	Pron Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	SM2340	3154485 P
			0	Hardness Ca,	_
				Mg, Total	
Analysis Batch: 31	54774				
Lah Sample ID	Client Sample ID	Pron Type	Matrix	Method	Pren Ratch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	Local Method	3154774 P
					· · · · · · · · · · · · · · · · · · ·

#### **Eurofins Dallas**
# Subcontract (Continued)

Analysis Batch: 3154774 (Continued)

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
3154774-1-BLK	Method Blank	Total/NA	WATER	Local Method	3154774_F
3154774-1-BKS	Lab Control Sample	Total/NA	WATER	Local Method	3154774_F
3154774-1-BSD	Lab Control Sample Dup	Total/NA	WATER	Local Method	3154774_F
Prep Batch: 31542	90_P				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	NONE	
Prep Batch: 31544	25_P				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	SM2320P	
7723804-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
7723804-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
7723804-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	
Prep Batch: 31544	26_P				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	NONE	
3154426-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
3154426-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
3154426-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	
Prep Batch: 31544	44_P				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	E300P	
7723787-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
7723787-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
7723787-1-BSD	Lab Control Sample Dup	Tota!/NA	WATER	***DEFAULT PREP***	
Prep Batch: 31544	58_P				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	E200.7P	
7723826-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT	

7723826-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***
7723826-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***
7723826-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***

Prep Batch: 3154485\_P

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
870-179-1	Well 1 - PPE	Total/NA	Drinking Water	E200.7	

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Job ID: 870-179-1

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# Subcontract

Prep Batch: 3154774\_P

Lab Sample ID 870-179-1	Client Sample ID Well 1 - PPE	Prep Type Total/NA	Matrix Drinking Water	Method NONE	Prep Batch
3154774-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
3154774-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
3154774-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	

# Client: Environmental Monitoring Laboratory, LLC Project/Site: J&J Water Wells

## Client Sample ID: Well 1 - PPE

Date Collected: 03/16/21 12:00 Date Received: 03/17/21 11:45

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	E200.7P		1	3154458_P	03/22/21 10:00		XS
Total/NA	Analysis	E200.7 Ca Mg Mn Na Fe		1	3154458	03/22/21 20:24	DEP	XS
Total/NA	Prep	E300P		1	3154444_P	03/22/21 09:30		XS
Total/NA	Analysis	E300 Chloride Fluoride Sulfate		1	3154444	03/22/21 13:32	JYM	XS
Total/NA	Prep	NONE		1	3154774_P	03/28/21 16:43		XS
Total/NA	Analysis	Local Method		1	3154774	03/28/21 16:43	ANP	XS
Total/NA	Prep	NONE		1	3154290_P	03/21/21 15:50		XS
Total/NA	Analysis	pH SM4500		1	3154290	03/21/21 15:50	ANP	XS
Total/NA	Prep	SM2320P		1	3154425_P	03/22/21 12:26		XS
Total/NA	Analysis	SM2320 Alkalinity Bi, Carb, Total		1	3154425	03/22/21 15:02	ALZ	XS
Total/NA	Prep	E200.7		1	3154485_P	03/22/21 20:24		XS
Total/NA	Analysis	SM2340 Hardness Ca, Mg, Total		1	3154485	03/22/21 20:24	DEP	XS
Total/NA	Prep	NONE		1	3154426_P	03/22/21 17:58		XS
Total/NA	Analysis	TDS		1	3154426	03/22/21 17:58	DTN	XS

#### Laboratory References:

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Accreditation/Certification Summary

Client: Environmental Monitoring Laboratory, LLC Project/Site: J&J Water Wells

Job ID: 870-179-1

1

#### Laboratory: Eurofins Stafford

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704215-21-39	06-30-21

# **Method Summary**

Client: Environmental Monitoring Laboratory, LLC Project/Site: J&J Water Wells Job ID: 870-179-1

Method	Method Description	Protocol	Laboratory
200.7	EPA 200.7 Metals by ICP-OES	EPA	XS
2320B	SM 2320B Alkalinity (Tritration)	SM	XS
2340B	SM 2340B Hardness by Calculation	SM20	XS
2510B	SM 2510B Conductivity, Specific Conducta	SM18	XS
2540C	SM 2540C Total Dissolved Solids (TDS)	SM	XS
300.0	EPA 300.0	EPA	XS
4500H+ B	SM 4500H+ B (pH)	SM	XS

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

#### Laboratory References:

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

# Sample Summary

Job ID: 870-179-1

1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID	
870-17 <del>9</del> -1	Well 1 - PPE	Drinking Water	03/16/21 12:00	03/17/21 11:45		

5 and in WW	Relinquished by: (Signature)	of service. Eurofins Xenco will be liable only for the cost of see of Eurofins Xenco. A minimum charge of \$85.00 will be applied	Fortal 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed			NE (NN	m	मिद	Well I-ME DW 31	Sample Identification Matrix Sa	Containers:	Sample Custody Seals: Yes No N/A Tem	Cooler Custody Seals: Yes (Nd N/A Con	Samples Received Intact: (Mas No The	SAMPLE RECEIPT Temp Blank: Ye	PO# 2/03/644	Sempler's Name: NAVCH NC	rigida Number	Project Name: 343 Water well	Phone: 254-582-2622	City, State ZIP: HILLSBORO TX 76645	Address: PO BOX 477	Company Name: Environmental Monitoring La	Project Manager: SERISSA BECK	
and and	ceived by/(Signature)	is constitutes a valid purchase order from iles and shall not assume any responsibilit p each project and a charge of \$5 for each	8RCRA 13PPM Texa TCLP / SPLP 6010: 8			1200 6	6	6	1240 G	pled Sampled Depth Comp	cted Temperature: (), 2	etature Reliding: $0.0$	ction Factor: TQ_0	nometer ID:	And wather for	tAt starts the day received by the lab, if received by 4:30pm	Due Date:	Routine Rush	Turn Around	Email: HOMEOFFIC	City, State ZIP	Address:	company Nam	Bill to: (If differen	1001
3-17-21 1145 2	Dåte/Time Rělinquished	client company to Eurofins Xenco, its affiliates and sub y for any bases or expenses incurred by the client H su sample subcetted to Eurofine Xenco, but not analyzed	s11: Al Sb As Ba Be B Cd Ca Cr C RCRA Sb As Ba Be Cd Cr Co Cu F			X		X	- × ×	AST TOTAL		A Constant		and Ar	ngo dis ngo	is interior	Se des why	COME HAN HAN NO NO NO	NN/	E@YOURWATERLAB.COM					38, NM (375) 392-7550, Certsbad, NM (575) 985-319
	by: (Signature) Received by: (Sign	contractors. It seeigne standard terms and conditions ich losses are due to circumstances beyond the control	b CuFePbMgMnMoNiKSeAgS bMnMoNiSeAgTiU Hg:1	870-1	The second chain of Custod														LYSIS REQUEST	Deliverables: EDD A	Raporting: Level II Devel III	State of Project:	Program: UST/PST TRP Tm	Work Or	
	natura) Data/Time		3102 Na Sr TI Sn U V Zn 1631 / 245.1 / 7470 / 7471				LUDE.	THE LINE		Sample Comments	NaOH+Asconbic Acid: SAPC	NB252/C3: NBSC3	NaHSO,: NABIS	H <sub>3</sub> PO <sub>4</sub> : HP	H2SO4: H2 NAOH: NA	HCL: HC HNO3: HN	Cool: Cool MeOH: Me	None: NO DI Water: H <sub>2</sub> O	Preservative Codes	DaPT Other:				rder Commente	

# Chain of Custody

🔅 eurofins

Environment Testing Xenco

Houston, TX (251) 240-4200, Dallas, TX (214) 802-0300 Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334 EL Paso, TX (915) 585-3443, Lubbock, TX (808) 784-1286 Hobbs, NM (575) 302-7550, Carlabad, NM (575) 888-3189

Work Order No: 810-179-1

Backbard Franks (REPSI/2000) Barry 20000 2

# Login Sample Receipt Checklist

Client: Environmental Monitoring Laboratory, LLC

#### Login Number: 179 List Number: 1 Creator: Capps, Whitney

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

Job Number: 870-179-1

List Source: Eurofins Dallas





1104704247-20-20

March 24, 2021

J & J Water Well PO BOX 213 Cherokee, TX 78632

Re: Well 1, 3 and 5 PPE

Dear Client:

ENVIRONMENTAL SCIENTIST President C.C. 'Chuck' Blair, M.S. P.G. – B/B tephanie Soward Administrative Assistant

KEY ACCOUNTS MANAGER Vice President Clint Blair, B.A. – Analyst, C

Cant Barr, B.A. – Analyst, C. International Manager / Technical Manager John Manager / Technical Manager John Manager / Technical & OC Manager Service Service A. D. Becleriological Manager / Technical Manager Neale Krik, A.A. Sharon Hunche – Technical Manager Marka, Sinkwie Lab Tech IV Dean-an Bilggs – Lab Tech II Dana Schumen – Lab Tech II Mana Skownid – Lab Tech II Haley Johnston - Leb Tech I Haley Johnston - Leb Tech I

DATA Heather Wagner - Semor Data Manager April Merritt - Data Assistant

FIELD OPERATIONS Operations Manager Jim Scott, A.S., C/C Glenn Tidwell, Jr. D/D Jeff Bullock Joseph Wright

HOME OFFICE Machell Plummer – Office/ HR Manager Britiney Perkins Office/HR Assistant

PANHANDLE DIVISION Van Willis – Division Manager. D/D Greg Willis – Field Operator. D Justin Duvall – Field Operator Kaitlin Henderson – Office Assistant

SOUTH WEST DIVISION Lee Waller - Division Manager, D/D Carla Jacobs - Office/Field Operations

EAST TEXAS, DIVISION Jennifer Grecham - Division Manager, D/D Edward Gresham, Division Ops D/D EML collected samples on 03/16/21. These samples were submitted for analysis on 03/18/21. The following is the result of the analytical procedures performed on this sample and listed on the following pages they include, QA/QC information, chain of custody form, and other lab identification information.

ENVIRONMENTAL MONITORING LABORATORY, L.L.C. BIOLOGICAL & CHEMICAL ANALYSIS / UTILITIES MANAGEMENT & OPERATION / WATERWELL DRILLING & SERVICE / GEOLOGICAL INVESTIGATION

Respectfully Submitted,

John Scott B. S. General Manager



**CITY OF WACO** 

Regional Water Quality Laboratory 5701 Lake Shore Drive Waco, Texas 76710 Office: 254-750-1662 Fax: 254-750-1651 TCEQ Lab ID: 48170 EPA Lab ID: TX01431



Submit To: Environmental Monitoring Laboratory P.O. BOX 477 Hillsboro, TX 76645

Contact: 254-582-2622

#### **Final Report Cover Sheet**

REPORT ID: 03-2021-030

REPORT DATE: March 24, 2021

**Qualifying Statement** 

Results are an assessment of the sample aliquot delivered to the laboratory and are reported "As Received" on a wet basis unless otherwise indicated. All analyses were performed by this facility. Waco Regional Water Quality Laboratory does not provide for subcontracted work. Waco Regional Water Quality Laboratory is a municipal laboratory and maintains NELAP certification through the Texas Commission on Environmental Quality, a recognized accrediting authority under TNI. Waco Regional Water Quality Laboratory also maintains recognition through the Texas Commission on Environmental Quality's Laboratory Approval Program for Public Water System drinking water analyses to include turbidity, pH, temperature, total organic carbon, UV 254, alkalinity, free and total chlorine, and phosphate. Test results for accredited parameters are generated through implementation of a TNI approved laboratory quality system and meet all requirements of that system unless otherwise noted in the qualifier section.

