Report of Findings: WRGS 21-019

Report of Findings
The Hideout Ranch Subdivision
Groundwater Availability Certification for Platting:
Kerr and Gillespie Counties, Texas

For:
TX7 Land, LLC
P.O. Box 661
Murphy, NC 28906

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 21-019

The Hideout Ranch Subdivision
Groundwater Availability Certification for Platting:
Kerr and Gillespie Counties, Texas

for

TX7 Land, LLC

P.O. Box 661

Murphy, NC 28906

Kerr and Gillespie Counties, Texas

March 2022

WRGS Project No. 155-003-21

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 March 3, 2022:

Kaveh Khorzad, P.G.
License No. 1126

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

(This Page Left Blank Intentionally)

Table of Contents

Figures

Tables

Appendices

Section I: Introduction

This report details the results of a groundwater availability study for the proposed The Hideout Ranch Subdivision (The Hideout Ranch) 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.

The Hideout Ranch is located along Ranch to Market (RM) Road 479 approximately 4.5 miles northeast of Mountain Home in northern Kerr County and southwestern Gillespie County (Figure 1). The proposed subdivision is documented within the Kerr County Tax Assessor as Property IDs: 17680, 17681, 28477, 28478, 28480, 46634 and 64208 and within the Gillespie County Tax Assessor as Property IDs: 35985 and 36000. TX7 Land, LLC (P.O. Box 661, Murphy, NC 28906) is the plat applicant.

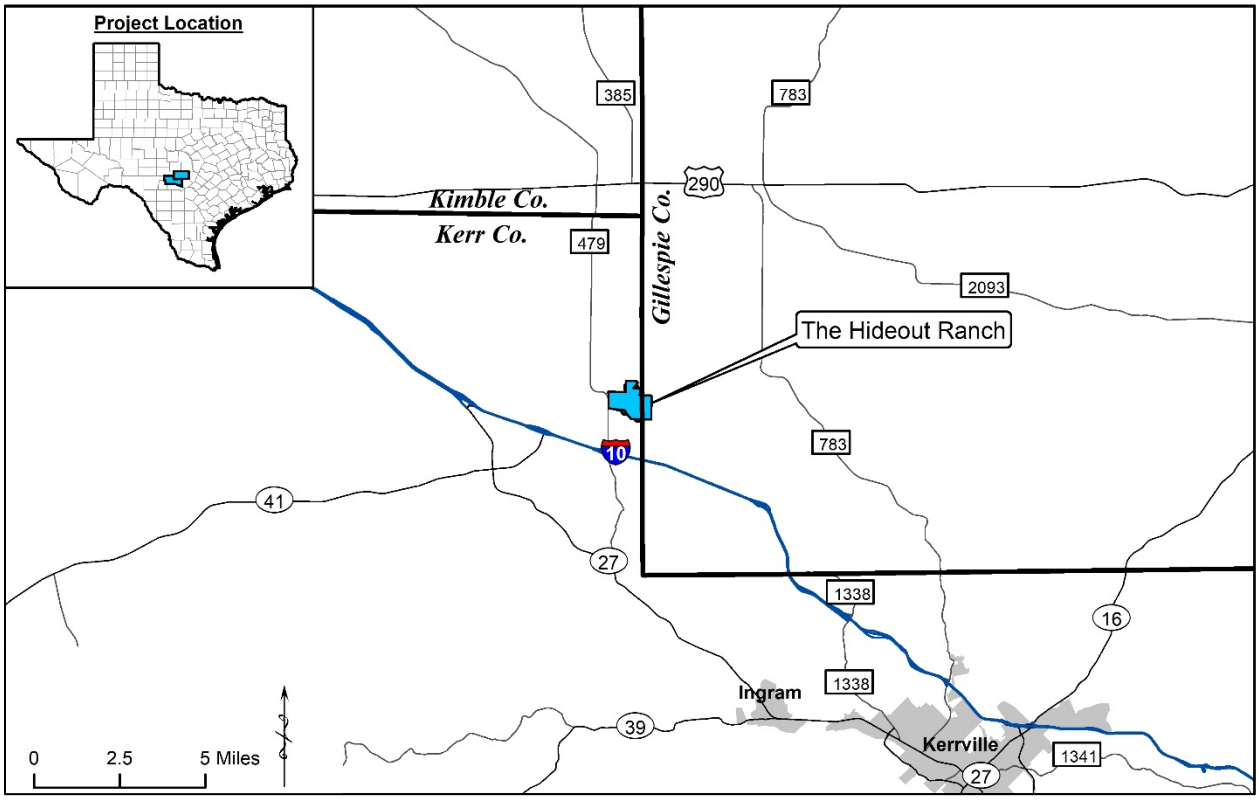


Figure 1: Location map

TX7 Land, LLC proposes to develop the approximately 587 acre property as a subdivision including 59 single family residential lots. Of the approximate 587 acres within the subdivision, 102 acres are located within Gillespie County with the remaining in Kerr County. The average lot size is 9.95 acres; each lot will be served by an individual water well. The subdivision is located within the jurisdiction of the Headwaters Groundwater Conservation District (HGCD) and the Hill Country Underground Water Conservation District (HCUWCD). Figure 2 provides a map showing the general location of the subdivision with the county and groundwater district boundaries.

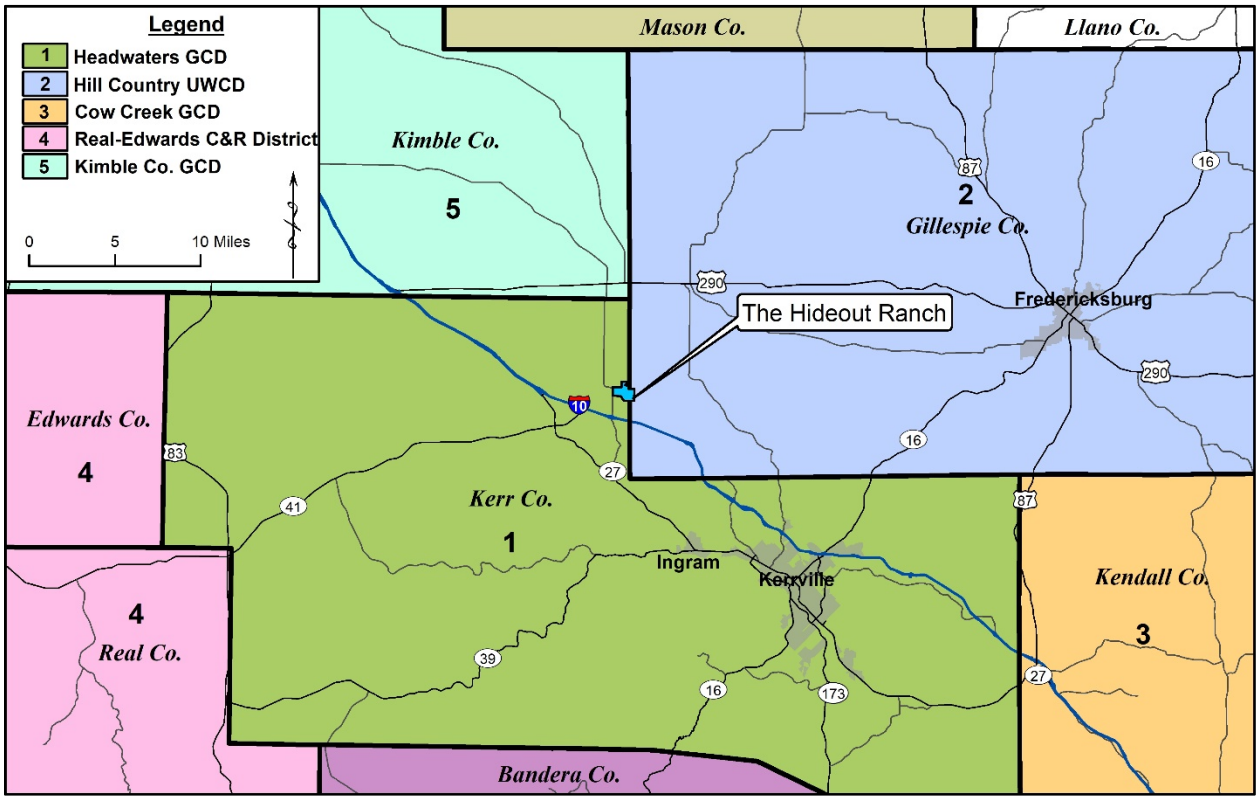


Figure 2: Groundwater Conservation District map

Section II: Projected Water Demand Estimate

To estimate the water demand within the proposed subdivision, US Census data (2.34 persons per household) and per capita water use estimates (123 gallons per person per day; gpd) from the Texas Water Development Board (TWDB) were utilized for Kerr County.

Equation 1: Total Water Demand

$$Q_s = n \times 2.34 \times 123 \times 365 \text{ days} = 6{,}198{,}204 \text{ gallons/year or } 19.0 \text{ acre-feet/year}$$

Where:

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

n = Number of lots (59 lots);

2.34 = Average number of persons per household; and

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

Equation 2: Water Demand per Housing Unit

$$Q_h = 2.34 \times 123 \times 365 \text{ days} = 105{,}054 \text{ gallons/year or } 0.32 \text{ acre-feet/year}$$

Where:

Q_h = Total Water Demand per house per year

Equation 1 assumes 2.34 persons per household using 123 gallons per person per day which results in a total water demand for the subdivision of 19.0 acre-feet/year. Equation 2 results in a water demand per housing unit of 0.32 acre-feet/year. There are no planned non-residential water demands.

Section III: General Groundwater Resource Information

III.1. Introduction

According to the Texas Water Development Board (TWDB), there is one (1) major aquifer (Edwards-Trinity Plateau Aquifer) and two (2) minor aquifers (Ellenburger-San Saba and Hickory aquifers) that supply groundwater within the study area. The TWDB classifies major aquifers as aquifers that produce large amounts of water over large areas, and minor aquifers as aquifers that produce minor amounts of water over large areas or large amounts of water over small 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 Edwards-Trinity (Plateau) Aquifer is part of a thick and regionally extensive aquifer system composed of Cretaceous carbonates that were deposited throughout central and west Texas and is classified as a major aquifer.

III.2. Stratigraphy and Geologic History

The property overlies the Cretaceous-aged sedimentary rocks comprising the Edwards-Trinity (Plateau) Aquifer as well as the Ordovician aged Ellenburger-San Saba Aquifer and Cambrian aged Hickory Aquifer. For the purposes of this report, the Hickory Aquifer will not be investigated due to prohibitively expensive well construction.

The subdivision is located southwest of the Llano Uplift. The uplift is a structural high dome consisting of Precambrian rock, much of which are igneous granites and other metamorphics aging up to over 1.36 billion years (Reese et. al, 2000). Metamorphosis including compression and folding occurred approximately 1.2 billion years ago with multi-directional fracturing (Johnson, 2004). Figure 3 provides a geologic map and stratigraphic column showing the geology surrounding the subdivision.

The complex Precambrian formations which make up the structural base in the study area are composed of a sequence of meta-sedimentary and meta-igneous rock, with scattered intrusive igneous rock. Major meta-sedimentary units include the Packsaddle Schist and the Valley Spring Gniess; meta-igneous units include the Coal Creek Serpentine, the Big Spring Gneiss, and the Red Mountain Gneiss. Igneous rocks include the Llanite Quartz Porphyry, the Sixmile Granite, the Oatman Creek Granite, and the Town Mountain Granite (Figure 3; Preston et. al, 1996). In general, these rocks crop out in the center of the uplift and act as confining units to overlying aquifers. Rocks overlying the Precambrian Base dip radially away from the dome structure with high variability in magnitude, ranging from a few feet (ft.) to over 100 ft. per mile (Barnes and Bell, 1977).

Stratigraphically above the Precambrian base lies the Cambrian aged Moore Hollow Group which consists of the Riley and Wilberns Formations. The oldest member of the Riley Formation is the Hickory Sandstone consisting of cross-bedded terrestrial and marine quartz sandstones, siltstones, and mudstones which make up the Hickory Aquifer. In certain areas the Cap Mountain limestone overlies the Hickory, acting as a confining unit. The youngest member of the Riley Formation, the Lion Mountain Sandstone, is intermittently found overlying the Cap Mountain Limestone. The Welge Sandstone, the oldest member of the Wilberns Group, is hydraulically connected to the Lion Mountain forming the Mid-Cambrian Aquifer. The Morgan Creek Limestone and the Point Peak Shale are found directly above the Welge Sandstone and act as a confining unit between the Mid-Cambrian and the Ellenburger-San Saba aquifers. Completing the Wilberns Group is the San Saba Limestone which is the stratigraphically lowest part of the Ellenburger-San Saba Aquifer (Figure 3; Barnes and Bell, 1977; Preston et. al, 1996).

Overlying the Moore Hollow Group is the Ordovician aged Ellenburger Group which consists of the Tanyard, Gorman, and Honeycut Formations and generally encircle the Llano Uplift. The Tanyard Formation is divided into two members: the basal dolostone Threadgill Member, and the overlying limestone Staendebach Member. Above the Tanyard, the Gorman and Honeycut Formations are comprised of dolostones and limestones which complete the Ellenburger Group and the Ellenburger-San Saba Aquifer (Figure 3; Preston et. al, 1996).

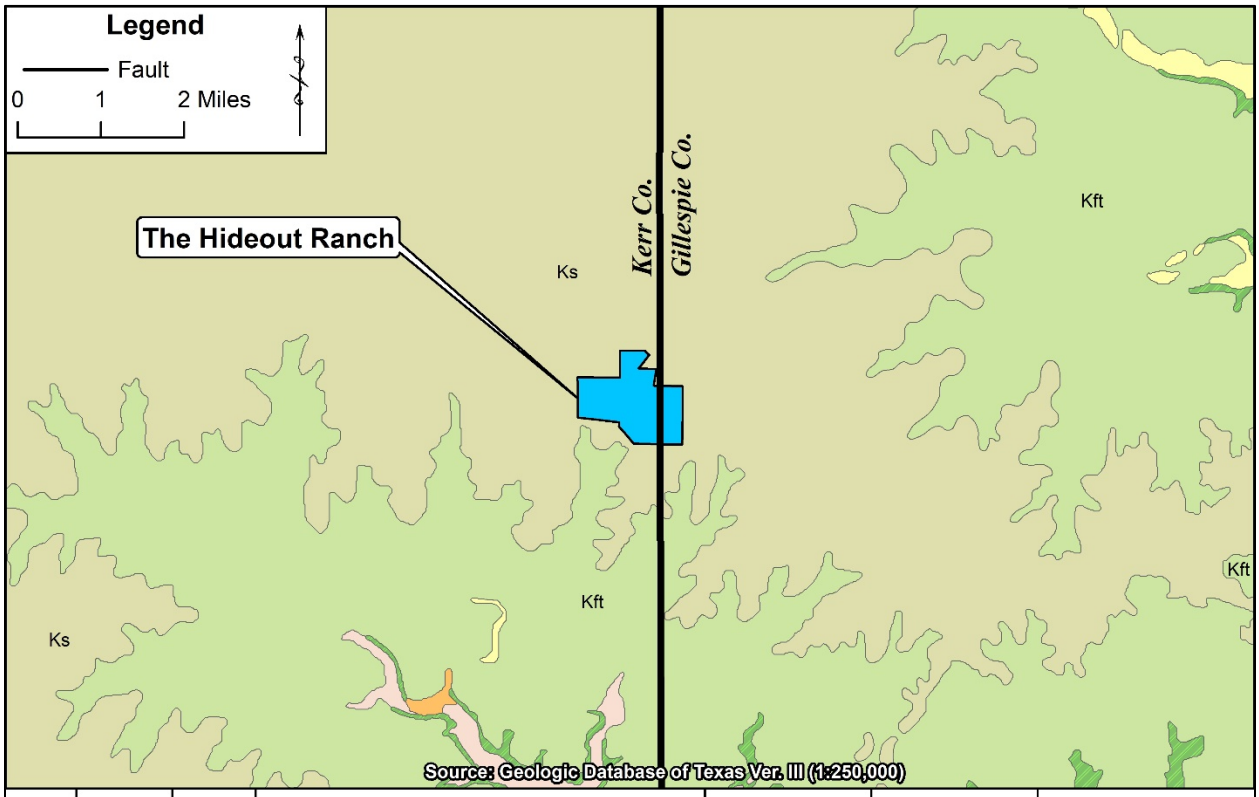
Scattered discontinuously throughout the study area, Devonian and Mississippian aged formations consist of thin remnants of dark shales, petroliferous limestones, crinoidal limestone, chert breccias, fractured cherts, and microgranular limestones with bedded chert (Standen and Ruggiero, 2007; Preston et. al, 1996). Where present, the formations act as confining layers between the Ellenburger-San Saba Aquifer and the Marble Falls Aquifer (Figure 3; Preston et. al, 1996).

Pennsylvanian aged rocks unconformably overlie either the Ellenburger Group or the Devonian-Mississippian Formations. Groups making up this system include the Bend, Canyon, and Strawn Groups. The oldest member of the Bend Group is the Marble Falls Limestone, which is locally divided and makes up the Marble Falls Aquifer. The lower unit consists of massive limestone and reef deposits and the upper unit consists of fine grained bedded limestone with chert nodules and beds. The overlying Smithwick Formation consists of interbedded claystone, siltstone, and sandstone. Above the Bend Group are the Strawn and Canyon Groups comprised of limestones, shales, and fine grained sandstones. Together with the Smithwick Formation, these groups act as confining units above the Marble Falls Aquifer (Figure 3; Preston et. al, 1996).

Cretaceous aged rocks overlie the Pennsylvanian system. The Cretaceous sediments comprising the Trinity Group were deposited by a shallow Cretaceous sea and once covered the entire region, but have since been eroded away completely in some areas. 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. 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 Limestone, the Bexar Shale, and the Hensell Sand Members of the Travis Peak Formation and the Lower Glen Rose Formation. 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 Edwards Group, which consists of the Fort Terrett and Segovia Formations (collectively known as Edwards Limestone). In the study area, the Edwards Limestone is comprised of gray, cherty, fossiliferous limestone and dolomite members. The Basal Nodular Bed makes up the oldest member of the Edwards, and acts as a confining layer between the Upper Trinity Aquifer and the Edwards Aquifer.

At the subdivision, the Segovia Formation of the Edwards Group is exposed at the surface. In the subsurface, the Glen Rose, Hensell, and Ellenburger units are encountered. The Upper Glen Rose Member is a thick sequence of marl and thin discontinuous biomicrite beds, which serves as an aquitard to groundwater and surface water from penetrating vertically into the underlying units. The Lower Glen Rose Member has a sandy facies, and is age-equivalent to the Hensell Sand. The Hensell Sand Member is composed of fine to coarse, generally uncemented loose sand. Graveliferous sand and poor sorting increase near the base of the unit. The sand is derived from the erosion of the clastic units that once surrounded the

Llano Uplift (Wilson, 2008). The Hensell Sand Member overlies the Paleozoic-aged Ellenburger surface at the proposed subdivision.



ERA	System	Group	Formation	Legend	Member	Hydrogeologic Unit
Cenozioc	Quaternary		Pleistocene to Recent floodplain (alluvium and fluviatile terrace deposits)	Qa / Qt Qc Qcf		localized alluvial aquifers
Mesozoic	Cretaceous	Edwards	Segovia	Ks		Edwards Plateau Aquifer
			Fort Terrett	Kft / Ked	Kirchburg evaporite Dolomite Mbr. Burrowed Mbr.	
			Walnut Clay	Kwa		confining bed
		Trinity	Glen Rose Lmst.	Kgr / Kgru / Kgrl	Upper Mbr. Lower Mbr.	Upper Trinity Aquifer
		Trinity / Travis Peak	Hensell Sand / Bexar Shale	Kh		Middle Trinity Aquifer
			Cow Creek Lmst.	Kcc / Kch		
			Hammett Shale	Kha		
			Sycamore Sand / Sligo / Hosston	Ksy		confining bed Lower Trinity Aquifer
Paleozoic	Pennsylvanian	Canyon	Undivided	IPcn	Undivided	confining beds
		Strawn	Undivided	IPst		
		Bend	Smithwick	IPsw		
			Marble Falls Lmst.	IPmf		Marble Falls Aquifer
	Missippian and Devonian		Mississippian and Devonian Undivided rocks	MD		Typically confining beds
	Ordovician	Ellenburger	Honeycut	Oh	Undivided	Ellenburger-San Saba Aquifer
			Gorman	Og	Undivided	
			Tanyard	Ot	Staendebach Mbr. Threadgill Mbr.	
	Cambrian	Moore Hollow	Wilberns	Cws	San Saba Mbr.	
				Cwp	Point Peak Mbr.	confining beds
				Cwm	Morgan Creek Lmst. Welge Sndst. Mbr.	Mid-Cambrian Aquifer
			Riley	Crc	Lion Mtn. Sndst. Cap Mtn. Lmst.	confining beds
				Crh	Hickory Sandstone	Hickory Aquifer

Figure 3: Geologic map (modified from Preston et. al, 1996)

III.3. Hydrogeology

There are two accessible aquifers located beneath The Hideout Ranch property which include the Edwards-Trinity (Plateau) and Ellenburger-San Saba aquifers. The Hickory Aquifer is encountered at greater depths, with no wells completed within the aquifer in the immediate vicinity.