The following is a key to notations found in this report:

SAMPLE TYPE (see C-o-C)	CONTAIN	ER	
Code 1: G = Grab, C = Composite	P = Plastic		G = Glass
Code 2: D = Drinking, S = Surface, G = Ground	A = Amber		S = Sterile
ST = Storm, WST = Waste	VOA = Vola	tile Organic Analysis (40mL-T)	T = Teflon Cap
Code 3: W = Water, S = Solid, SLG = Sludge			· · · · · · · · · · · · · · · · · · ·
REPORTING UNITS			
mg/L = milligrams per Liter ug/L = microgra	ms per Liter umhos/cm = m	icromhos/centimeter	
cm-1 = per 1 centimeter path width SU = Stand	lard Units C = degrees Celsius	MPN = Most Probable Number	mL = milliliter L = Liter
QUALITY CONTROL			
LRB = Laboratory Reagent Blank	LOQ = Limit of Quantification	LD = Laborator	y Duplicate
LCS = Laboratory Control Standard	FB = Filtered Blank (0.45um)	QCS = Quality	Control Standard
RPD = Relative Percent Difference	MS = Matrix Spike	MSD = Matrix S	Spike Duplicate
GENERAL			
NA = Not Applicable ND = Not Detected	NR = Not Recorded	NC = Not able to Calculat	e
RL = Reporting Limit			
Sto-		Date: 03/24/20	2]
Stephen B. Junot / Technical Manager			
THIS REPORT MAY ONLY BE REPRODUC PARTIAL REPRODUCTION INVALIDATES ,	ED IN ITS ENTIRETY AUTHENTICITY	WQL Revi Effec	-408 sion 2019-01 stive August 07, 2019

Waco Regional Water Quality Laboratory 5701 Lake Shore Drive - Waco, TX 76710 Please Correspond To: P.O. Box 2570 - Waco, TX 76702 Office: (254) 750-1662 Fax: (254) 750-1651

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 REPORT ID:
 03-2021-030

 REPORT DATE:
 March 24, 2021

CLIENT: Environmental Monitoring Lab - J&J Water Well

Lab Receive Date/Time: 03/18/21 09 Received By: HUBBARD

09:48

	H															
Client	Sample 1ype (See C-o-C)	Bottle		Collec	tion	Lab ID			Samp	le Analy	sis					
Sample ID	CODE	Type											Result	RL	Units	Qualifiers
	1, 2, 3		Date	Time	By	LIMS ID	Bottle	Parameter	Date	Time	By	Method				
NELL 1 PPE	Ğ,D,Ŵ	P 250mL	03/16/21	12:00	ROBBIE BERNARD	2103306.01	m	N-SON	03/19/21	01:39	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
VELL 3 PPE	G,D,W	P 250mL	03/16/21	12:15	ROBBIE BERNARD	2103306.02	e	NO3-N	03/19/21	02:06	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
VELL 5 PPE	G,D,W	P 250mL	03/16/21	12:30	ROBBIE BERNARD	2103306.03	ю	NO3-N	03/19/21	02:34	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
	Signed Cov	rer Sheet I	Mandatory	compo	nent of this Rep	ort										
	Sample Chain	of Custor	Jy mandato	ory com	ponent of this F	Report		COMMENTS:				No Additi	onal Comm	ient		

THIS REPORT MAY ONLY BE REPRODUCED IN ITS ENTIRETY PARTIAL REPRODUCTION INVALIDATES AUTHENTICITY

REPORT ID: 03-2021-030 REPORT DATE: March 24, 2021 Environmental Monitoring Lab - J&J Water Well

CLIENT:

Waco Regional Water Quality Laboratory 5701 Lakeshore Drive Waco, TX 76710

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Parameter Analysis Date							LABORAT(	<b>DRY QUALITY</b>	CONTROL						
NO3-N									Matrix ID:			21033	805.04		
03/18-19/21	Units	LRB - Initial	LRB - Final	F-LRB	ΓΟØ	acs	LCS-Initial	LCS-Final	E-LCS	Matrix	WS	MSD	Matrix	9	GdX
Observed Result:	1) 2002	< 0.10	< 0.10		0.112	0.95	0.96	0.97		< 0.10	0.96	0.96			0.4
Spike Addition:	7/601				0.1	-	-			Dilution	<b>4</b>	÷		ALC: NO	NUMBER OF
Recovery:	%				112	95	96	67		Factor	96	96			
Acceptance Criteria:		< 0.10	< 0.10	NA	75 - 125	90 - 110	90 - 110	90 - 110	NA		90 - 110	90 - 110			va V
	Qualifier:			E.					20 million - 11 million - 14						

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WQL-409 Revision: 2019-01.01 Effective January 25, 2021

Quality Review: 23/24/24

Page 2 of 3

Waco Regional Water Quality Laboratory 5701 Lakeshore Drive Waco, TX 76710

 REPORT ID:
 03-2021-030

 REPORT DATE:
 March 24, 2021

 REPORT DATE:
 March 24, 2021

 CLIENT:
 Environmental Monitoring Lab - J&J Water Well

Delivery time to lab did not allow for meeting holding time Qualifier Explanation Appropriate for Analysis Requested Certification Polyseed correction value outside of acceptance criteria MS and/or MSD recovery outside of acceptance criteria LRB or Blank result outside of acceptance criteria Exceeded oxygen depletion acceptance criteria Duplicate RPD outside of acceptance criteria QCS recovery outside of acceptance criteria LOQ recovery outside of acceptance criteria LCS recovery outside of acceptance criteria LFB recovery outside of acceptance criteria GGA result outside of acceptance criteria Bottle not Provided by Laboratory Qualifier Code Calibration limit exceeded Holding time exceeded Sample dechlorinated Sample preserved Sample Rejected Sample filtered Sample dilution 10 -2 က 4 ŝ φ ~ œ თ O m Ø I -C. ш

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WQL-409 Revision: 2019-01.01 Effective January 25, 2021

Page 3 of 3

**NELAP** TCEQ

Laboratory not currently certified under NELAP for analysis performed

Accredited laboratory for analysis performed

Approved laboratory for drinking water analysis

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	All Results meet			New	TAL IVI	LU0	200	LA	20/S	Duc		Waco Reg	iu correspon ional Water Qi	uality Labora	atory
CITY OF WACO	Accreditation ano/or Cartification	Address	Xog	4-17		404a	OHO .		Mobile	-	,	Wa	P.O. Box 25 co, Texas 767	570 '02-2570	-
	requirements		HIS/				200	22				U	ontact Inform	ation:	
TCEQ Lab ID TCEQ Certificate Number 48170 T104704415	in Final Report		X   015	d.	1001	Ŋ	NO#	ng Numb	*			ო_ Ó	701 Lakeshorr Waco, Texas 1 ffice: (254) 75	e Drive 76710 10-1662	
		PLEASE PF	INT AND IN	VITIAL WH	IERE APPLI	CABLE							ax: (254) 750	-1651	7
Collected By: DArbie Rows it	Initial:	Client Sto	age:		Temp:		Remove	d from Sto	srage for	<b>Fransport</b>		Delivere	d By:	5.5	
Britisti	a z	Date/	ime:		By:	Da	te/Time:			B A		Receive	d By:	SCI+	.
right 1+2 Water Well		2 Hard 2 1	SS 1 F DS-G 2 CI	1 CA 2 Mg	1 TKN Solu 2 Total P	ble TOC	DOC	V264 TTH	M 1 P/A	1 CBOD	1 Chi-a 2 Alhae		Date/Tin		
Comment:		3 Cond 3 4	SS 3 Br 4 NO <sub>2</sub> -N	e z	*N-CHN E				3 HPC		3 AITOX			1997 I	il.
Applicable		6 Temp	6 PO4-N								<u> </u>	Thermom	eter ID:	90786913	
Codes z Pertmang S=Surface G=Grout 3 W=Mater S=Solid SLG=Sludge	id ST≐Storm WST=Waste	8 Turbidity 9 NH3-N*	7 504 8 Br03 9 MDY-4								<u>kana</u>	Onlice	ō	5 2	Ş
Sub-Identifier for Parameter Types (Aliguots will be	identified using Sub-	1. A. S. 10	2 3	A	5 6	4	175	74 0	0	40	104	YES	N N	in N	و
identifier of parent bottle followed by a,	b, c, etc)	- Free			•Total	and the second	() ()	0 610	a	10	2-118	Ŷ			
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# Water Quality

Well No. 3



March 31, 2021



7104704247-20-20

J & J Water Well PO BOX 213 Cherokee, TX 78632

Re: Well 3 - PPE - 870-179-2

Dear Client:

ENVIRONMENTAL SCIENTIST President C.C. "Chuck" Blair, M.S. P.G. ~ B/B Itephanie Soward - Administrative Assistant

> KEY ACCOUNTS MANAGER Vice President Clint Blair, B.A. - Analyst, C

Clinit Dani, D.A. Antarya, C. LAGORATOR, John Scott, B.S. C.C. Assutani G.M. Technical Manager John Scott, B.S. C.C. Assutani G.M. Technical & G.C. Manager Seriesa Beck, A.A., D. Bacteriological Manager / Technical Manager Mark, Sinxle – Lab Tech I Polyanna Thibodeau – Lab Tech IV Dean-in Higgs – Lab Tech I Mikaya Soward – Lab Tech I Mikaya Soward – Lab Tech I Mikaya Soward – Lab Tech I

DATA Heather Wagner – Senior Data Manager April Merritt – Data Assistant

FIELD OPERATIONS Operations Manager Jim Scott. A S , C/C Glenn Tidwell, Jr. D/D Jeff Bullock Joseph Wright

HOME OFFICE Machell Plummer – Office/HR Manager Brittney Perkins – Office/HR Assistant

Van Willis – Division Manager, D/D Greg Willis – Field Operator, D Justin Duvall - Field Operator Keitlin Henderson – Office Assistant

SOUTH WEST DIVISION Lee Waller - Division Manager, D/D Carla Jacobs - Office/Field Operations

EAST TEXAS. DIVISION Jennifer Gresham - Division Manager, D/D Edward Gresham, Division Ops D/D EML collected samples on 03/16/21. These samples were submitted for analysis on 03/17/21. The following is the result of the analytical procedures performed on this sample and listed on the following pages they include, QA/QC information, chain of custody form, and other lab identification information.

ENVIRONMENTAL MONITORING LABORATORY, L.L.C. BIOLOGICAL & CHEMICAL ANALYSIS / UTILITIES MANAGEMENT & OPERATION / WATERWELL DRILLING & SERVICE / GEOLOGICAL INVESTIGATION

Respectfully Submitted,

John Scott B. S. General Manager



Environment Testing America

# ANALYTICAL REPORT

Eurofins Dallas 9701 Harry Hines Blvd Dallas, TX 75220 Tel: (214)902-0300

# Laboratory Job ID: 870-179-2

Client Project/Site: Public Well List Revision: 1

# For

Environmental Monitoring Laboratory, LLC 6145 State Highway 171 PO BOX 477 Hillsboro, Texas 76645

# Attn: Hillsboro Office



LINKS .....

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he

Authorized for release by: 3/31/2021 9:56:29 PM

John Builes, Project Manager (281)240-4200 john.builes@eurofinset.com

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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# **Definitions/Glossary**

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List

Job ID: 870-179-2

# Qualifiers

Subcontract Qualifier	Qualifier Description
К	Sample analyzed outside of recommended hold time.
U	Analyte was not detected.

# Glossary

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

#### Job ID: 870-179-2

#### Laboratory: Eurofins Dallas

#### Narrative

Job Narrative 870-179-2

#### Comments

No additional comments.

#### Receipt

The samples were received on 3/17/2021 11:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.2° C.

#### Subcontract non-Sister

See attached subcontract report.

#### **Subcontract Work**

Method General Subcontract Method: This method was subcontracted to Eurofins Stafford. The subcontract laboratory certification is different from that of the facility issuing the final report.

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List

# Client Sample ID: Well 3 - PPE

# Lab Sample ID: 870-179-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Ргер Туре
Calcium	55.9		0.200		mg/L	1		E200.7 Ca Mg	Total/NA
								Mn Na Fe	
Iron	0.281		0.200		mg/L	1		E200.7 Ca Mg	Total/NA
								Mn Na Fe	
Magnesium	31.8		0.200		mg/L	1		E200.7 Ca Mg	Total/NA
								Mn Na Fe	
Chloride	82.8		0.500		mg/L	1		E300 Chloride	Total/NA
								Fluoride Sulfate	
Fluoride	1.34		0.500		mg/L	1		E300 Chloride	Total/NA
								Fluoride Sulfate	
Sulfate	117		0.500		mg/L	1		E300 Chloride	Total/NA
								Fluoride Sulfate	
Specific conductance @ 25C	1630		10.0		umhos/cm	1		Local Method	Total/NA
pН	8.37	к			SU	1		pH SM4500	Total/NA
Temperature	19.9	к			Deg C	1		pH SM4500	Total/NA
Alkalinity, Total (CaCO3)	302		4.00		mg/L	1		SM2320	Total/NA
								Alkalinity Bi,	
								Carb, Total	
Hardness, Total (CaCO3)	270		1.3		mg/L	1		SM2340	Total/NA
								Hardness Ca,	
								Mg, Total	
Total Dissolved Solids	608		5.00		mg/L	1		TDS	Total/NA

This Detection Summary does not include radiochemical test results.

K

Lab Sample ID: 870-179-2 Matrix: Drinking Water

Client Sample ID: Well 3 - PPE Date Collected: 03/16/21 12:15 Date Received: 03/17/21 11:45

Method: E200.7 Ca Mg Mn Na I	- EPA 20	0.7 Metals Ł	by ICP-OES						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	55.9		0.200		mg/L		03/23/21 08:30	03/23/21 22:10	1
Iron	0.281		0.200		mg/L		03/23/21 08:30	03/23/21 22:10	1
Magnesium	31.8		0.200		mg/L		03/23/21 08:30	03/23/21 22:10	1
Manganese	<0.0200	U	0.0200		mg/L		03/23/21 08:30	03/23/21 22:10	1
Method: E300 Chloride Fluorid	e Sulfate -	EPA 300.0							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	82.8		0.500		mg/L		03/22/21 09:30	03/22/21 13:44	1
Fluoride	1.34		0.500		mg/L		03/22/21 09:30	03/22/21 13:44	1
Sulfate	117		0.500		mg/L		03/22/21 09:30	03/22/21 13:44	1
	10B Condu	uctivity, Spe	cific Condu	cta					
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific conductance @ 25C	1630		10.0		umhos/cm	_	03/28/21 16:43	03/28/21 16:43	1
Method: pH SM4500 - SM 4500	H+B (pH)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	8.37	К			SU		03/21/21 15:50	03/21/21 15:50	1
Temperature	19.9	К			Deg C		03/21/21 15:50	03/21/21 15:50	1
Method: SM2320 Alkalinity Bi,	Carb, Tota	I - SM 2320E	BAlkalinity (	Tritratio	on)				
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total (CaCO3)	302		4.00		mg/L	-	03/22/21 12:26	03/22/21 15:21	1
_ Method: SM2340 Hardness Ca,	Mg, Total	- SM 2340B	Hardness I	by Calc	ulation				
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, Total (CaCO3)	270		1.3		mg/L		03/23/21 22:10	03/23/21 22:10	1
Method: TDS - SM 2540C Total	Dissolved	Solids (TDS	5)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	608		5.00		mg/L		03/22/21 17:58	03/22/21 17:58	1

#### Method: E200.7 Ca Mg Mn Na Fe - EPA 200.7 Metals by ICP-OES Client Sample ID: Method Blank Lab Sample ID: 7723887-1-BLK Prep Type: Total/NA **Matrix: WATER** Prep Batch: 3154577\_P Analysis Batch: 3154577 BLANK BLANK **Dil Fac** Analyzed Analyte **Result Qualifier** RL MDL Unit D Prepared .2 mg/L 03/23/21 08:30 03/23/21 21:19 1 <.2 U Calcium .2 03/23/21 08:30 03/23/21 21:19 1 <.2 U mg/L Iron .2 mg/L 03/23/21 08:30 03/23/21 21:19 1 <.2 U Magnesium 03/23/21 08:30 03/23/21 21:19 1 .02 mg/L <.02 U Manganese **Client Sample ID: Lab Control Sample** Lab Sample ID: 7723887-1-BKS Prep Type: Total/NA **Matrix: WATER** Prep Batch: 3154577\_P Analysis Batch: 3154577 %Rec. Spike LCS LCS Limits Added Result Qualifier Unit D %Rec Analyte 85 - 115 25 23.0 mg/L 92 Calcium 5 93 85 - 115 4.63 mg/L Iron 92 85 - 115 25 23.0 mg/L Magnesium 1 0.967 mg/L 97 85 - 115 Manganese Client Sample ID: Lab Control Sample Dup Lab Sample ID: 7723887-1-BSD Prep Type: Total/NA Matrix: WATER Prep Batch: 3154577\_P Analysis Batch: 3154577 %Rec. RPD Spike LCSD LCSD RPD Limit %Rec Limits Analyte Added Result Qualifier Unit D 92 85 - 115 0 20 Calcium 25 22.9 mg/L 85 - 115 0 20 5 4.62 mg/L 92 Iron 25 22.9 mg/L 92 85 - 115 0 20 Magnesium 20 0.964 96 85 - 115 0 mg/L Manganese 1 Method: E300 Chloride Fluoride Sulfate - EPA 300.0

Lab Sample ID: 7723787-1-BLK Matrix: WATER Analysis Batch: 3154444								Client Samp Pre	le ID: Method Prep Type: To p Batch: 3154	l Blank otal/NA 4444_P
	BLANK	BLANK								
Analyte	Result	Qualifier		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<.5	U		.5		mg/L		03/22/21 09:30	03/22/21 07:05	1
Fluoride	<.5	U		.5		mg/L		03/22/21 09:30	03/22/21 07:05	1
Sulfate	<.5	U		.5		mg/L		03/22/21 09:30	03/22/21 07:05	1
Lab Sample ID: 7723787-1-BKS Matrix: WATER Analysis Batch: 3154444							Clien	t Sample ID: Pre	Lab Control S Prep Type: To p Batch: 3154	Sample otal/NA 4444_P
			Spike		LCS LCS				%Rec.	

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	10	10.2		mg/L		102	80 - 120	
Fluoride	10	10.0		mg/L		100	80 - 120	
Sulfate	10	9.44		mg/L		94	80 - 120	

Alkalinity, Total (CaCO3)

Method: E300 Chloride Fluoride Sulfate - EPA 300.0 (Continued)

#### Lab Sample ID: 7723787-1-BSD **Client Sample ID: Lab Control Sample Dup** Matrix: WATER Prep Type: Total/NA Prep Batch: 3154444 P Analysis Batch: 3154444 LCSD LCSD Spike %Rec. RPD Analyte Added **Result Qualifier** Unit D %Rec Limits RPD Limit Chloride 10 10.2 mg/L 102 80 - 120 0 20 Fluoride 10 10.0 mg/L 100 80 - 120 0 20 Sulfate 10 9.45 mg/L 95 80 - 120 n 20 Method: Local Method - SM 2510B Conductivity, Specific Conducta Lab Sample ID: 3154774-1-BLK Client Sample ID: Method Blank Matrix: WATER **Prep Type: Total/NA** Analysis Batch: 3154774 Prep Batch: 3154774 P BLANK BLANK Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed **Dil Fac** Specific conductance @ 25C <10 U 10 umhos/cm 03/28/21 16:43 03/28/21 16:43 Lab Sample ID: 3154774-1-BKS Client Sample ID: Lab Control Sample Matrix: WATER Prep Type: Total/NA Analysis Batch: 3154774 Prep Batch: 3154774 P Spike LCS LCS %Rec. Added **Result Qualifier** Limits Analyte Unit D %Rec Specific conductance @ 25C 1410 1420 umhos/cm 101 80 - 120 Lab Sample ID: 3154774-1-BSD **Client Sample ID: Lab Control Sample Dup Matrix: WATER** Prep Type: Total/NA Analysis Batch: 3154774 Prep Batch: 3154774 P LCSD LCSD Spike %Rec. RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit Specific conductance @ 25C 1410 1420 umhos/cm 101 80 - 120 0 20 Method: SM2320 Alkalinity Bi, Carb, Total - SM 2320B Alkalinity (Tritration) Lab Sample ID: 7723804-1-BLK Client Sample ID: Method Blank Matrix: WATER Prep Type: Total/NA Analysis Batch: 3154425 Prep Batch: 3154425 P BLANK BLANK Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed **Dil Fac** Alkalinity, Total (CaCO3) <4 11 03/22/21 12:26 03/22/21 12:40 Δ mg/L 1 Lab Sample ID: 7723804-1-BKS **Client Sample ID: Lab Control Sample** Matrix: WATER Prep Type: Total/NA Analysis Batch: 3154425 Prep Batch: 3154425 P Spike LCS LCS %Rec. Added **Result Qualifier** Limits Unit D %Rec Analyte 250 255 85 - 115 Alkalinity, Total (CaCO3) mg/L 102 Lab Sample ID: 7723804-1-BSD **Client Sample ID: Lab Control Sample Dup** Matrix: WATER Prep Type: Total/NA Analysis Batch: 3154425 Prep Batch: 3154425 P Spike LCSD LCSD %Rec. RPD Added Analyte **Result Qualifier** Unit D %Rec Limits RPD Limit

Eurofins Dallas

20

257

mg/L

103

85 - 115

250

# QC Sample Results

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List Job ID: 870-179-2

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

Lab Sample ID: 3154426-1-BLK Matrix: WATER Analysis Batch: 3154426									Cli	ent Sam Pre	ple ID: M Prep Ty ep Batch	ethod pe: Tol : 31544	Blank al/NA 126_P
Amelyte	BLANK	BLANK		DI			Unit	г	ם ר	renared	Analy:	7ed	Dil Fac
Analyte	Result	Quaimer				AIDF	mail		021	100/04 47.50	02/22/24	17.59	1
Iotal Dissolved Solids	<5	U		5			rng/L		03/2	2/21 17.00	03/22/21	17.50	'
Lab Sample ID: 3154426-1-BKS Matrix: WATER Analysis Batch: 3154426								Clier	nt Sa	mple ID: Pre	Lab Cor Prep Ty ep Batch	ntrol Sa pe: Tol : 31544	ample al/NA 426_P
-			Spike		LCS	LCS					%Rec.		
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits		
Total Dissolved Solids			1000		1030			mg/L		103	80 - 120		
Lab Sample ID: 3154426-1-BSD Matrix: WATER Analysis Batch: 3154426							C	lient Sa	mple	ID: Lab	Control Prep Ty ep Batch	Sample pe: Tot : 31544	e Dup al/NA 126_P
			Spike		LCSD	LCS	D				%Rec.		RPD
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits	RPD	Limit
Total Dissolved Solids			1000		978			mg/L		98	80 - 120	5	10

No.

# Subcontract

Analysis Batch: 3154290

-					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	pH SM4500	3154290_P
Analysis Batch: 31	54425				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	SM2320	3154425_P
				Alkalinity Bi,	
				Carb, Total	
7723804-1-BLK	Method Blank	Total/NA	WATER	SM2320	3154425_P
				Alkalinity Bi,	
7723804-1-BKS	Lab Control Sample	Total/NA	WATER	SM2320	3154425 P
1120001 / Bito	Eas control cample	l'otanto t		Alkalinity Bi.	0101120_1
				Carb, Total	
7723804-1-BSD	Lab Control Sample Dup	Total/NA	WATER	SM2320	3154425_P
				Alkalinity Bi,	
				Carb, Total	
Analysis Batch: 31	54426				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	TDS	3154426_P
3154426-1-BLK	Method Blank	Total/NA	WATER	TDS	3154426_P
3154426-1-BKS	Lab Control Sample	Total/NA	WATER	TDS	3154426_P
3154426-1-BSD	Lab Control Sample Dup	Total/NA	WATER	TDS	315 <b>4</b> 426_P
Analysis Batch: 31	54444				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	E300 Chloride	3154444_P
				Fluoride Sulfate	
7723787-1-BLK	Method Blank	Iotal/NA	WATER	E300 Chloride	3154444_P
7723787-1-BKS	Lab Control Sample	Total/NA	WATER	Fluonde Sullate	3154444 P
		i otdiri vi		Fluoride Sulfate	0101111_1
7723787-1-BSD	Lab Control Sample Dup	Total/NA	WATER	E300 Chloride	3154444_P
				Fluoride Sulfate	
Analysis Batch: 31	54577				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	E200.7 Ca Mg	3154577_P
				Mn Na Fe	
7723887-1-BLK	Method Blank	Total/NA	WATER	E200.7 Ca Mg	3154577_P
770007 4 DKC	Lab Cantral Canala	T-4-1/014		Mn Na Fe	0454577 D
1123001-1-010	Lab Control Sample	Total/NA	VVALER	E200.7 Ca Mg	3154577_P
7723887-1-BSD	Lab Control Sample Dup	Total/NA	WATER	F200 7 Ca Mo	3154577 P
				Mn Na Fe	
Analysis Batch: 31	54620				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	SM2340	3154620_P
			-	Hardness Ca,	_
				Mg, Total	
Analysis Batch: 31	54774				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	Local Method	3154774_P

# Subcontract (Continued)

## Analysis Batch: 3154774 (Continued)

Lab Sample ID	Client Sample ID	Prep Type Matrix		Method	Prep Batch	
3154774-1-BLK	Method Blank	Total/NA	WATER	Local Method	3154774_P	
3154774-1-BKS	Lab Control Sample	Total/NA	WATER	Local Method	3154774_P	
3154774-1-BSD	Lab Control Sample Dup	Total/NA	WATER	Local Method	3154774_P	
Prep Batch: 31542	90_P					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch	
870-179-2	Well 3 - PPE	Total/NA	Total/NA Drinking Water			
Prep Batch: 31544	25_P					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch	
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	SM2320P		
7723804-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***		
7723804-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***		
7723804-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***		
Prep Batch: 31544	26_P					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch	
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	NONE		
3154426-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***		
3154426-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***		
3154426-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***		
Prep Batch: 31544	44_P					
Lab Sample ID	Sample ID Client Sample ID		Matrix	Method	Prep Batch	
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	E300P		
7723787-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***		
7723787-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***		
7723787-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***		
Prep Batch: 31545	77_P					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch	
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	E200.7P		
7723887-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***		
7723887-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***		
7723887-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***		

#### Prep Batch: 3154620\_P

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch	
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	E200.7		

Job ID: 870-179-2

# Subcontract

Prep Batch: 3154774\_P

Lab Sample ID	Client Sample ID	Ртер Туре	Matrix	Method	Prep Batch
870-179-2	Well 3 - PPE	Total/NA	Drinking Water	NONE	5
3154774-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
3154774-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
3154774-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	

## Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List

K

## Lab Sample ID: 870-179-2 Matrix: Drinking Water

Client Sample ID: Well 3 - PPE Date Collected: 03/16/21 12:15

Date Received: 03/17/21 11:45

	Batch	Batch		Dilution	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	E200.7P		1	3154577_P	03/23/21 08:30		XS
Total/NA	Analysis	E200.7 Ca Mg Mn Na Fe		1	3154577	03/23/21 22:10	DEP	XS
Total/NA	Prep	E300P		1	31 <b>54444_</b> P	03/22/21 09:30		XS
Total/NA	Analysis	E300 Chloride Fluoride Sulfate		1	3154444	03/22/21 13:44	JYM	XS
Total/NA	Prep	NONE		1	3154774_P	03/28/21 16:43		XS
Total/NA	Analysis	Local Method		1	3154774	03/28/21 16:43	ANP	XS
Total/NA	Prep	NONE		1	3154290_P	03/21/21 15:50		XS
Total/NA	Analysis	pH SM4500		1	3154290	03/21/21 15:50	ANP	XS
Total/NA	Prep	SM2320P		1	3154425_P	03/22/21 12:26		XS
Total/NA	Analysis	SM2320 Alkalinity Bi, Carb, Total		1	3154425	03/22/21 15:21	ALZ	XS
Total/NA	Prep	E200.7		1	3154620_P	03/23/21 22:10		XS
Total/NA	Analysis	SM2340 Hardness Ca, Mg, Total		1	3154620	03/23/21 22:10	DEP	XS
Total/NA	Prep	NONE		1	3154426_P	03/22/21 17:58		XS
Total/NA	Analysis	TDS		1	3154426	03/22/21 17:58	DTN	XS

#### Laboratory References:

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200
## Accreditation/Certification Summary