The Edwards-Trinity (Plateau) Aquifer consists of early Cretaceous age clastic sediments and limestone (Travis Peak Formation) and limestone (Glen Rose Formation) making up of the Trinity Group and limestones of the Edwards Group. The Fort Terrett and Segovia formations form the upper aquifer unit and are typically referred to as the Edwards Group. The aquifer extends throughout all or part of 38 counties of central and western Texas (Anaya 2009).

The period of subaerial exposure at the end of the of the Late Cretaceous created significant karst features within the Edwards-Trinity (Plateau) Aquifer. These features were enhanced through subsequent fracturing and continuous development of conduits throughout the life of the aquifer as groundwater under-saturated with respect to calcium carbonate has caused dissolution of the limestone and dolomite beds. Groundwater production within the aquifer is largely a function of the saturated thickness of the aquifer (Ashworth and Hopkins, 1995). Figure 4 shows the location of the Edwards-Trinity (Plateau) Aquifer with respect to other aquifers in the area, including the minor Llano Uplift area aquifers. The solid light green portion reflects the unconfined zone of the Edwards-Trinity (Plateau) Aquifer where recharge occurs; the hatched light green portion reflects the confined zone of the aquifer.

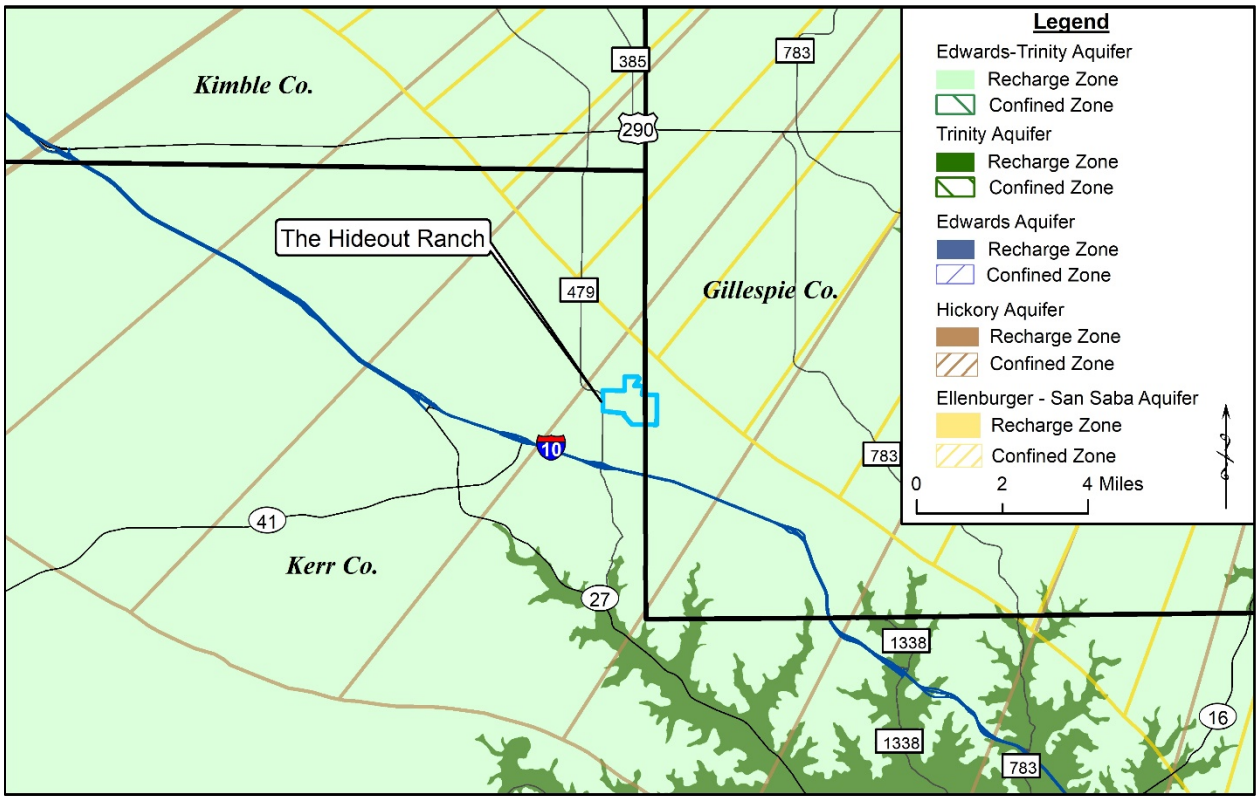


Figure 4: Aquifer map

The Edwards Group contains from oldest to youngest: the Fort Terrett and Segovia formations (Figure 3). Both formations are composed of limestone and in the vicinity of The Hideout Ranch are located at shallow depths (generally less than 200 ft.). Wells completed in the Edwards Group are shallow and generally low yielding with variances in water level tied to the amount of precipitation received. Most wells completed within the Edwards Group are stock or domestic wells. We do not recommend completing wells solely within the Edwards Group at The Hideout Ranch.

The Trinity Group contains 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). The Hosston consists of a conglomerate of gravel, sand and clay cemented by both calcite and quartz. The Hosston also contains sections of sandstone, siltstone, claystone, dolomite, limestone and shale. The Sligo Limestone consists of clastic sediment and becomes dominantly limestone and dolomite to the east. Surface outcrops are referred to in the literature as Sycamore; Hosston and Sligo are the subsurface equivalents.

Located stratigraphically above the Hosston Sand is the Hammett Clay also known as the Pine Island Shale. The Hammett is a transgressive "shale" deposit that onlaps Lower Trinity Sligo and Hosston formations. The interval averages 40 feet in thickness in the central Texas area (Wierman et al., 2010). The unit is primarily a clay rich, gray-green sticky, dolomitic shale/claystone with siltstone and dolomite lenses. Color can be dark gray to black, blue, greenish gray and gray. The Hammett is a confining bed separating the Lower Trinity Aquifer from the Middle Trinity Aquifer (Figure 3). In the area of The Hideout Ranch, the Hammett Clay is not present.

Above the Hammett Clay lies the Middle Trinity Aquifer composed of the Cow Creek Limestone and the Hensell/Bexar Shale members of the Travis Peak Formation and the Lower Glen Rose Limestone member of the Glen Rose Formation (Figure 3). The Cow Creek Limestone is a massive, fossiliferous limestone and dolomite ranging up to 100 feet in thickness and may contain some interbedded sand, clay, and evaporite minerals such as gypsum and anhydrite (Ashworth, 1983; Preston et. al, 1996; Wierman et al., 2010). The formation was subaerially exposed and subjected to meteoric water infiltration which resulted in widespread vuggy porosity (Loucks, 1977). In some areas, the Cow Creek is heavily fractured and capable of producing large well yields. In the area of The Hideout Ranch, the Cow Creek is not present.

Overlying the Cow Creek is the Hensell Sand Member (Figure 3), which in the outcrop, is composed of loose sand and grades into thick continental deposits of red clay, silt, sand, and conglomerate with limestone beds in the subsurface. The Hensell is sand rich in the northern portions of the aquifer. Downdip, the Hensell grades into marine deposits of silty dolomite, marl, calcareous shale, and shaley limestone known as the Bexar Shale Member (Ashworth, 1983). Downdip, the Bexar Shale may act as a confining unit for the Cow Creek (Wierman et al., 2010).

Stratigraphically above the Hensell Sand/Bexar Shale, the Glen Rose Limestone Formation is divided into a Lower and Upper Member (Figure 3). The Glen Rose along with the Hensell Sand represents a wedge of sediments deposited in a transgressing sea. George (1952) separated the Glen Rose into upper and lower members. The boundary between the two members is identified by a thin, heavily fossfiliferous limestone bed containing Corbula martinae that persists throughout the study area except where erosion has lowered the land surface below the bed (Ashworth, 1983). The separation between the two units is also distinguishable on geophysical logs where two distinct evaporite zones are found within the Upper Glen

Rose; one midway through the Upper Glen Rose and another near the base shown by resistivity spikes on a geophysical log. The lower member of the Glen Rose Limestone consists of a massive, fossiliferous limestone at the base grading upward into thin beds of limestone, dolomite, marl, and shale. The top 15 to 20 feet of the lower member, designated the Salenia texana zone, is a highly fossiliferous, nodular marl and limestone which is capped by the Corbula bed (Ashworth, 1983). Near the top of the Lower Glen Rose, in some locations, is a reef deposit that is cavernous, heavily fractured, and can range in thickness. Where the reef deposit is encountered, the Lower Glen Rose can provide high yielding wells.

The Upper Member of the Glen Rose Formation, comprising the Upper Trinity Aquifer, consists of alternating beds of limestone and dolomite with marly sections that act as aquitards and restrict downward migration of groundwater to the Middle and Lower Trinity Aquifers (Wierman et al., 2010). The Upper Glen Rose also contains two distinct evaporite beds of gypsum or anhydrite that are easily distinguishable on geophysical logs due to high resistivity values. The lower evaporite zone occurs at the base of the Upper Glen Rose, which Ashworth (1983) describes as a "convenient correlation marker" between the Upper and Lower Glen Rose. The evaporite beds in some cases are the source of elevated sulfate concentrations in groundwater. Where present, the Upper Trinity Aquifer can yield small amounts of water to shallow wells which are often utilized for livestock and domestic use.

The water quality of a well completed within the Edwards-Trinity (Plateau) 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 ($CaSO_4$), will typically contain elevated levels of sulfate. Additionally, groundwater that has traveled a longer distance and has had longer contact time with 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.

The dolostones and limestones of the Ellenburger-San Saba aquifer and the sandstones of the Hickory Aquifer generally encircle the Llano Uplift extending radially outward from the uplift (Figure 4). The solid yellow portion reflects the unconfined zone of the Ellenburger-San Saba where recharge occurs; the hatched yellow portion reflects the confined zone of the Ellenburger-San Saba Aquifer. The solid brown portion reflects the unconfined zone of the Hickory where recharge occurs; the hatched brown portion reflects the confined zone of the Hickory Aquifer. The aquifers dip downwards away from the center of the uplift and can range in thickness from 0 up to 3,000 feet (ft). Faults have caused portions of aquifers to become compartmentalized which restricts groundwater flow in some areas and increased production in other portions of the aquifer. Restricted flow or communication within an aquifer can result in wells that will produce varying amounts of water within a relatively small distance. Within the Ellenburger-San Saba Aquifer, the well production is dependent upon fractures, with the greatest producers generally intersecting solution cavities formed along fractures. These cavities are often found in the confined portions of the aquifer.

The entirety of The Hideout Ranch property overlies the unconfined portion of the Edwards-Trinity (Plateau) Aquifer.

Section IV: Aquifer Testing

IV.1. Well Details

There are a total of fourteen (14) wells located within the proposed subdivision; nine (9) that were used in this study. Well Nos. 1 through 9 are newly constructed wells by Texan Water within the Edwards-Trinity (Plateau) Aquifer. Figure 5 provides a map showing the location of The Hideout Ranch's wells along with all documented wells within one mile of the property boundary. Map ID numbers in Figure 5 correlate to Table 1. Figures 6 through 10 provide well profiles displaying well construction and formation depths that were determined from the drill cuttings collected by Texan Water, state well reports and geophysical logs; Appendix B provides the geophysical logs; Appendix C provides available state well reports. Table 1 provides a summary of the existing wells according to TWDB well data within 1-mile of the subdivision not used in testing; Table 2 provides a well construction summary for wells used in the testing.

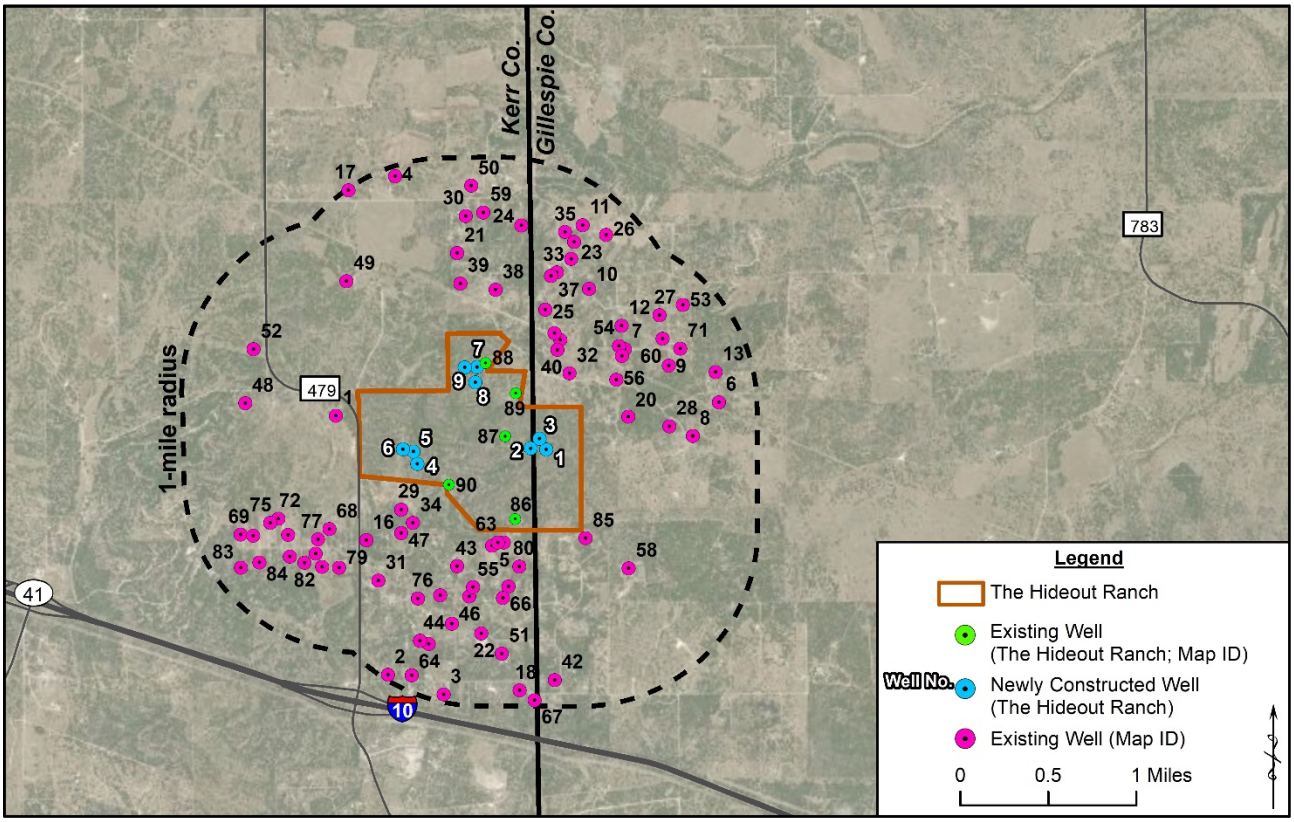


Figure 5: Well location map

Table 1: Summary of wells within 1-mile of the subdivision

Map ID	State Well ID	Owner	Well Depth (ft.)	Well Type
1	5654201	D.B. Walker	140	Domestic
2	5654502	L. Hamilton	120	Domestic
3	5654506	Vernon G. Culwell	635	Public Supply
4	5654202	Mrs. D. Wienecke	237	Domestic
5	826	Fritz Kruse	240	Domestic
6	1862	Wanna Runyan	180	Domestic
7	1901	John McQuilliam	305	Domestic
8	2814	Al Scott	100	Domestic
9	3279	Ranch Enterprises	280	Domestic
10	6030	April Hazelett	255	Domestic
11	7553	RANCH ENTERPRISES	260	Domestic
12	7970	Mark Schraub	260	Domestic
13	10747	Ranch Enterprises	260	Domestic
14	15398	Joe Marshall	280	Domestic
15	20494	BOB ARNOLLD	260	Domestic
16	20499	GILBERTO MARTINEZ	140	Domestic
17	30128	WALTON SMITH	285	Domestic
18	39799	Ted Talley	245	Domestic
19	40108	Glenn Merrill	280	Domestic
20	44733	Ranch Enterprises	300	Domestic
21	49774	Justin & Kelly Tomasini	310	Domestic
22	64621	Tandi Cox	260	Domestic
23	69546	John Heathcock	260	Domestic
24	70649	Diana Bush	265	Domestic
25	70651	David Woodward	285	Domestic
26	74316	James Sivells	255	Domestic
27	77871	Reynaldo Castro	265	Domestic
28	82797	JAMES KRAUS	285	Domestic
29	85059	WILLIAM WALTERS	200	Stock
30	88053	Amanda Ward	300	Domestic
31	108243	PHILIP JOHNSTON	200	Domestic
32	116805	Nick Ahearn	185	Domestic
33	127433	Kevin McCullough	280	Domestic
34	159666	William Walters	225	Domestic
35	170956	Allen Morris	225	Domestic
36	170960	Austin Osborn	285	Domestic
37	170961	Carolyn Lester	185	Domestic

Map ID	State Well ID	Owner	Well Depth (ft.)	Well Type
38	187329	Edwin Plowman	325	Domestic
39	189136	Howard Hughes	340	Domestic
40	202026	Paul Lambright	300	Domestic
41	202038	Pfiester Carl	240	Domestic
42	217278	C. Ann Ming - Bubar	680	Domestic
43	231351	Gary Slocum	280	Domestic
44	231462	Carl Pfister	220	Domestic
45	231499	Clifford Caldwell	240	Domestic
46	237266	Walker	300	Domestic
47	241671	Paul & Marilyn Secrest	240	Domestic
48	245328	Walker, Rick & Barb	260	Domestic
49	245994	Thomas, Irene	340	Domestic
50	269589	larry haris	260	Domestic
51	285775	JILL MUSGROVE	261	Stock
52	314472	Calvin & Rosie Weinheimer	720	Stock
53	332952	Serena Walston	230	Domestic
54	404888	ANDREW & MEG LADAWIG	285	Domestic
55	409537	MELVIN McCALLUM	285	Domestic
56	437516	JERRY & TAMMY KELLY	265	Domestic
57	441398	Ina P. Brown	320	Domestic
58	464829	Larry Reed	280	Domestic
59	469202	Isaac Vigil	300	Domestic
60	471366	ANDREW ANDERSON	215	Domestic
61	471659	Jesse & Donna Hinton	260	Domestic
62	476894	Susie Roy	300	Domestic
63	476896	Susie Roy	300	Domestic
64	485492	Mark Paddock	680	Domestic
65	500652	MARK SCHUMPELT	265	Domestic
66	508908	CARROLL & MARIA SCHULTZ	205	Domestic
67	520755	BROWN & SHEILA STOKES	205	Domestic
68	524900	COLTON & KRISTINA RICHIE	225	Domestic
69	520754	Sarah Gibbs	240	Domestic
70	524906	ROBERT CASTILLA	265	Domestic
71	530841	LINDA MENZIES	245	Domestic
72	531482	JAMES AND MARCIA MANN	265	Domestic
73	537289	SCOTT ROGERS	245	Domestic
74	540532	JONATHAN SMITH	245	Domestic
75	537292	KELLY ELLIS	265	Domestic

Map ID	State Well ID	Owner	Well Depth (ft.)	Well Type
76	537959	Marsha J Baumann	220	Domestic
77	537963	Justin Carpenter	280	Domestic
78	537966	Jimmie Dresden Mitchell	270	Domestic
79	553432	KEVIN & DANA DECKER	245	Domestic
80	553441	ROBERT SCOTT TRAUTMAN	265	Domestic
81	553444	WILLIAM & KAREN DASCH	265	Domestic
82	564021	MICHAEL & LINDSAY WHEELER	265	Domestic
83	564377	BRANDON MORRIS	225	Domestic
84	564433	ROBERT A. STACK	245	Domestic
85	569297	JEFF STEWART	225	Domestic
86		The Hideout Ranch	300	Domestic
87		The Hideout Ranch		Domestic
88		The Hideout Ranch	320	Domestic
89	44806	The Hideout Ranch		Domestic
90	176544	The Hideout Ranch		Domestic

To meet the guidelines for the Kerr and Gillespie County's development rules and regulations and to adequately assess the availability of groundwater within the vicinity of the proposed subdivision, six (6) 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 GeoCam, Inc. on Well Nos. 3, 5 and 8, all wells used in the aquifer testing are completed in the Edwards-Trinity (Plateau) Aquifer. The following provides a summary of the well construction for the wells used in the aquifer tests.