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List

1

### Laboratory: Eurofins Stafford

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704215-21-39	06-30-21

## **Method Summary**

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List Job ID: 870-179-2

Method	Method Description	Protocol	Laboratory
200.7	EPA 200.7 Metals by ICP-OES	EPA	XS
2320B	SM 2320B Alkalinity (Tritration)	SM	XS
2340B	SM 2340B Hardness by Calculation	SM20	XS
2510B	SM 2510B Conductivity, Specific Conducta	SM18	XS
2540C	SM 2540C Total Dissolved Solids (TDS)	SM	XS
300.0	EPA 300.0	EPA	XS
4500H+ B	SM 4500H+ B (pH)	SM	XS

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

#### Laboratory References:

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

## Sample Summary

1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
870-179-2	Well 3 - PPE	Drinking Water	03/16/21 12:15	03/17/21 11:45	

a allow	Relinquished by: (Sig	Total 200.7 / 6010 Circle Method(s) and Me Notce: Signature of this docume					Well 3- PPE	Sample Identificat	Total Containers:	Sample Custody Seals:	Samples Received Intact:	SAMPLE RECEIPT	PO# 21	Project Location:	Project Number:	Project Name: J4	Phone: 254-t	City, State ZIP: HILL:	Address: PO B	Company Name: Envir	Project Manager, SER)	
ACINY AND AND	inature)	200.8 / 8020: 8RCRA stal(s) to be analyzed TCLP / 1 mt and relinquishment of samples constitutes a valid put		S(21) (244)8 (MN	and	પાર્	STZI IZIAIR ME	Bon Matrix Date Tinie Sampled	Corrected Temperature:	Yes No N/A Temperature Reading:	Yes No Thermometer ID:	Temp Blank: Yes (No) Weit Ice:	031686 the lab, if rac	4 J Water wells Due Date:	Routine	T Water wells Turn	582-2622 Email:	SBORO TX 76645	3OX 477	ronmental Monitoring Laboratory	ISSA BECK	Zenco
112-11-8	ne eny responsibility for any lesses or expens arge of 85 for each sample submitted to Euror Iture) Ddite/Time	13PPM Texas 11 AI Sb As Ba SPLP 6010: 8RCRA Sb As Ba		4 1	61	6		Depth Graby S of		TUCK PER 4	IRD GATE	And	te day received by	I I	Prish Prish Hw Ha	n Around	HOMEOFFICE@YOURWATERL	City, State ZIP:	Address:	Company Name:	Bill to: (If different)	Houston, TX (281) 240-4200 Midlend, TX (432) 704-5440, S EL Pasco, TX (915) 585-3443, Hobbs, NM (575) 392-7550, (
(45 2 6	es incurred by the client if such tosses an Ins Xence, but not analyzed. These terms Rélifiquished by: (Ston	Be B Cd Ca Cr Co Cu Fe Be Cd Cr Co Cu Pb Mn M		X	X	×	F	ota 140	id In	iss Chi ty;	olue CO	less ndi	Sali Sulf Vchu	ds ite	NO NO NO	ANALYSIS R	AB.COM					. Dalles, TX (214) 902-0300 an Antonio, TX (210) 508-3334 Lubbock, TX (808) 794-1286 Carlebad, NIM (576) 988-3189
	a the subsect of the	Pb Mg Mn Mo m b Ni Se Ag Ti U Hg: 163 r.	770-179-02 Chain of Class													FOIIEST	Deliverables: EDD ADaPT	Reporting: Level II Devel III DST/U	State of Project:	Program: UST/Detr Dep Dumme	Work Order	Work Order No:
e) Date/Time		.1 Sn U V Zn 				tubic livel		Sample Commente	Zn Acetale+NaOH: Zn VaOH+Asconbic Acid: SAPC	Na2520; NaSO	Hypoy: HP	H2SO4: H2 NBOH: NB	HCL: HC HNO3: HN		Preservative Codes		Other:					870-179-2

🔅 eurofins

Chain of Custody

## Login Sample Receipt Checklist

Client: Environmental Monitoring Laboratory, LLC

#### Login Number: 179 List Number: 1 Creator: Capps, Whitney

Question	Answer	Comment
The cooler's custody seal, if present; is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample botties 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	

Job Number: 870-179-2

List Source: Eurofins Dallas





1104704247-20-20

March 24, 2021

J & J Water Well PO BOX 213 Cherokee, TX 78632

Re: Well 1, 3 and 5 PPE

Dear Client:

ENVIRONMENTAL SCIENTIST President C.C. 'Chuck' Blair, M.S. P.G. – B/B tephanie Soward Administrative Assistant

KEY ACCOUNTS MANAGER Vice President Clint Blair, B.A. – Analyst, C

Cant Barr, B.A. – Analyst, C. International Manager / Technical Manager John Manager / Technical Manager John Manager / Technical & OC Manager Service Service A. D. Becleriological Manager / Technical Manager Neale Krik, A.A. Sharon Hunche – Technical Manager Marka, Sinkwie Lab Tech IV Dean-an Bilggs – Lab Tech II Dana Schumen – Lab Tech II Mana Skownid – Lab Tech II Haley Johnston - Leb Tech I Haley Johnston - Leb Tech I

DATA Heather Wagner - Semor Data Manager April Merritt - Data Assistant

FIELD OPERATIONS Operations Manager Jim Scott, A.S., C/C Glenn Tidwell, Jr. D/D Jeff Bullock Joseph Wright

HOME OFFICE Machell Plummer – Office/ HR Manager Britiney Perkins Office/HR Assistant

PANHANDLE DIVISION Van Willis – Division Manager. D/D Greg Willis – Field Operator. D Justin Duvall – Field Operator Kaitlin Henderson – Office Assistant

SOUTH WEST DIVISION Lee Waller - Division Manager, D/D Carla Jacobs - Office/Field Operations

EAST TEXAS, DIVISION Jennifer Grecham - Division Manager, D/D Edward Gresham, Division Ops D/D EML collected samples on 03/16/21. These samples were submitted for analysis on 03/18/21. The following is the result of the analytical procedures performed on this sample and listed on the following pages they include, QA/QC information, chain of custody form, and other lab identification information.

ENVIRONMENTAL MONITORING LABORATORY, L.L.C. BIOLOGICAL & CHEMICAL ANALYSIS / UTILITIES MANAGEMENT & OPERATION / WATERWELL DRILLING & SERVICE / GEOLOGICAL INVESTIGATION

Respectfully Submitted,

John Scott B. S. General Manager



**CITY OF WACO** 

Regional Water Quality Laboratory 5701 Lake Shore Drive Waco, Texas 76710 Office: 254-750-1662 Fax: 254-750-1651 TCEQ Lab ID: 48170 EPA Lab ID: TX01431



Submit To: Environmental Monitoring Laboratory P.O. BOX 477 Hillsboro, TX 76645

Contact: 254-582-2622

#### **Final Report Cover Sheet**

REPORT ID: 03-2021-030

REPORT DATE: March 24, 2021

**Qualifying Statement** 

Results are an assessment of the sample aliquot delivered to the laboratory and are reported "As Received" on a wet basis unless otherwise indicated. All analyses were performed by this facility. Waco Regional Water Quality Laboratory does not provide for subcontracted work. Waco Regional Water Quality Laboratory is a municipal laboratory and maintains NELAP certification through the Texas Commission on Environmental Quality, a recognized accrediting authority under TNI. Waco Regional Water Quality Laboratory also maintains recognition through the Texas Commission on Environmental Quality's Laboratory Approval Program for Public Water System drinking water analyses to include turbidity, pH, temperature, total organic carbon, UV 254, alkalinity, free and total chlorine, and phosphate. Test results for accredited parameters are generated through implementation of a TNI approved laboratory quality system and meet all requirements of that system unless otherwise noted in the qualifier section.

The following is a key to notations found in this report:

SAMPLE TYPE (see C-o-C)	CONTAIN	ER	
Code 1: G = Grab, C = Composite	P = Plastic		G = Glass
Code 2: D = Drinking, S = Surface, G = Ground	A = Amber		S = Sterile
ST = Storm, WST = Waste	VOA = Vola	tile Organic Analysis (40mL-T)	T = Teflon Cap
Code 3: W = Water, S = Solid, SLG = Sludge			· · · · · · · · · · · · · · · · · · ·
REPORTING UNITS			
mg/L = milligrams per Liter ug/L = microgra	ms per Liter umhos/cm = m	icromhos/centimeter	
cm-1 = per 1 centimeter path width SU = Stand	lard Units C = degrees Celsius	MPN = Most Probable Number	mL = milliliter L = Liter
QUALITY CONTROL			
LRB = Laboratory Reagent Blank	LOQ = Limit of Quantification	LD = Laborator	y Duplicate
LCS = Laboratory Control Standard	FB = Filtered Blank (0.45um)	QCS = Quality	Control Standard
RPD = Relative Percent Difference	MS = Matrix Spike	MSD = Matrix S	Spike Duplicate
GENERAL			
NA = Not Applicable ND = Not Detected	NR = Not Recorded	NC = Not able to Calculat	e
RL = Reporting Limit			
Sto-		Date: 03/24/20	2]
Stephen B. Junot / Technical Manager			
THIS REPORT MAY ONLY BE REPRODUC PARTIAL REPRODUCTION INVALIDATES ,	ED IN ITS ENTIRETY AUTHENTICITY	WQL Revi Effec	-408 sion 2019-01 stive August 07, 2019

Waco Regional Water Quality Laboratory 5701 Lake Shore Drive - Waco, TX 76710 Please Correspond To: P.O. Box 2570 - Waco, TX 76702 Office: (254) 750-1662 Fax: (254) 750-1651

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 REPORT ID:
 03-2021-030

 REPORT DATE:
 March 24, 2021

CLIENT: Environmental Monitoring Lab - J&J Water Well

Lab Receive Date/Time: 03/18/21 09 Received By: HUBBARD

09:48

	H															
Client	Sample 1ype (See C-o-C)	Bottle		Collec	tion	Lab ID			Samp	le Analy	sis					
Sample ID	CODE	Type											Result	RL	Units	Qualifiers
	1, 2, 3		Date	Time	By	LIMS ID	Bottle	Parameter	Date	Time	By	Method				
NELL 1 PPE	Ğ,D,Ŵ	P 250mL	03/16/21	12:00	ROBBIE BERNARD	2103306.01	m	N-SON	03/19/21	01:39	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
VELL 3 PPE	G,D,W	P 250mL	03/16/21	12:15	ROBBIE BERNARD	2103306.02	e	NO3-N	03/19/21	02:06	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
VELL 5 PPE	G,D,W	P 250mL	03/16/21	12:30	ROBBIE BERNARD	2103306.03	ю	NO3-N	03/19/21	02:34	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
	Signed Cov	rer Sheet I	Mandatory	compo	nent of this Rep	ort										
	Sample Chain	of Custor	Jy mandato	ory com	ponent of this F	Report		COMMENTS:				No Additi	onal Comm	ient		

THIS REPORT MAY ONLY BE REPRODUCED IN ITS ENTIRETY PARTIAL REPRODUCTION INVALIDATES AUTHENTICITY

REPORT ID: 03-2021-030 REPORT DATE: March 24, 2021 Environmental Monitoring Lab - J&J Water Well

CLIENT:

Waco Regional Water Quality Laboratory 5701 Lakeshore Drive Waco, TX 76710

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Parameter Analysis Date							LABORAT(	<b>JRY QUALITY</b>	CONTROL						
NO3-N									Matrix ID:			21033	805.04		
03/18-19/21	Units	LRB - Initial	LRB - Final	F-LRB	ΓΟØ	acs	LCS-Initial	LCS-Final	E-LCS	Matrix	WS	MSD	Matrix	9	GdX
Observed Result:	1) 2002	< 0.10	< 0.10		0.112	0.95	0.96	0.97		< 0.10	0.96	0.96			0.4
Spike Addition:	7/601				0.1	-	-			Dilution	<b>4</b>	÷		ALC: NO	NUMBER OF
Recovery:	%				112	95	96	67		Factor	96	96			
Acceptance Criteria:		< 0.10	< 0.10	NA	75 - 125	90 - 110	90 - 110	90 - 110	NA		90 - 110	90 - 110			va V
	Qualifier:			E.					20 mm						

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WQL-409 Revision: 2019-01.01 Effective January 25, 2021

Quality Review: 23/24/24

Page 2 of 3

Waco Regional Water Quality Laboratory 5701 Lakeshore Drive Waco, TX 76710

 REPORT ID:
 03-2021-030

 REPORT DATE:
 March 24, 2021

 REPORT DATE:
 March 24, 2021

 CLIENT:
 Environmental Monitoring Lab - J&J Water Well

Delivery time to lab did not allow for meeting holding time Qualifier Explanation Appropriate for Analysis Requested Certification Polyseed correction value outside of acceptance criteria MS and/or MSD recovery outside of acceptance criteria LRB or Blank result outside of acceptance criteria Exceeded oxygen depletion acceptance criteria Duplicate RPD outside of acceptance criteria QCS recovery outside of acceptance criteria LOQ recovery outside of acceptance criteria LCS recovery outside of acceptance criteria LFB recovery outside of acceptance criteria GGA result outside of acceptance criteria Bottle not Provided by Laboratory Qualifier Code Calibration limit exceeded Holding time exceeded Sample dechlorinated Sample preserved Sample Rejected Sample filtered Sample dilution 10 -2 က 4 ŝ φ ~ œ თ O m Ø I -C. ш

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WQL-409 Revision: 2019-01.01 Effective January 25, 2021