Well No. 1

According to the State Well Report (Tracking No. 598339; Appendix C), Well No. 1 was completed by Texan Water on February 28, 2022. The well was drilled to a total depth of 700 ft. bgl with a 9-inch borehole from 0 to 700 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 600 and 4 1/2-inch slotted PVC screen from 600 to 700 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 6; Appendix C).

Well No. 2

According to the State Well Report (Tracking No. 598343; Appendix C), Well No. 2 was completed by Texan Water on February 25, 2022. The well was drilled to a total depth of 700 ft. bgl with a 9-inch borehole from 0 to 700 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 620 and 4 1/2-inch slotted PVC screen from 620 to 700 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 6; Appendix C).

Well No. 3

According to the State Well Report (Tracking No. 598340; Appendix C), Well No. 3 was completed by Texan Water on February 26, 2022. The well was drilled to a total depth of 720 ft. bgl with a 9-inch borehole from 0 to 720 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 620 and 4 1/2-inch slotted PVC screen from 620 to 720 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 7; Appendix C).

Well No. 4

According to the State Well Report (Tracking No. 598339; Appendix C), Well No. 4 was completed by Texan Water on March 1, 2022. The well was drilled to a total depth of 745 ft. bgl with a 9-inch borehole from 0 to 745 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 665 and 4 1/2-inch slotted PVC screen from 665 to 745 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 7; Appendix C).

Well No. 5

According to the State Well Report (Tracking No. 598428; Appendix C), Well No. 5 was completed by Texan Water on March 3, 2022. The well was drilled to a total depth of 730 ft. bgl with a 9-inch borehole from 0 to 730 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 650 and 4 1/2-inch slotted PVC screen from 650 to 730 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 8; Appendix C).

Well No. 6

According to the State Well Report (Tracking No. 598430; Appendix C), Well No. 6 was completed by Texan Water on March 2, 2022. The well was drilled to a total depth of 720 ft. bgl with a 9-inch borehole from 0 to 720 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 640 and 4 1/2-inch slotted PVC screen from 640 to 720 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 8; Appendix C).

Well No. 7

According to the State Well Report (Tracking No. 598346; Appendix C), Well No. 7 was completed by Texan Water on February 28, 2022. The well was drilled to a total depth of 710 ft. bgl with a 9-inch borehole from 0 to 710 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 610 and 4 1/2-inch slotted PVC screen from 610 to 710 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 9; Appendix C). A pink limestone was encountered at 705 ft. bgl. A geophysical log was not conducted on this well however, it may be the top of the Ellenburger Group.

Well No. 8

According to the State Well Report (Tracking No. 598347; Appendix C), Well No. 8 was completed by Texan Water on March 1, 2022. The well was drilled to a total depth of 680 ft. bgl with a 9-inch borehole from 0 to 680 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 580 and 4 1/2-inch slotted PVC screen from 580 to 680 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 9; Appendix C). A pink limestone was encountered at 680 ft. bgl. A geophysical log was conducted on this well but the log did not reach this depth however, it may be the top of the Ellenburger Group.

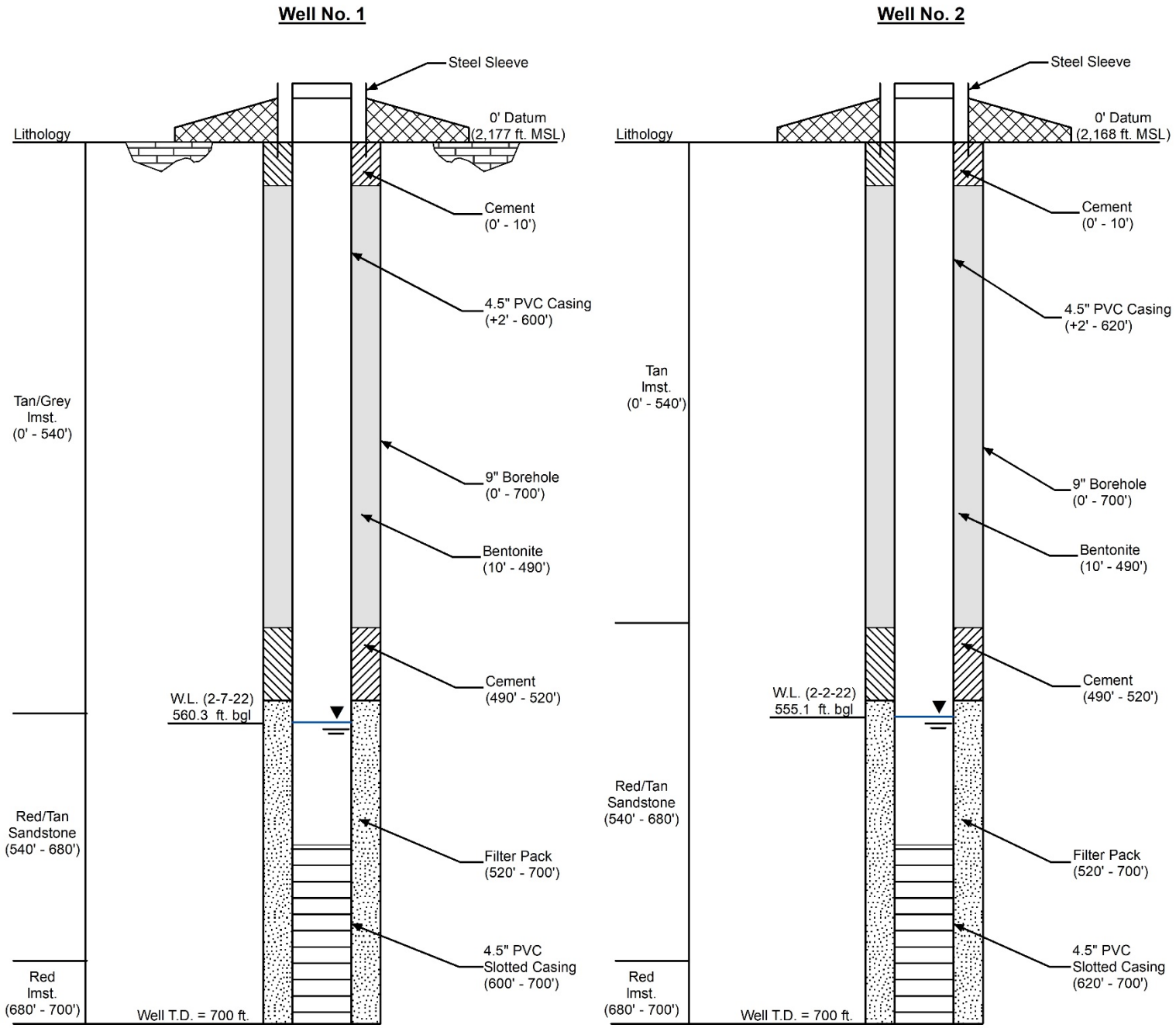
Well No. 9

According to the State Well Report (Tracking No. 598348; Appendix C), Well No. 9 was completed by Texan Water on March 1, 2022. The well was drilled to a total depth of 720 ft. bgl with a 9-inch borehole from 0 to 720 ft. bgl. The well was completed with 4 1/2-inch PVC casing set from +2 to 620 and 4 1/2-inch slotted PVC screen from 620 to 720 ft. bgl. According to the driller's lithology log and geophysical logs, the well was completed in the Hensell Sand of the Edwards-Trinity (Plateau) Aquifer (Figure 10; Appendix C). A pink limestone was encountered at 700 ft. bgl. A geophysical log was not conducted on this well however, it may be the top of the Ellenburger Group.