Page 3 of 3

**NELAP** TCEQ

Laboratory not currently certified under NELAP for analysis performed

Accredited laboratory for analysis performed

Approved laboratory for drinking water analysis

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	All Results meet			New	TAL IVI	LU0	200	LA	20/S	Duc		Waco Reg	iu correspon ional Water Qi	uality Labora	atory
CITY OF WACO	Accreditation ano/or Cartification	Address	Xog	4-17		404a	OHO .		Mobile	-	,	Wa	P.O. Box 25 co, Texas 767	570 '02-2570	-
	requirements		HIS/				200	22				U	ontact Inform	ation:	
TCEQ Lab ID TCEQ Certificate Number 48170 T104704415	in Final Report		X   015	d.	1001	Ŋ	NO#	ng Numb	*			ო_ Ó	701 Lakeshorr Waco, Texas 1 ffice: (254) 75	e Drive 76710 10-1662	
		PLEASE PF	INT AND IN	VITIAL WH	IERE APPLI	CABLE							ax: (254) 750	-1651	7
Collected By: DArbie Rows it	Initial:	Client Sto	age:		Temp:		Remove	d from Sto	srage for	<b>Fransport</b>		Delivere	d By:	5.5	
Primi	a 2	Date/	ime:		By:	Da	te/Time:			B A		Receive	d By:	SCI+	.
right 1+2 Water Well		2 Hard 2 1	SS 1 F DS-G 2 CI	1 CA 2 Mg	1 TKN Solu 2 Total P	ble TOC	DOC	V264 TTH	M 1 P/A	1 CBOD	1 Chi-a 2 Alhae		Date/Tin		
Comment:		3 Cond 3 4	SS 3 Br 4 NO <sub>2</sub> -N	e z	*N-CHN E				3 HPC		3 AITOX			1997 I	il.
Applicable		6 Temp	6 PO4-N								<u> </u>	Thermom	eter ID:	90786913	
Codes z Pertmang S=Surface G=Grout 3 W=Mater S=Solid SLG=Sludge	id ST≐Storm WST=Waste	8 Turbidity 9 NH3-N*	7 504 8 Br03 9 MDY-4								<u>kana</u>	On loe	ō	5 2	Ş
Sub-Identifier for Parameter Types (Aliguots will be	identified using Sub-	1. A. S. 10	2 3	A	5 6	4	175	74 0	0	40	104	YES	N N	in N	و
identifier of parent bottle followed by a,	b, c, etc)	- Free			•Total	and the second	() ()	0 610	a	10	2-118	Ŷ			
Collection Site ID Year JENE Start Flatsh	See Codes Above									CHE DIS NO.	Concerning in	Ha	emo Clo		3.6
Month C3 Time Time	1 2 3								Field	Assessi	nents:	S.U.	Dur Do		
U.D.C.11 1- PPLE DAVIS) / 16 1300	GDW		r									$\left  \right $			1
WS- 21 03306-01 +	Sub-Identifier		m					-	_			comment:	-	-	Τ
AutoBran AutoBran AutoBran AutoBran A			Q			-		$\vdash$		_	Τ				-
tropholog Y (N) Both W	gradary		356					$\vdash$				Date Perfo	med D	ate Confirm	med
Filtration 1=Membrane, 2=Glas	s Fiber		MM												
Preservative 7=H3H04, 2=H2SO4, 3=HNO5, 4=N	la <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , 5=Lugol's	_	N/4					_							Γ
12.El 3-PPE Davies 1 6 1315	G D w		5					-						_	
WS4 C0-902018 MM + C03200-03 +	Sub-Identifier .		0			-		$\left  \right $				omment:	-	-	
With Both A Arthous States in the	dent 4 Strat		9			-		$\vdash$	-						
Providence A N	um ter .		36									Date Perio	d bem	ate Confirm	mett
Filtration 1=Membrane, 2=Glas	s Fiber		N/A												
Preservative	la <sub>2</sub> S₂0 <sub>3/</sub> 5≒Lugo]'s		N/A												
Weil 5-PPE Davies / Lo 1350	(3 V V)		Ľ					-							
WS- (UNS 210) +	Sub-Identifier		00			-		-	_			omment:	-	-	1
A DATE OF A	dive statute		Q			-	L	+	1		Γ				
House A (N) Boundary	due nu parte a la l		0.5			-		+	_			Date Perfo	0 pem	ate Confirr	med
Filtration 1=Membrane, 2=Glas	s Fiber		51 M							L	Ĺ		+		
Preservative 1=HJPO., 2=H2SO. 3=HNO., 4=h	la <sub>z</sub> S <sub>2</sub> O <sub>3</sub> , 5=Lugol's		N/A										-		Γ
WQL-008 H, Revision 2017-01 - Effective 09/01/17					F = FIEL	-	= LAB								

$\cap$												
TCEQ Microbial R	eporting For	r <b>m</b>	TCEQ Form 10525 av. 11/2016 - EML 05/2019	ENVIR	ONMEN	TAL M	ONITO	RING L	ABO	RATORY, LLC	STAR ACCROOM	
Water System Identification & Sample Collection Information	on (Please type or use block prin	nt with indelible ink only - DO N	OT USE GEL PENS)		P.O. Box 47 Office	7 / 6145 S 254-582-	late Highv 2622 Em	vay 171 H ergency:	lillsboro, 254-582-1	TX 76645 614	CARONATOR'	
Public Water System ID: (Must be 7 digits; include all zeros)				Penhandla D 13260 South US Hwy 297	ivi≑lon Amarillo TX 7911	a 61	E Young Stre	st Division et Liano, TX 7	8643	Esst Texas Division 14295 SH 155 North Winena, TX 75792	TCEQ ID: TX0154	47
Public Water System Name:				Office: 805-3 Emergency: 806 Test Resu	35-9393 5-786-0612 Its must meet (	all accredita	Office: 32 Emergency:	25-247-3295 830-730-3317	Jirements u	Office: 903-877-9222 Emergency: 817-357-6535 Inless stated otherwise.	TCEQ LAB ID: T1047	704247
Country D to L	2 6 0					Sample Tra	insport Cl	hain of Cu	stody - Si	gnature Required (No Initials)		
County. Brattact D	sumer Co			Relinquished By (Sampl	ler):	a tradi			Date	/Time:	135	-1
Name: Jana ) Water	ue //s			Received By (Courier, if	applicable):	ard			Date	- 1 U - 2 - 1 a / Time:		
Address: PO Box 213				Relinquished By (Courie	er):				Date	/ Time:		
E City: Charokee				Received By (Lab):	0.0	ned	5		Date 3.	-/Time: -//o-2	135.	2
State: TX	Zip Code: 26 9	832		Sample Ice	d? U	Tempera	ture Co	rrected	Sampl	les received on this reporting	Trip: Yes / No	
Phone #: 512-947-1155	-Earth- Jond)	watermells @	gmail.com	Ves [	□ No	12.7	°C 12	perature	form w divi	ere analyzed in the laboratory ision shown circled above.	Paid: Yest No Check # Choice	r
Sampler Signature:	2	License #:	26	Tested By: (Initials)	0	Time Tested:	311612	of	G Re	(Initials)	Time 145 Le	~1
Sampler, Name (Print): Sa	mpler Phone #:	Owner 🗆	Operator 🗆	Report porroval Sign	ature:	/	SITE	18/21	Date	1/Time: 1, 8/2, 1	801	
Kobbie Bornard	nishahle under state and/or federa	Other:	8. Chapter 37.10) By	Approving Technical	Manager:	en l	Re 1	11)	Date	Times / s/	0.5/	
signing this form, the sampler acknowledges that the samples were co	lected as indicated, and that the in	nformation submitted is accurate.		Sam	on Al	methe	- 7	m		5/18/3/	0851	
Sample Identification/Location	Collected Date Time	Sample Type : (V)	Originating Sample (All Receat, Replacement, &	Chlorine Residual	Rejection	Test Me	thod: SM	49223 / B	Colilert			
Te   DO NOT USE SITE #		tion *	Triggered Raw Samples)		Code	Total C	oliform	E. c	oli	Laboratory Sample ID	Number N	Votes
Raw Wells Use Source ID for Well Sampled Example:	And And Amor PM	Distribu Repeat Raw We Special Constru	Originating Date of Lab ID# Collection	Total. (mg/L)	Please Re-submit	Present	Absent	Present	Absent		C	K
Well 3 - PPE 3	3 16 21 1215 am			F		¥			Ø	210316-002	L N	Vo
	am pm			F								
	am pm			F								_
	am			F								
	am pm			F T								
	am			F								
	am pm			F								
	am			F								
	am pm			F								
	am			F								
* Special and Contruction samples are NOT FOR COMPLIANCE Codes/Definitions:	BR: Broken in Transit IN: Insufficient Information	CL: Chlorine Present (in sample) BP: Invalid Sampling Point	EH: Exceeded Hold Time IP: Invalid Sampling Protocol	EV: Excessive Volume FZ: LA: Lab Accident LR:	Frozen Sample Lab Rejected	HB: Heavy LT: Leaked	Bacterial Grow	wth ST: H NC: N	Heavy Silt /Tur to Chi orine R	rbidity Present esidual (on form) VO: Volume Insuffic	ient	

Chg Aut

## Water Quality

Well No. 5



March 31, 2021



7104704247-20-20

ENVIRONMENTAL MONITORING LABORATORY, L.L.C. BIOLOGICAL & CHEMICAL ANALYSIS / UTILITIES MANAGEMENT & OPERATION / WATERWELL DRILLING & SERVICE / GEOLOGICAL INVESTIGATION

J & J Water Well **PO BOX 213** Cherokee, TX 78632

Re: Well 5 - PPE - 870-179-3

Dear Client:

ENVIRONMENTAL SCIENTIST President C.C. "Chuck: Blair, M.S. P.G. – B/B shanie Soward – Administrative Assistant

KEY ACCOUNTS MANAGER Vice President Clint Blar, B.A. – Analyst, C

Clint Blart, B.A. – Ansiyet, C. *LBORATORY* General Manager / Technical Manager John Scott, B.S., C/C. Kasstamt GM / Technical & C.G. Manager Bactericlogical Manager / Technical Manager Mark, Brualier, Kin, A.A. Sharron Huneke – Technical Manager Mark, Brukler – Lab Tech I Deans Higgs – Lab Tech I Deans Schuman – Lab Tech I Mikayis Soward – Lab Tech I Heley Johnston – Lab Tech I

DA A ather Wagner - Senior Data Manage April Merritt – Data Assistent

FIELD OPERATIONS Operations Manager Jm Scott: A.S., C/C Glenn Tidwell, Jr. D/D Jeff Builock Joseph Wright

HOME OFFICE Machell Plummer – Office' HR Manage Brittney Perkins - Office'HR Assistant

PANHANDLE DIVISION PANHANDLE DIVISION Van Willis - Division Manager, D/D Greg Willis - Field Operator, D Justin Duvall - Field Operator Kaitlin Henderson - Office Assistant

SOUTH WEST DIVISION Weller – Division Manager, D/D a Jacobs – Office/Field Operation

EAST TEXAS, DIVISION r Gresham - Division Manager, D/D vard Gresham, Division Ops D/D

EML collected samples on 03/16/21. These samples were submitted for analysis on 03/17/21. The following is the result of the analytical procedures performed on this sample and listed on the following pages they include, QA/QC information, chain of custody form, and other lab identification information.

Respectfully Submitted,

John Scott B. S. General Manager

# eurofins

Environment Testing America

## ANALYTICAL REPORT

Eurofins Dallas 9701 Harry Hines Blvd Dallas, TX 75220 Tel: (214)902-0300

## Laboratory Job ID: 870-179-3

Client Project/Site: Public Well List Revision: 1

For:

Environmental Monitoring Laboratory, LLC 6145 State Highway 171 PO BOX 477 Hillsboro, Texas 76645

Attn: Hillsboro Office

Authorized for release by: 3/31/2021 10:04:39 PM

John Builes, Project Manager (281)240-4200 john.builes@eurofinset.com

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.

Visit us at: www.eurofinsus.com/Env

..... LINKS

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The

Expert

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## **Table of Contents**

## **Definitions/Glossary**

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List

**Contains No Free Liquid** 

Detection Limit (DoD/DOE)

Estimated Detection Limit (Dioxin) Limit of Detection (DoD/DOE)

Limit of Quantitation (DoD/DOE)

Method Detection Limit

Minimum Level (Dioxin)

Most Probable Number Method Quantitation Limit

Practical Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)

Too Numerous To Count

Toxicity Equivalent Quotient (Dioxin)

Not Calculated

Presumptive

**Quality Control** 

Negative / Absent Positive / Present

**Dilution Factor** 

Duplicate Error Ratio (normalized absolute difference)

Decision Level Concentration (Radiochemistry)

EPA recommended "Maximum Contaminant Level"

Minimum Detectable Concentration (Radiochemistry)

Not Detected at the reporting limit (or MDL or EDL if shown)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Minimum Detectable Activity (Radiochemistry)

Job ID: 870-179-3

#### Qualifiers

CNF

DER Dil Fac

DL

DLC

EDL

LOD LOQ

MCL

MDA

MDC MDL

ML

MPN

MQL NC

ND NEG

POS

PQL PRES

QC

RL

RPD

TEF

TEQ

TNTC

RER

DL, RA, RE, IN

Subcontract	Qualifier Description
K	Sample analyzed outside of recommended hold time.
U	Analyte was not detected.
Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit

Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

#### Job ID: 870-179-3

#### Laboratory: Eurofins Dallas

#### Narrative

Job Narrative 870-179-3

#### Comments

No additional comments.

#### Receipt

The samples were received on 3/17/2021 11:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.2° C.

#### Subcontract non-Sister

See attached subcontract report.

#### Subcontract Work

Method General Subcontract Method: This method was subcontracted to Eurofins Stafford. The subcontract laboratory certification is different from that of the facility issuing the final report.

## **Detection Summary**

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List

## Client Sample ID: Well 5 - PPE

Lab Samp	le ID:	870-1	79-3
----------	--------	-------	------

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Ргер Туре
Calcium	58.8		0.200		mg/L	1	_	E200.7 Ca Mg	Total/NA
								Mn Na Fe	
Magnesium	38.4		0.200		mg/L	1		E200.7 Ca Mg	Total/NA
								Mn Na Fe	
Chloride	77.0		0.500		mg/L	1		E300 Chloride	Total/NA
								Fluoride Sulfate	
Fluoride	1.08		0.500		mg/L	1		E300 Chloride	Total/NA
								Fluoride Sulfate	
Sulfate	157		0.500		mg/L	1		E300 Chloride	Total/NA
								Fluoride Sulfate	
Specific conductance @ 25C	1690		10.0		umhos/cm	1		Local Method	Total/NA
pH	8.39	K			SU	1		pH SM4500	Total/NA
Temperature	19.9	к			Deg C	1		pH SM4500	Total/NA
Alkalinity, Total (CaCO3)	297		4.00		mg/L	1		SM2320	Total/NA
								Alkalinity Bi,	
								Carb, Total	
Hardness, Total (CaCO3)	300		1.3		mg/L	1		SM2340	Total/NA
								Hardness Ca,	
								Mg, Total	
Total Dissolved Solids	661		5.00		mg/L	1		TDS	Total/NA

k

This Detection Summary does not include radiochemical test results.

## **Client Sample Results**

2

Lab Sample ID: 870-179-3 Matrix: Drinking Water

Client Sample ID: Well 5 - PPE Date Collected: 03/16/21 12:30 Date Received: 03/17/21 11:45

Method: E200.7 Ca Mg Mn Na Fe - EPA 20	0.7 Metals b	by ICP-OES						
Analyte Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium 58.8		0.200		mg/L		03/23/21 08:30	03/23/21 21:30	1
iron <0.200	U	0.200		mg/L		03/23/21 08:30	03/23/21 21:30	1
Magnesium 38.4		0.200		mg/L		03/23/21 08:30	03/23/21 21:30	1
Manganese <0.0200	U	0.0200		mg/L		03/23/21 08:30	03/23/21 21:30	1
Method: E300 Chloride Fluoride Sulfate -	EPA 300.0							
Analyte Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride 77.0		0.500		mg/L		03/22/21 09:30	03/22/21 09:54	1
Fluoride 1.08		0.500		mg/L		03/22/21 09:30	03/22/21 09:54	1
Sulfate 157		0.500		mg/L		03/22/21 09:30	03/22/21 09:54	1
Method: Local Method - SM 2510B Condu	uctivity, Spe	cific Conduc	cta					
Analyte Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific conductance @ 25C 1690		10.0		umhos/cm		03/28/21 16:43	03/28/21 16:43	1
Method: pH SM4500 - SM 4500H+ B (pH)								
Analyte Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН 8.39	K			SU		03/21/21 15:50	03/21/21 15:50	1
Temperature 19.9	К			Deg C		03/21/21 15:50	03/21/21 15:50	1
– Method: SM2320 Alkalinity Bi, Carb, Tota	I - SM 2320E	3 Alkalinity (	Tritratio	on)				
Analyte Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total (CaCO3) 297		4.00		mg/L		03/22/21 12:26	03/22/21 15:28	1
– Method: SM2340 Hardness Ca. Mg. Total	- SM 2340B	Hardness b	v Calci	ulation				
Analyte Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness, Total (CaCO3) 300		1.3		mg/L	_	03/23/21 21:30	03/23/21 21:30	1
_ Method: TDS - SM 2540C Total Dissolved	Solids (TDS	5)						
Analyte Result	Qualifiar	-7	MIDI	11	n	Dremared	Amelyment	Dil Ess
i thui j to i too uit	Quaimer	RL	WIDL	Unit	υ	Frepareu	Analyzed	рії гас

## **QC Sample Results**

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List Job ID: 870-179-3

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										JIIe	nt Sam		etnoa	Blank
Matrix: WATER												Prep Ty	pe: To	tal/NA
Analysis Batch: 3154577											Pre	p Batch	: 3154	577_P
	BLANK	BLANK												
Analyte	Result	Qualifier		RL		MDL	Unit		D	Pr	epared	Analyz	ed	Dil Fac
Calcium	<.2	U		.2			mg/L		0	)3/2:	3/21 08:30	03/23/21	21:19	1
Iron	<.2	U		.2			mg/L		(	)3/23	3/21 08:30	03/23/21	21:19	1
Magnesium	<.2	U		.2			mg/L		(	)3/2:	3/21 08:30	03/23/21	21:19	1
Manganese	<.02	U		.02			mg/L		C	)3/2:	3/21 08:30	03/23/21	21:19	1
Lab Sample ID: 7723887-1-BKS								Cli	ent	San	nple ID:	Lab Con	trol S	ample
Matrix: WATER												Prep Ty	pe: To	tal/NA
Analysis Batch: 3154577											Pre	p Batch	: 3154	577_P
,, e.e			Spike		LCS	LCS						%Rec.		_
Analyte			Added		Result	Qua	lifier	Unit		D	%Rec	Limits		
Calcium			25		23.0			mg/L		_	92	85 - 115		
Iron			5		4.63			mg/L			93	85 - 115		
Magnesium			25		23.0			mg/L			92	85 - 115		
Manganese			1		0.967			mg/L			97	85 - 115		
Lab Sample ID: 7723887-1-BSD							С	lient S	amp	ole	ID: Lab	Control	Sampl	le Dup
Matrix: WATER												Prep Ty	pe: To	tal/NA
Analysis Batch: 3154577											Pre	p Batch	: 3154	577_P
5			Spike		LCSD	LCS	D					%Rec.		RPD
Analyte			Added		Result	Qua	lifier	Unit		D	%Rec	Limits	RPD	Limit
Calcium			25		22.9			mg/L		_	92	85 - 115	0	20
Iron			5		4.62			mg/L			92	85 <sub>-</sub> 115	0	20
Magnesium			25		22.9			mg/L			92	85 - 115	0	20
Manganese			1		0.964			mg/L			96	85 - 115	0	20
lethod: E300 Chloride Fluor	ide Su	lfate - E	EPA 30	0.0										
Lab Sample ID: 7723787-1-BLK									C	Clie	nt Sam	ole ID: M	ethod	Blank
Matrix: WATER												Prep Ty	pe: To	tal/NA
											_			

	BLANK	BLANK							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<.5	U	.5		mg/L		03/22/21 09:30	03/22/21 07:05	1
Fluoride	<.5	U	.5		mg/L		03/22/21 09:30	03/22/21 07:05	1
Sulfate	<.5	U	.5		mg/L		03/22/21 09:30	03/22/21 07:05	1

Lab Sample ID: 7723787-1-BKS Matrix: WATER Analysis Batch: 3154444

#### Prep Batch: 3154444\_P LCS LCS %Rec. Spike Limits Added Result Qualifier Unit D %Rec Analyte 10 10.2 mg/L 102 80 - 120 Chloride 80 - 120 10.0 100 Fluoride 10 mg/L 10 9.44 94 80 - 120 Sulfate mg/L

**Eurofins Dallas** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

## Method: E300 Chloride Fluoride Sulfate - EPA 300.0 (Continued)

Lab Sample ID: 7723787-1-BSD Matrix: WATER		(	Client Sa	mple	ID: Lab	Control	Sample pe: Tot	e Dup al/NA	
Analysis Batch: 3154444						Pi	ep Batch	: 31544	144_P
-	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	10	10.2		mg/L		102	80 - 120	0	20
Fluoride	10	10.0		mg/L		100	80 - 120	0	20
Sulfate	10	9.45		mg/L		95	80 - 120	0	20

## Method: Local Method - SM 2510B Conductivity, Specific Conducta

Lab Sample ID: 3154774-1-BLK Matrix: WATER Analysis Batch: 3154774									Cli	ent Sai F	nple ID: Prep T Prep Batc	Method ype: To h: 3154	Blank tal/NA 774_P
Analyto	BLANK	BLANK		PI		мы	Unit			Pronarod	Ana	VZQC	Dil Eac
Specific conductance @ 25C	<10	U		10			umho	s/cm	03/	28/21 16:	43 03/28/2	1 16:43	1
Lab Sample ID: 3154774-1-BKS Matrix: WATER Analysis Batch: 3154774								Clie	nt Sa	imple II F	D: Lab Co Prep T Prep Bato	ontrol S ype: To h: 3154	ample tal/NA 774_P
			Spike		LCS	LCS	i				%Rec.		-
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits		
Specific conductance @ 25C			1410		1420			umhos/cr	n	101	80 - 120		
Lab Sample ID: 3154774-1-BSD Matrix: WATER Analysis Batch: 3154774							C	Client Sa	mple	) ID: La F	b Contro Prep T Prep Batc	I Samp ype: To h: 3154	le Dup tal/NA 774_P
			Spike		LCSD	LCS	D				%Rec.		RPD
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits	RPD	Limit
Specific conductance @ 25C			1410		1420			umhos/cr	ກ –	101	80 - 120	0	20

### Method: SM2320 Alkalinity Bi, Carb, Total - SM 2320B Alkalinity (Tritration)

Lab Sample ID: 7723804-1-BLK Matrix: WATER Analysis Batch: 3154425									Cli	ent S	amp Pre	ole ID: M Prep Ty p Batch	ethod pe: Tot : 3154	Blank tal/NA 425_P
A 1 /-	BLANK	BLANK												
Analyte	Result	Qualifier		RL		MDL	Unit			repare	ed	Analy	zed	Dil Fac
Alkalinity, Total (CaCO3)	<4	U		4			mg/L		03/2	22/21 1	2:26	03/22/21	12:40	1
Lab Sample ID: 7723804-1-BKS								Clie	nt Sa	mple	ID:	Lab Cor	ntrol Sa	ample
Matrix: WATER												Pren Tv	ne: To	al/NA
Analysis Batch: 3154425											Pro	n Batch	. 3154	125 P
Analysis Baton. 010-120			Spike		1.09	1.09					110	% Pag		123_1
			Shike			LC3			_			ARec.		
Analyte			Added		Result	Qual	itier	Unit	<u> </u>	%Re	C	Limits		
Alkalinity, Total (CaCO3)			250		255			mg/L		10	2	85 - 115		
Lab Sample ID: 7723804-1-BSD							С	lient Sa	mple	ID: L	ab (	Control	Sampl	e Dup
Matrix: WATER												<b>Prep Ty</b>	pe: Tot	tal/NA
Analysis Batch: 3154425											Pre	p Batch	: 31 <b>54</b> 4	425_P
			Spike		LCSD	LCSI	D					%Rec.		RPD
Analyte			Added		Result	Qual	ifie <b>r</b>	Unit	D	%Re	с	Limits	RPD	Limit
Alkalinity, Total (CaCO3)			250		257			mg/L		10	3	85 - 115	1	20

## **QC Sample Results**

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List Job ID: 870-179-3

100

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

Lab Sample ID: 3154426-1-BLK Matrix: WATER Analysis Batch: 3154426									Clie	ent Sam Pro	ple ID: M Prep Ty ep Batch	ethod   pe: Tot : 31544	Blank al/NA 126_P
	BLANK	BLANK						_			<b>A</b>	I	Dil 5
Analyte	Result	Qualifier	_	RL		MDL	Unit	D	P	repared	Analyz	ea	Dirrac
Total Dissolved Solids	<5	U		5			mg/L		03/2	2/21 17:58	3 03/22/21	17:58	1
Lab Sample ID: 3154426-1-BKS Matrix: WATER Analysis Batch: 3154426								Clien	ıt Sar	nple ID: Pre	Lab Cor Prep Ty ep Batch	ntrol Sa pe: Tot : 31544	ample al/NA 126_P
			Spike		LCS	LCS					%Rec.		
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits		
Total Dissolved Solids			1000		1030			mg/L		103	80 _ 120		
Lab Sample ID: 3154426-1-BSD Matrix: WATER Analysis Batch: 3154426							С	lient Sar	nple	ID: Lab Pre	Control Prep Ty ep Batch	Sample pe: Tot : 31544	e Dup al/NA 426_P
			Spike		LCSD	LCS	D				%Rec.		RPD
Analyte			Added		Result	Qual	lifier	Unit	D	%Rec	Limits	RPD	Limit
Total Dissolved Solids			1000		978	-		mg/L		98	80 - 120	5	10