Table 2: Summary of The Hideout Ranch well construction

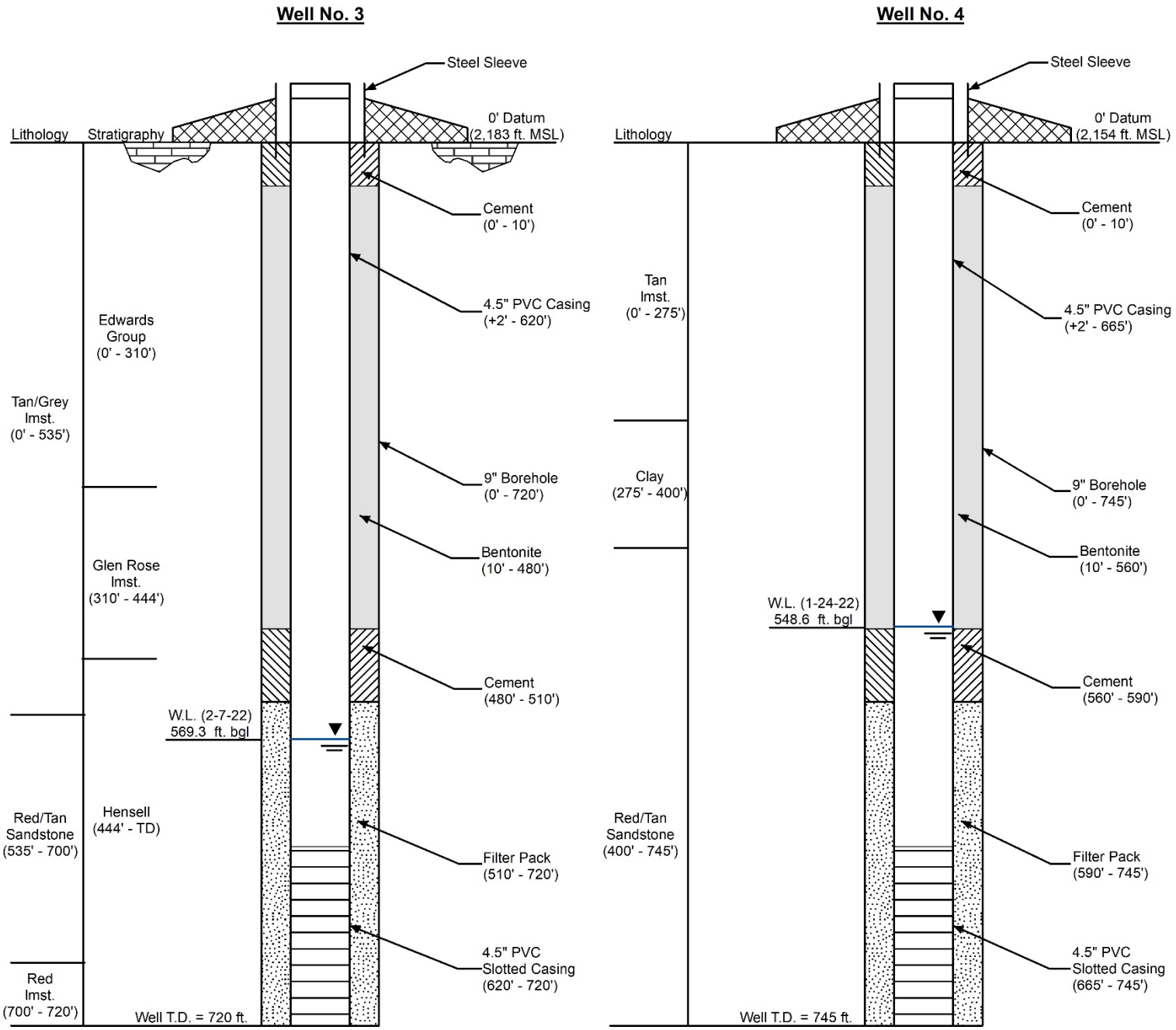
Well	Tracking No.	Latitude	Longitude	Elevation (ft. MSL)	Date Completed	Aquifer	Well Depth (ft. bgl)	Static Water Level (ft. bgs; date; ft. MSL)	Borehole (diameter ; ft. bgl)	Casing (diameter; material; ft. bgl)	Screen (diameter; material; ft. bgs)
Well No. 1	598339	30° 12' 25.4" N	99° 18' 01.3" W	2,177	2-28-22	Edwards-Trinity (Plateau)	700	560.3 (2-7-22) 1,616.7	9" (0-700)	4 1/2" PVC (+2 - 600)	4 1/2" PVC Screen (600 - 700)
Well No. 2	598343	30° 12' 25.8" N	99° 18' 06.5" W	2,168	2-25-22	Edwards-Trinity (Plateau)	700	555.1 (2-2-22) 1,612.9	9" (0-700)	4 1/2" PVC (+2 - 620)	4 1/2" PVC Screen (620 - 700)
Well No. 3	598340	30° 12' 28.7" N	99° 18' 03.4" W	2,183	2-26-22	Edwards-Trinity (Plateau)	720	569.3 (2-7-22) 1,613.7	9" (0-720)	4 1/2" PVC (+2 - 620)	4 1/2" PVC Screen (620 - 720)
Well No. 4	598344	30° 12' 21.6" N	99° 18' 45.4" W	2,154	3-1-22	Edwards-Trinity (Plateau)	745	548.6 (1-24-22) 1,605.4	9" (0-745)	4 1/2" PVC (+2 - 665)	4 1/2" PVC Screen (665 - 745)
Well No. 5	598428	30° 12' 25.1" N	99° 18' 46.4" W	2,161	3-3-22	Edwards-Trinity (Plateau)	730	553.2 (1-28-22) 1,607.8	9" (0-730)	4 1/2" PVC (+2 - 650)	4 1/2" PVC Screen (650 - 730)
Well No. 6	598430	30° 12' 26.0" N	99° 18' 50.3" W	2,158	3-2-22	Edwards-Trinity (Plateau)	720	549.0 (1-28-22) 1,609.1	9" (0-720)	4 1/2" PVC (+2 - 640)	4 1/2" PVC Screen (640 - 720)
Well No. 7	598346	30° 12' 50" N	99° 18' 24.5" W	2,197	2-28-22	Edwards-Trinity (Plateau)	710	577.4 (2-15-22) 1,619.6	9" (0-710)	4 1/2" PVC (+2 - 610)	4 1/2" PVC Screen (610 - 710)
Well No. 8	598347	30° 12' 45.6" N	99° 18' 25.2" W	2,190	3-1-22	Edwards-Trinity (Plateau)	680	568.2 (2-10-22) 1,621.9	9" (0-680)	4 1/2" PVC (+2 - 580)	4 1/2" PVC Screen (580 - 680)
Well No. 9	598348	30° 12' 50" N	99° 18' 28.8" W	2,190	3-1-22	Edwards-Trinity (Plateau)	720	568.3 (2-15-22) 1,621.7	9" (0-720)	4 1/2" PVC (+2 - 620)	4 1/2" PVC Screen (620 - 720)

Note: ft. = feet; bgl = below ground level; MSL = Mean Sea Level; N/A = not available.



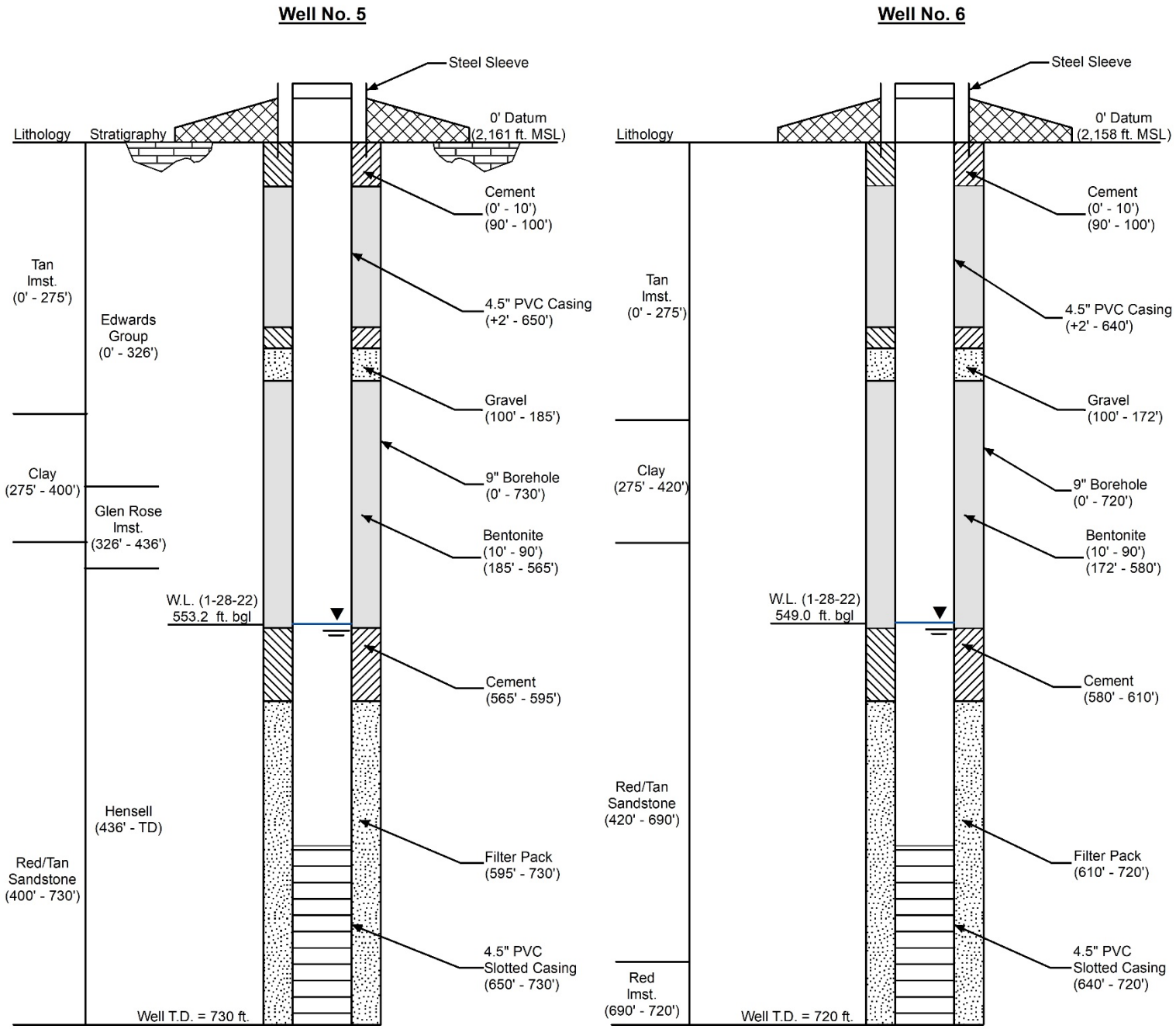
Notes:
- Well profiles created with the information from State Well Reports and Drill Cuttings.
- Figure for schematic purposes; not drawn to scale.

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



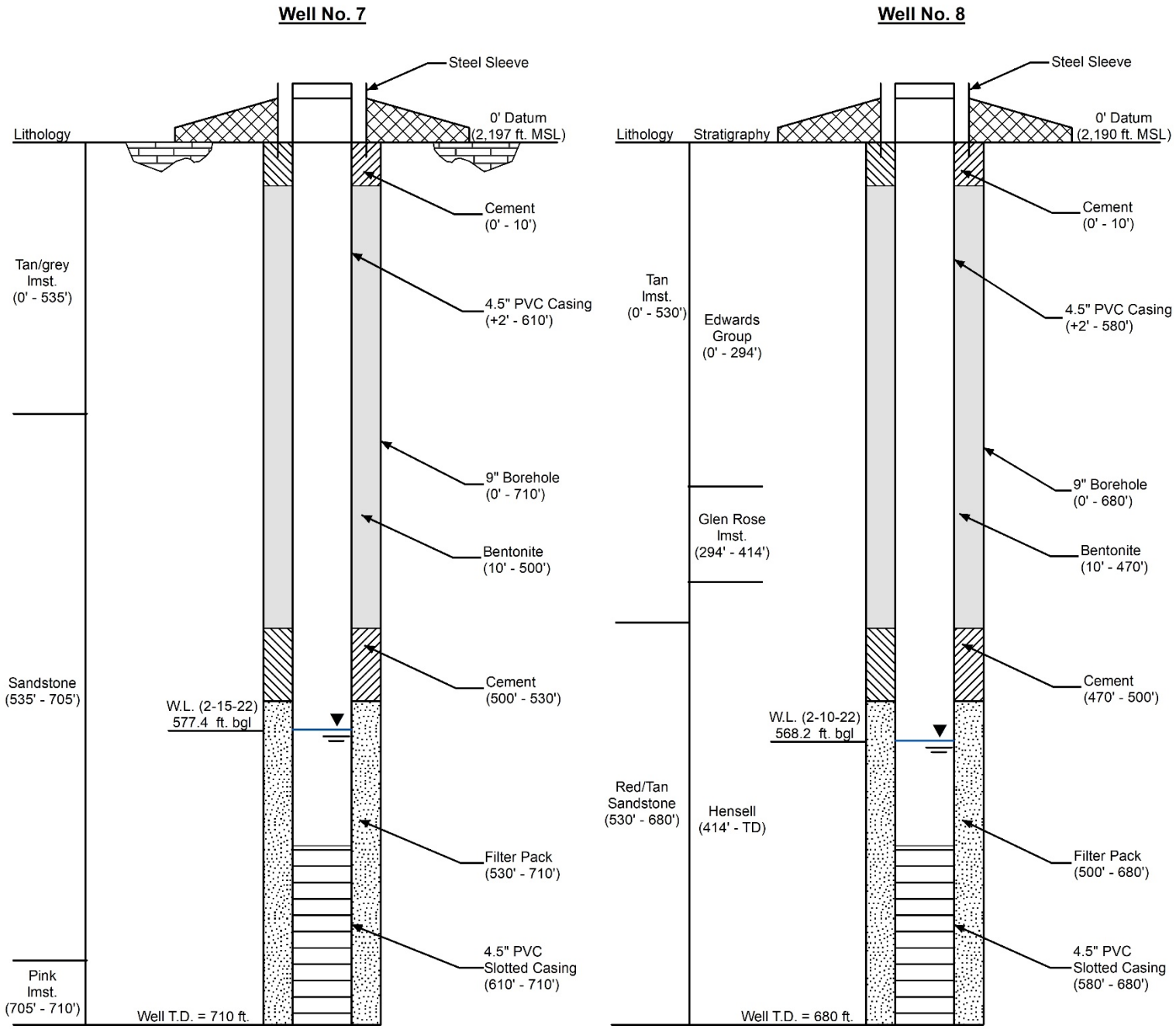
Notes:
- Well profiles created with the information from State Well Reports, Geophysical Logs and Drill Cuttings.
- Figure for schematic purposes; not drawn to scale.