## Subcontract

Analysis Batch: 3154290

			ITIMULIA	metrioa	FIED Datuit
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	pH SM4500	3154290_P
Analysis Batch: 31	54425				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	SM2320	3154425_P
				Alkalinity Bi,	
				Carb, Total	
7723804-1-BLK	Method Blank	Total/NA	WATER	SM2320	3154425_P
				Alkalinity Bi,	
7723804 1 BKS	Lab Control Sample	Total/NA		Carb, Iotal	3154425 D
1123004-1-01(3	Lab Control Sample	IOIdi/INA	WATER	Alkalinity Bi	5154425_1
				Carb. Total	
7723804-1-BSD	Lab Control Sample Dup	Total/NA	WATER	SM2320	3154425_P
				Alkalinity Bi,	
				Carb, Total	
Analysis Batch: 31	54426				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	TDS	3154426_P
3154426-1-BLK	Method Blank	Total/NA	WATER	TDS	3154426 P
3154426-1-BKS	Lab Control Sample	Total/NA	WATER	TDS	3154426 P
3154426-1-BSD	Lab Control Sample Dup	Total/NA	WATER	TDS	3154426 P
Analysia Ratah: 21/	54444				_
Analysis Datch. 51	5 <del>4444</del>				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Iotal/NA	Drinking Water	E300 Chloride	3154444_P
7723787-1-BLK	Method Blank	Total/NA		Fluoride Sulfate	3154444 P
7720707-1-DER	Method Blank	TOTOTION		Eluoride Sulfate	5154444_1
7723787-1-BKS	Lab Control Sample	Total/NA	WATER	E300 Chloride	3154444_P
				Fluoride Sulfate	
7723787-1-BSD	Lab Control Sample Dup	Total/NA	WATER	E300 Chloride	31 <b>54444_</b> P
Analysia Databy 24/	- 4 - 7 - 7			Fluoride Sulfate	
Analysis Batch: 51	94977				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	E200.7 Ca Mg	3154577_P
770007 1 DI V	Mothed Plank	Toto//NA		Mn Na Fe	2164677 D
1123001-1-DLK	Method Blank	TOLAMINA	VVALER	E200.7 Calivig Min Na Fe	3154577_P
7723887-1-BKS	Lab Control Sample	Total/NA	WATER	E200.7 Ca Mg	3154577 P
				Mn Na Fe	_
7723887-1-BSD	Lab Control Sample Dup	Total/NA	WATER	E200.7 Ca Mg	3154577_P
				Mn Na Fe	
Analysis Batch: 31	54620				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	SM2340	3154620_P
				Hardness Ca,	
				Mg, Total	
Analysis Batch: 31	54774				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	Local Method	3154774_P

## Subcontract (Continued)

#### Analysis Batch: 3154774 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
3154774-1-BLK	Method Blank	Total/NA	WATER	Local Method	3154774_P
3154774-1-BKS	Lab Control Sample	Total/NA	WATER	Local Method	3154774_P
3154774-1-BSD	Lab Control Sample Dup	Total/NA	WATER	Local Method	3154774_P
Prep Batch: 31542	90_P				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	NONE	
Prep Batch: 31544	25_P				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	SM2320P	
7723804-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
7723804-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
7723804-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT	
Prep Batch: 31544	26_P				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	NONE	
3154426-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
3154426-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
3154426-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	
Prep Batch: 31544	44_P				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	E300P	
7723787-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
7723787-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PRFP***	
7723787-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	
Prep Batch: 31545	77 P				
	- Client Sample ID	Pren Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPF	Total/NA	Drinking Water	E200.7P	
7723887-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT	
7723887-1-BKS	Lab Control Sample	Total/NA	WATER	PREP*** ***DEFAULT	
7723887-1-BSD	Lab Control Sample Dup	Total/NA	WATER	PREP*** ***DEFAULT	
				PREP***	

#### Prep Batch: 3154620\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
870-179-3	Well 5 - PPE	Total/NA	Drinking Water	E200.7	

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List

## Subcontract

Prep Batch: 3154774\_P

Lab Sample ID 870-179-3	Client Sample ID Well 5 - PPE	Prep Type Total/NA	Matrix Drinking Water	Method NONE	Prep Batch
3154774-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
3154774-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
3154774-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	

#### Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List

## Client Sample ID: Well 5 - PPE

Date Collected: 03/16/21 12:30 Date Received: 03/17/21 11:45

	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Prep	E200.7P		1	3154577_P	03/23/21 08:30		XS	
Total/NA	Analysis	E200.7 Ca Mg Mn Na Fe		1	3154577	03/23/21 21:30	DEP	XS	
Total/NA	Prep	E300P		1	3154444_P	03/22/21 09:30		XS	
Total/NA	Analysis	E300 Chloride Fluoride Sulfate		1	3154444	03/22/21 09:54	JYM	XS	
Total/NA	Prep	NONE		1	3154774_P	03/28/21 16:43		XS	
Total/NA	Analysis	Local Method		1	3154774	03/28/21 16:43	ANP	XS	
Total/NA	Prep	NONE		1	3154290_P	03/21/21 15:50		XS	
Total/NA	Analysis	pH SM4500		1	3154290	03/21/21 15:50	ANP	XS	
Total/NA	Prep	SM2320P		1	3154425_P	03/22/21 12:26		XS	
Total/NA	Analysis	SM2320 Alkalinity Bi, Carb, Total		1	3154425	03/22/21 15:28	ALZ	XS	
Total/NA	Prep	E200.7		1	3154620_P	03/23/21 21:30		XS	
Total/NA	Analysis	SM2340 Hardness Ca, Mg, Total		1	3154620	03/23/21 21:30	DEP	XS	
Total/NA	Prep	NONE		1	3154426_P	03/22/21 17:58		XS	
Total/NA	Analysis	TDS		1	3154426	03/22/21 17:58	DTN	XS	

#### Laboratory References:

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Lab Sample ID: 870-179-3 Matrix: Drinking Water E K

## Accreditation/Certification Summary

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List Job ID: 870-179-3

1

#### Laboratory: Eurofins Stafford

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date 06-30-21	
Texas	NELAP	T104704215-21-39		

## **Method Summary**

Client: Environmental Monitoring Laboratory, LLC Project/Site: Public Well List Job ID: 870-179-3

Method	Method Description	Protocol	Laboratory
200.7	EPA 200.7 Metals by ICP-OES	EPA	XS
2320B	SM 2320B Alkalinity (Tritration)	SM	XS
2340B	SM 2340B Hardness by Calculation	SM20	XS
2510B	SM 2510B Conductivity, Specific Conducta	SM18	XS
2540C	SM 2540C Total Dissolved Solids (TDS)	SM	XS
300.0	EPA 300.0	EPA	XS
4500H+ B	SM 4500H+ B (pH)	SM	XS

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

#### Laboratory References:

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

## Sample Summary

1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID																					
870-179-3	Well 5 - PPE	Drinking Water	03/16/21 12:30	03/17/21 11:45																						
5 3 A AM	Relinquished by: (Sig	of service, Eurofins Xenco with b of Eurofins Xenco. A minimum c	Circle Method(s) and Me						WEIL S. PPE	Semple Identificat		Sample Custody Seals:	Cooler Custody Seals:	Samples Received Intact:	SAMPLE RECEIPT	PO# 21	Sampler's Name: Na	Project Location:	Project Number:	Project Name: J4	Phone: 254-6	City, State ZIP: HILL:	Address: PO B	Company Name: Envir	Project Manager: SER	🔅 eurofin
--------------	-----------------------	---	--	---------	------------	-------------	---	--------	--------------------	----------------------	------------------	-----------------------	-----------------------	-------------------------------------	-------------------------	--------------------------------	------------------------------	----------------------------	-------------------	------------------	-------------------	------------------------	-------------------	----------------------------	----------------------	---
WW WAN	nature) Receiv	in and reinquishment of samples cor I lable only for the cost of samples a harge of 985.00 will be applied to eac	200.8 / 6020: stal(s) to be analyzed			21411 C (1)		Culo	TAPIE ME	don Matrix Sampled	Comected	Yes No N/A Temperat	Yes No N/A Correctión	Yes No Thermore	Temp Blank: Yes No	231685	ncu R	J Water Walls		J Water wells	582-2622	SBORO TX 76645	IOX 477	onmental Monitoring Labora	SSA BECK	IS Environment Te Xenco
MUNAD	red by: (Signature)	nstitutes a valid purchase order from . nd shall not assume any responsibilit h project and a charge of \$5 for each	8RCRA 13PPM Texa TCLP / SPLP 6010: 8			1 1230 4	9	100	D Mile 68 HZ Parts	d Sampled Depth Comp	Temperature: U.J	ure Reading: 0, X	n Factor:	eter ID:	Wet los: Yes No	the lab, if received by 4:30pm	TAT clark the designation in	Dile Data	Routine Rush	Turn Around	Email: HOMEOFFIC	City, State ZIP:	Address:	tory Company Nam	Bill to: (# differen	isting Hou BL P Hob
3-17-21 1195	Date/Time	ilient company to Eurofins Xenco / for any losses or expenses incu sample submitted to Eurofins Xes	RCRA Sb As Ba Be					X	XX	Cont ICAS	AL		Pa Hay Ta	rain rain rain rain	ne Man Man Man	ss 12 ane	id id	Code Hay ITA NU	Pres. LWI LL I HA		@YOURWATERLAB.C			R	0	Chain of Cu ten, TX (281) 240-4200, Data 4, TX (432) 704-5440, San Ark 140, TX (915) 585-3443, Lubbo 14, NM (575) 392-7650, Cartaba
0 <b>*</b> N	Rélinquished by: (Sig	, its affitiates and subcontractors. urred by the client if such losses a neo, but not analyzed. These term	B Cd Ca Cr Co Cu Fi Cd Cr Co Cu Pb Mn N			X	X			FI u Alk	ala	led the	4,	0	le.s	Sul	C. I	an an	1 010 1 TUAL	ANAI VOID	OM					<b>IStody</b> <b>a.</b> TX (214) 902-0300 anio. TX (210) 909-3334 ck. TX (806) 784-1298 ck. TX (806) 784-3199
	nature) Received	<ul> <li>It assigns standard terms and c re due to circumstances beyond t will be enforced unless provious</li> </ul>	e Pb Mg Mn Mo Ni K Io Ni Se Ag Ti U	870-1 P	- Chain																Deliverables: EDD	Reporting: Level II	State of Project:	Program: UST/D&T		Work
	1 by: (Signature)	onditions he control ly negotisted.	Se Ag SiO <sub>2</sub> Na Sr Ti ( Hg: 1631/245.1/74		of Custody			1.41	1.5	San	NaOH+Asco	Zn Acelate+	NaHSO, Na	H <sub>3</sub> PO <sub>4</sub> : HP	H2S04: H2	HOL: HC	Cool: Cool	None: NO	Pres	-					Work Order Comments	Order No: 810
	Date/Time		Sn U V Zn 170 / 7471					11.044	1.01	nple Comments	irbic Acid: SAPC	NaOH: Zn		5	NaOH: Na	HNO3: HN	MeOH: Me	DI Water: H <sub>2</sub> O	servative Codes							179-3

Page 17 of 18

Client: Environmental Monitoring Laboratory, LLC

## Login Number: 179 List Number: 1 Creator: Capps, Whitney

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

## Job Number: 870-179-3

List Source: Eurofins Dallas





1104704247-20-20

March 24, 2021

J & J Water Well PO BOX 213 Cherokee, TX 78632

Re: Well 1, 3 and 5 PPE

Dear Client:

ENVIRONMENTAL SCIENTIST President C.C. 'Chuck' Blair, M.S. P.G. – B/B tephanie Soward Administrative Assistant

KEY ACCOUNTS MANAGER Vice President Clint Blair, B.A. – Analyst, C

Cant Barr, B.A. – Analyst, C. I MaGORATORY General Namager, J. Technical Manager John Namager, J. Technical Manager Control GM. Technical & OC Manager Series Beck, A.A. D. Bacteriological Manager, J. Technical Manager Nala Karkole Lab Tech IV Dean-an Bilgar. - Lab Tech II Dana Schumen – Lab Tech II Dana Schumen – Lab Tech II Mikayi Sowad – Lab Tech II Haley Johnston - Lab Tech I

DATA Heather Wagner - Semor Data Manager April Merritt - Data Assistant

FIELD OPERATIONS Operations Manager Jim Scott, A.S., C/C Glenn Tidwell, Jr. D/D Jeff Bullock Joseph Wright

HOME OFFICE Machell Plummer – Office/ HR Manager Britiney Perkins Office/HR Assistant

PANHANDLE DIVISION Van Willis – Division Manager. D/D Greg Willis – Field Operator. D Justin Duvall – Field Operator Kaitlin Henderson – Office Assistant

SOUTH WEST DIVISION Lee Waller - Division Manager, D/D Carla Jacobs - Office/Field Operations

EAST TEXAS, DIVISION Jennifer Grecham - Division Manager, D/D Edward Gresham, Division Ops D/D EML collected samples on 03/16/21. These samples were submitted for analysis on 03/18/21. The following is the result of the analytical procedures performed on this sample and listed on the following pages they include, QA/QC information, chain of custody form, and other lab identification information.

ENVIRONMENTAL MONITORING LABORATORY, L.L.C. BIOLOGICAL & CHEMICAL ANALYSIS / UTILITIES MANAGEMENT & OPERATION / WATERWELL DRILLING & SERVICE / GEOLOGICAL INVESTIGATION

Respectfully Submitted,

John Scott B. S. General Manager



**CITY OF WACO** 

Regional Water Quality Laboratory 5701 Lake Shore Drive Waco, Texas 76710 Office: 254-750-1662 Fax: 254-750-1651 TCEQ Lab ID: 48170 EPA Lab ID: TX01431



Submit To: Environmental Monitoring Laboratory P.O. BOX 477 Hillsboro, TX 76645

Contact: 254-582-2622

## **Final Report Cover Sheet**

REPORT ID: 03-2021-030

REPORT DATE: March 24, 2021

**Qualifying Statement** 

Results are an assessment of the sample aliquot delivered to the laboratory and are reported "As Received" on a wet basis unless otherwise indicated. All analyses were performed by this facility. Waco Regional Water Quality Laboratory does not provide for subcontracted work. Waco Regional Water Quality Laboratory is a municipal laboratory and maintains NELAP certification through the Texas Commission on Environmental Quality, a recognized accrediting authority under TNI. Waco Regional Water Quality Laboratory also maintains recognition through the Texas Commission on Environmental Quality's Laboratory Approval Program for Public Water System drinking water analyses to include turbidity, pH, temperature, total organic carbon, UV 254, alkalinity, free and total chlorine, and phosphate. Test results for accredited parameters are generated through implementation of a TNI approved laboratory quality system and meet all requirements of that system unless otherwise noted in the qualifier section.

The following is a key to notations found in this report:

SAMPLE TYPE (see C-o-C)	CONTAIN	ER	
Code 1: G = Grab, C = Composite	P = Plastic		G = Glass
Code 2: D = Drinking, S = Surface, G = Ground	A = Amber		S = Sterile
ST = Storm, WST = Waste	VOA = Vola	tile Organic Analysis (40mL-T)	T = Teflon Cap
Code 3: W = Water, S = Solid, SLG = Słudge			· · · · · · · · · · · · · · · · · · ·
REPORTING UNITS			
mg/L = milligrams per Liter ug/L = microgra	ms per Liter umhos/cm = m	icromhos/centimeter	
cm-1 = per 1 centimeter path width SU = Stand	lard Units C = degrees Celsius	MPN = Most Probable Number	mL = milliliter L = Liter
QUALITY CONTROL			
LRB = Laboratory Reagent Blank	LOQ = Limit of Quantification	LD = Laborator	y Duplicate
LCS = Laboratory Control Standard	FB = Filtered Blank (0.45um)	QCS = Quality	Control Standard
RPD = Relative Percent Difference	MS = Matrix Spike	MSD = Matrix S	Spike Duplicate
GENERAL			
NA = Not Applicable ND = Not Detected	NR = Not Recorded	NC = Not able to Calculat	e
RL = Reporting Limit			
Stor)		Date: 03/24/20	2]
Stephen B. Junot / Technical Manager			
THIS REPORT MAY ONLY BE REPRODUC PARTIAL REPRODUCTION INVALIDATES	ED IN ITS ENTIRETY AUTHENTICITY	WQL Revi Effec	-408 sion 2019-01 :tive August 07, 2019

Waco Regional Water Quality Laboratory 5701 Lake Shore Drive - Waco, TX 76710 Please Correspond To: P.O. Box 2570 - Waco, TX 76702 Office: (254) 750-1662 Fax: (254) 750-1651

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 REPORT ID:
 03-2021-030

 REPORT DATE:
 March 24, 2021

CLIENT: Environmental Monitoring Lab - J&J Water Well

Lab Receive Date/Time: 03/18/21 09 Received By: HUBBARD

09:48

	H															
Client	Sample Type (See C-o-C)	Bottle		Collec	tion	Lab ID			Samp	le Analy	sis					
Sample ID	CODE	Type											Result	RL	Units	Qualifiers
	1, 2, 3		Date	Time	By	LIMS ID	Bottle ID	Parameter	Date	Time	By	Method				
WELL 1 PPE	Ğ,D,Ŵ	P 250mL	03/16/21	12:00	ROBBIE BERNARD	2103306.01	m	NO3-N	03/19/21	01:39	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
WELL 3 PPE	G,D,W	P 250mL	03/16/21	12:15	ROBBIE BERNARD	2103306.02	e	N-EON	03/19/21	02:06	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
WELL 5 PPE	G,D,W	P 250mL	03/16/21	12:30	ROBBIE BERNARD	2103306.03	e	NO3-N	03/19/21	02:34	SFrench	EPA 300.0	< 0.40	0.4	mg/L	B,T,N1
	Signed Cov	rer Sheet	Mandatory	compo	nent of this Rep	ort										
	Sample Chain	of Custor	Jy mandato	ory com	ponent of this F	Report		COMMENTS:				No Additi	onal Comr	rent		

THIS REPORT MAY ONLY BE REPRODUCED IN ITS ENTIRETY PARTIAL REPRODUCTION INVALIDATES AUTHENTICITY

REPORT ID: 03-2021-030 REPORT DATE: March 24, 2021 Environmental Monitoring Lab - J&J Water Well

CLIENT:

Waco Regional Water Quality Laboratory 5701 Lakeshore Drive Waco, TX 76710

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Parameter Analysis Date							LABORAT	<b>JRY QUALITY</b>	CONTROL						
NO3-N									Matrix ID:			21033	105.04		
03/18-19/21	Units	LRB - Initial	LRB - Final	F-LRB	Γοσ	acs	LCS-Initial	LCS-Final	F-LCS	Matrix	WS	MSD	Matrix	9	CLAN
Observed Result:	l) so con	< 0.10	< 0.10		0.112	0.95	0.96	0.97		< 0.10	0.96	0.96			0.4
Spike Addition:	11011				0.1	-	-			Dilution	<b>4</b>	÷	AL PARTY OF	ALC: NO	Note State
Recovery:	%				112	95	96	67		Factor	96	96			
Acceptance Criteria:		< 0.10	< 0.10	NA	75 - 125	90 - 110	90 - 110	90 - 110	NA		90 - 110	90 - 110			25
	Qualifier:			E.					20 million - 11 million - 14						

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WQL-409 Revision: 2019-01.01 Effective January 25, 2021

Quality Review: 23/24/24

Page 2 of 3

Waco Regional Water Quality Laboratory 5701 Lakeshore Drive Waco, TX 76710

 REPORT ID:
 03-2021-030

 REPORT DATE:
 March 24, 2021

 REPORT DATE:
 March 24, 2021

 CLIENT:
 Environmental Monitoring Lab - J&J Water Well

Delivery time to lab did not allow for meeting holding time Qualifier Explanation Appropriate for Analysis Requested Certification Polyseed correction value outside of acceptance criteria MS and/or MSD recovery outside of acceptance criteria LRB or Blank result outside of acceptance criteria Exceeded oxygen depletion acceptance criteria Duplicate RPD outside of acceptance criteria QCS recovery outside of acceptance criteria LOQ recovery outside of acceptance criteria LCS recovery outside of acceptance criteria LFB recovery outside of acceptance criteria GGA result outside of acceptance criteria Bottle not Provided by Laboratory Qualifier Code Calibration limit exceeded Holding time exceeded Sample dechlorinated Sample preserved Sample Rejected Sample filtered Sample dilution 10 -2 က 4 ŝ φ ~ œ თ O m Ø I -C. ш

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WQL-409 Revision: 2019-01.01 Effective January 25, 2021

Page 3 of 3

**NELAP** TCEQ

Laboratory not currently certified under NELAP for analysis performed

Accredited laboratory for analysis performed

Approved laboratory for drinking water analysis

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	All Results meet			New	TAL IVI	LU0	200	LA	20/S	730		Waco Reg	enal Water Qu	uality Labora	atory
CITY OF WACO	Accreditation ano/or Cartification	Address	Xog	4-17		404a	OHO .		Mobile		,	3M	P.O. Box 25 co, Texas 767	570 '02-2570	-
	requirements		HIS/				200	22				0	ontact Inform	ation:	
TCEQ Lab ID TCEQ Certificate Number 48170 T104704415	in Final Report		X   015	d.	1001	Ŋ	NO#	ng Numb	*			Q	701 Lakeshore Naco, Texes 7 ffice: (254) 75	e Drive 76710 10-1662	
		PLEASE PF	INT AND IN	VITIAL WH	IERE APPLI	CABLE							ax: (254) 750	-1651	7
Collected By: DArbie Rows it	Initial:	Client Sto	age:		Temp:		Remove	d from Sto	srage for	<b>Franspor</b>		Deliver	d By:	5.5	
Primi	a z	Date/	ime:		By:	Da	te/Time:			8		Receive	d By:	SCI+	.
right 1+2 Water Well		2 Hard 2 1	SS 1 F DS-G 2 CI	1 CA 2 Mg	1 TKN Solu 2 Total P	ble TOC	DOC	V264 TTH	M 1 P/A	1 CBOD	1 Chi-a		Date/Thr		
Comment:		3 Cond 3 4	SS 3 Br 4 NO <sub>2</sub> -N	e z	*N-CHN E				3 HPC		3 AITOX			1997 I	il.
Applicable		6 Temp	6 PO4-N								<b>I</b> X	Thermon	eter ID:	90786913	
Codes z Pertmang S=Surface G=Grout 3 W=Mater S=Solid SLG=Sludge	id ST≐Storm WST=Waste	8 Turbidity 9 NH3-N*	7 504 8 Br03 9 MDY-4								[200000]	Onte	0	5 2	Ş
Sub-Identifier for Parameter Types (Aliguots will be	identified using Sub-	1. A. S. 10	2 3	A	5 6	4	175	74 0	0	40	1514	YES	NO	in N	و
identifier of parent bottle followed by a,	b, c, etc)	- Free			•Total	and the second	() ()	0 610	a	2	2-11a	Y			
Collection Site ID Year JENE Start Flatsh	See Codes Above									o tric and		Ha	emo Ct3		3.6
Month C3 Time Time	1 2 3								Field	Assessi	ments: -	S.U.	oc mo		
U.D.C.11 1- PPLE DAVIS) / 16 1300	GDW		r												1
WS- 21 03306-01 +	Sub-Identifier		m					-	_			comment:	-	-	Τ
AutoBran AutoBran AutoBran AutoBran A			Q			-		$\vdash$							-
trophotica Y (N) Both W	gradary		350					$\vdash$				Date Perio	med D	ate Confirm	med
Filtration 1=Membrane, 2=Glas	s Fiber		MM												
Preservative 7=H3H04, 2=H2SO4, 3=HNO5, 4=N	la <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , 5=Lugol's	_	N/4					_							Γ
12.El 3-PPE Davies 1 6 1315	G D w		5					-						_	
WS4 C0-902018 MM + C03200-03 +	Sub-Identifier .		0			-		$\left  \right $				omment:	-	-	
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WQL-008 H, Revision 2017-01 - Effective 09/01/17					F = FIEL	-	= LAB								

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TCEQ Microbial	Repor	ting Form	TCE Rev. 11/2	Q Form 16. 2016 - EML 08/2019	ENVIR	ONMENT	AL MON Home Off	NITOR fice / Cen	Trai Divisi		ATORY, LLC	San Man	
Water System Identification & Sample Collection Infe	ernation (Please I	type or use block print with in	ndelible ink only - DO NOT US	E GEL PENS)		P.O. Box 4/7 Office:	254-582-26	22 Emer	rgency: 2	254-582-1	614	ARSONA.	Past.
Public Water System ID: (Must be 7 digits; include all zeros)			ayagenyyyyyyyy akademinikakakate		Penhandle 13260 South US Hwy 28 Office: 806-	Division 7 Amarillo, TX 79118 -335-9393	811 E	Southwell Young Street Office: 325-	Division Liano, TX 78 -247-3295	3643	East Texas Division 14295 SH 155 North Winona, TX 75792 Office: 903-877-9222	TCEQ ID: TX	01547
Public Water System	· · · · · · · · · · · · · · · · · · ·				Emergency: 8 Samples receiv	08-786-0612 ved on this repor	ting form we	Emergency: 8 vcc analyza	30-730-3317 ed in the la	toratory	Emergency: 817-357-6535 Ilvision shown circled above.	TCEQ LAE	ID:
Name:					Test Resu	uits must meet all	accreditation	n / certifica	ation requi	rements u	nless stated otherwise.	11047042	4/
County: Burnet C	0.				Samala	Sam	Delinguish	ort Chain	of Custo	dy - Sign	ature Required (No Initials)		
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iii u u u u u u	1 Well	/			Tempera	ature	Relinquisn	ed By (Sa	ampier):		Date / Time:		
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Samples Signature:		L	icense #: 58520	6	Tested By: (Initials	3) 19	Date / Time:	3/4	0314	Rep (I	orted By: nitials)	Date / 3-/	1-21
Sampler Name (Print):	Sampler Phone	e#:	Owner D Opera	ator 🗆	Report Approval S	ignature	. An	5# 31	18/21	Date	Time: 21.2/01 0851		
ILO BISI E BAY hard	5169	147-1155 ar state and/or federal law (Te	Other:	ter 37.10) By	Approving/Technic	cal Manager.	neke	7	m	Date	17imp: /		-
signing this form, the sampler acknowledges that the samples we	re collected as ind	icated, and that the information	n submitted is accurate.		Sharry	ion the	nehe	TIM	)	1	3/18/21 0851		
Sample Identification/Location	Co	Time Sar	nple Type : (1/) 0	Fighting Sample (All epset, Replacement, &	Chlorine Residue	al Rejection	Test Met	hod: SN	19223 / B	Colilert	Results	041	
DO NOT USE SITE #	5		etion *	iggered Rew Samples)	Chinese ACA for Even ATA	Code	Total Co	oliform	E.c	oli	Laboratory Sample ID Num	ber	J
Raw Wells Use Source ID for Well Sampled Example: G1234567A	Mont	AM or PM	Repeat Raw W Special Constru	riginating Date of ab ID# Collection	Total (mg/L)	Please Re-eubmil	Present	Absent	Present	Absent		Preser	t Absen
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* Special and Contruction samples are NOT FOR COMPLIANCE Codes/Definition	a BR: Bro 15: IN: Inst	oken in Transit CL: Chio Afficient Information BP: Inva	rine Present (in sample) EH: Exc Ilid Sampling Point IP: Inva	ceeded Hold Time EV: 1 alid Sampling Protocol LA: 1	Excessive Volume FZ: Lab Accident LR	: Frozen Sample I: Lab Rejected	HB: Heavy Bac LT: Lesked In 1	terial Growt fransit	h ST:He NC:N	eavy Silt /Turi lo Chibrine Re	oldity Present Isidual (on form) VO: Volume Insufficier	nt	

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