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



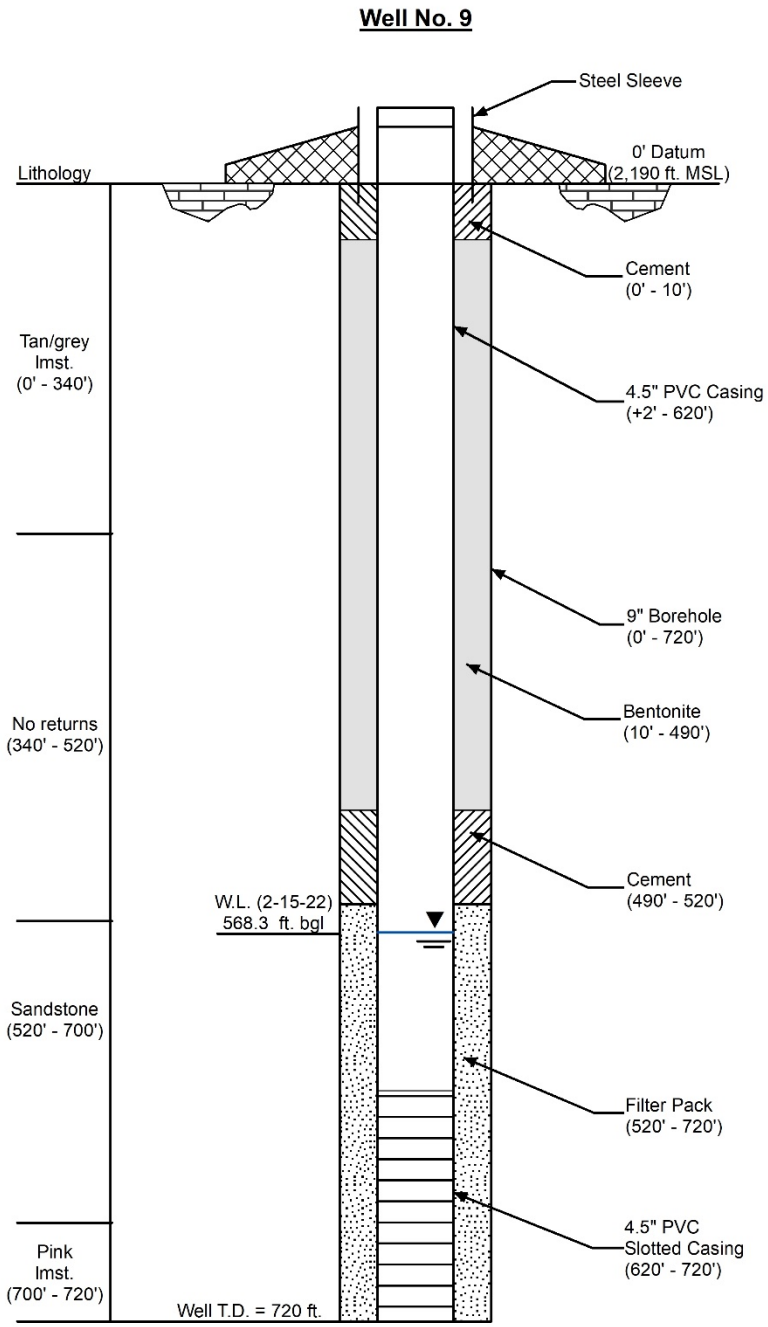
Notes:
- Well profiles created with the information from State Well Reports, Geophysical Logs and Drill Cuttings.
- Figure for schematic purposes; not drawn to scale.

Figure 8: Well construction profiles of Wells No. 5 and No. 6



Notes:
- Well profiles created with the information from State Well Reports, Geophysical Logs and Drill Cuttings.
- Figure for schematic purposes; not drawn to scale.

Figure 9: Well construction profiles of Wells No. 7 and No. 8



Notes:
- Well profiles created with the information from State Well Reports and Drill Cuttings.
- Figure for schematic purposes; not drawn to scale.

Figure 10: Well construction profiles of Wells No. 9

IV.2. Aquifer Testing

Six (6) aquifer tests were performed to assess the hydrogeologic properties of the Edwards-Trinity (Plateau) Aquifer within the subdivision. For each aquifer test, Texan Water set a submersible pump within the pumping well that was capable of varying its discharge rate. Prior to the start of the aquifer test, a pressure transducer capable of measuring the water level and temperature at one minute intervals was placed in the pumping well to gather data for the duration of each test. 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 and Jacob (1946) solution in the Aqtesolv software suite (Duffield, 2007). 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. 4 (January 24, 2022)

The aquifer test of Well No. 4 was conducted on January 24, 2022 with Well No. 5 as the observation well approximately 380 feet away from the pumping well. The pumping phase started at 11:00 A.M. on January 24, 2022; the water level was monitored for 24.0 hours of pumping and for 25.3 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level in Well No. 4 was measured at 548.6 ft. bgl (1,605.4 ft. MSL) and 553.1 ft. bgl (1,607.9 ft. MSL) in Well No. 5.

Well No. 4 was pumped at an average rate of 10.8 gpm with a final measured pumping rate of 10.5 gpm with 11.1 feet of drawdown, resulting in a specific capacity of 0.95 gpm/ft. The Cooper-Jacob analysis resulted in a transmissivity of 385.2 ft^2/day, and a hydraulic conductivity of 1.31 ft./day. A maximum drawdown of 1.2 feet was observed in Well No. 5 indicating a hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value for Well No. 5 of 5.8×10^{-5}. Figure 11 provides a hydrograph of the pumping well and temperature over the duration of the aquifer test; Figure 12 provides a hydrograph of both the pumping and observation well over the duration of the test.

After an initial drawdown, the water level stabilized for the remainder of the pumping phase. The water level in the observation well showed a noticeable response directly related to starting and stopping the pump in Well No. 4 (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 3 minutes. There were no aquifer boundary conditions observed during the testing.

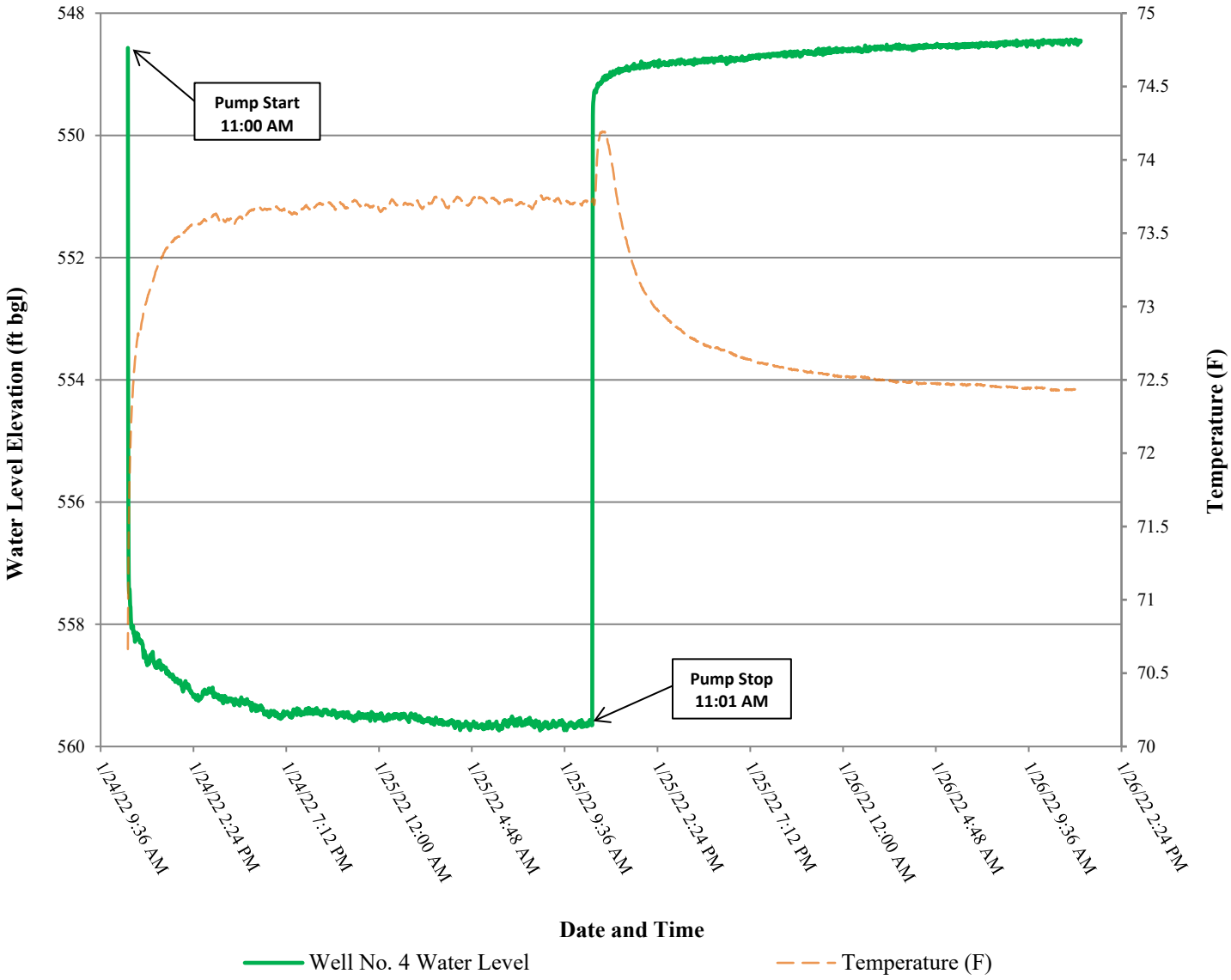


Figure 11: Aquifer test hydrograph of Well No. 4 (January 24, 2022)

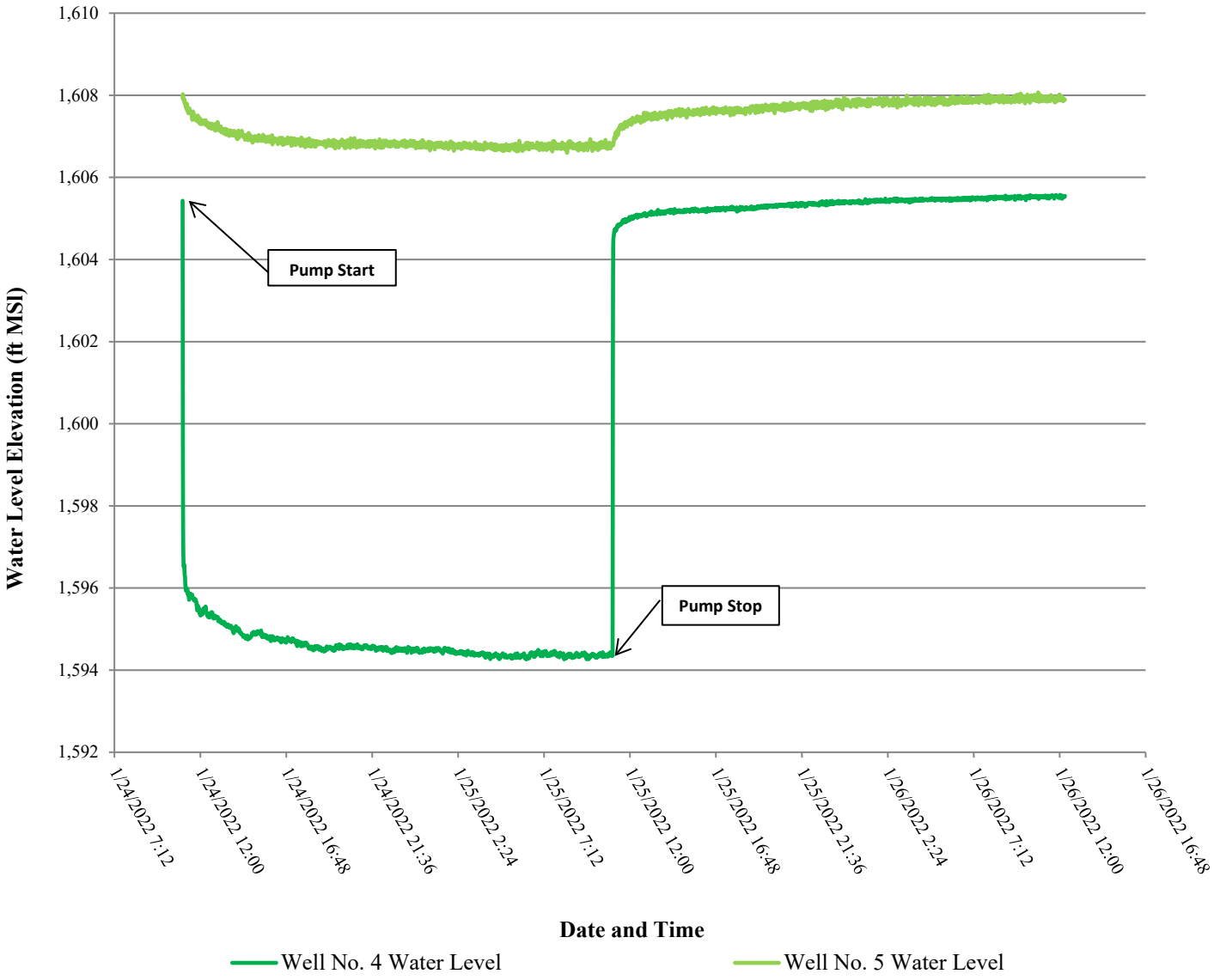


Figure 12: Aquifer test hydrograph of Well No. 4 and Observation Well No. 5 (January 24, 2022)

IV.2.2. Aquifer Test of Well No. 6 (January 28, 2022):

The aquifer test of Well No. 6 was conducted on January 28, 2022 with Well No. 5 as the observation well approximately 440 feet away from the pumping well. The pumping phase started at 9:45 A.M. on January 28, 2022; the water level was monitored for 25.8 hours of pumping and for 25.3 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level in Well No. 6 was measured at 549.0 ft. bgl (1,609.1 ft. MSL) and 553.2 ft. bgl (1,607.8 ft. MSL) in Well No. 5.

Well No. 6 was pumped at an average rate of 10.5 gpm with a final measured pumping rate of 10.5 gpm with 11.6 feet of drawdown, resulting in a specific capacity of 0.91 gpm/ft. The Cooper-Jacob analysis resulted in a transmissivity of 322.3 ft^2/day, and a hydraulic conductivity of 1.10 ft./day. A maximum drawdown of 1.6 feet was observed in Well No. 5 indicating a hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value for Well No. 5 of 1.7×10^{-5}. Figure 13 provides a hydrograph of the pumping well and temperature over the duration of the aquifer test; Figure 14 provides a hydrograph of both the pumping and observation well over the duration of the test.

After an initial drawdown, the water level stabilized for the remainder of the pumping phase. The water level in the observation well showed a noticeable response directly related to starting and stopping the pump in Well No. 6 (Figure 14). After the pump was shut off, recovery was measured in both wells; the water level in the pumping well recovered 90% in approximately 15 minutes. There were no aquifer boundary conditions observed during the testing.

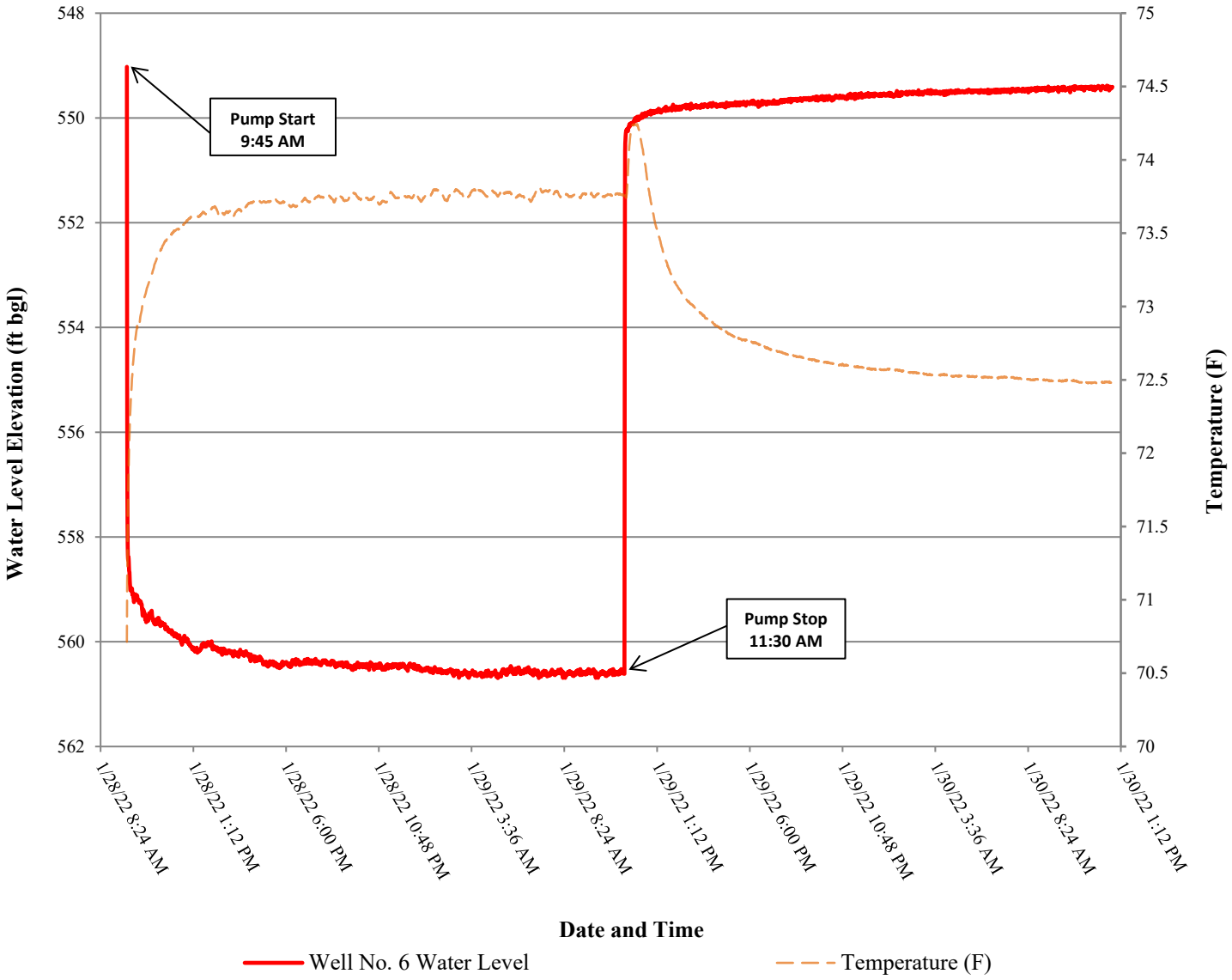


Figure 13: Aquifer test hydrograph of Well No. 6 (January 28, 2022)

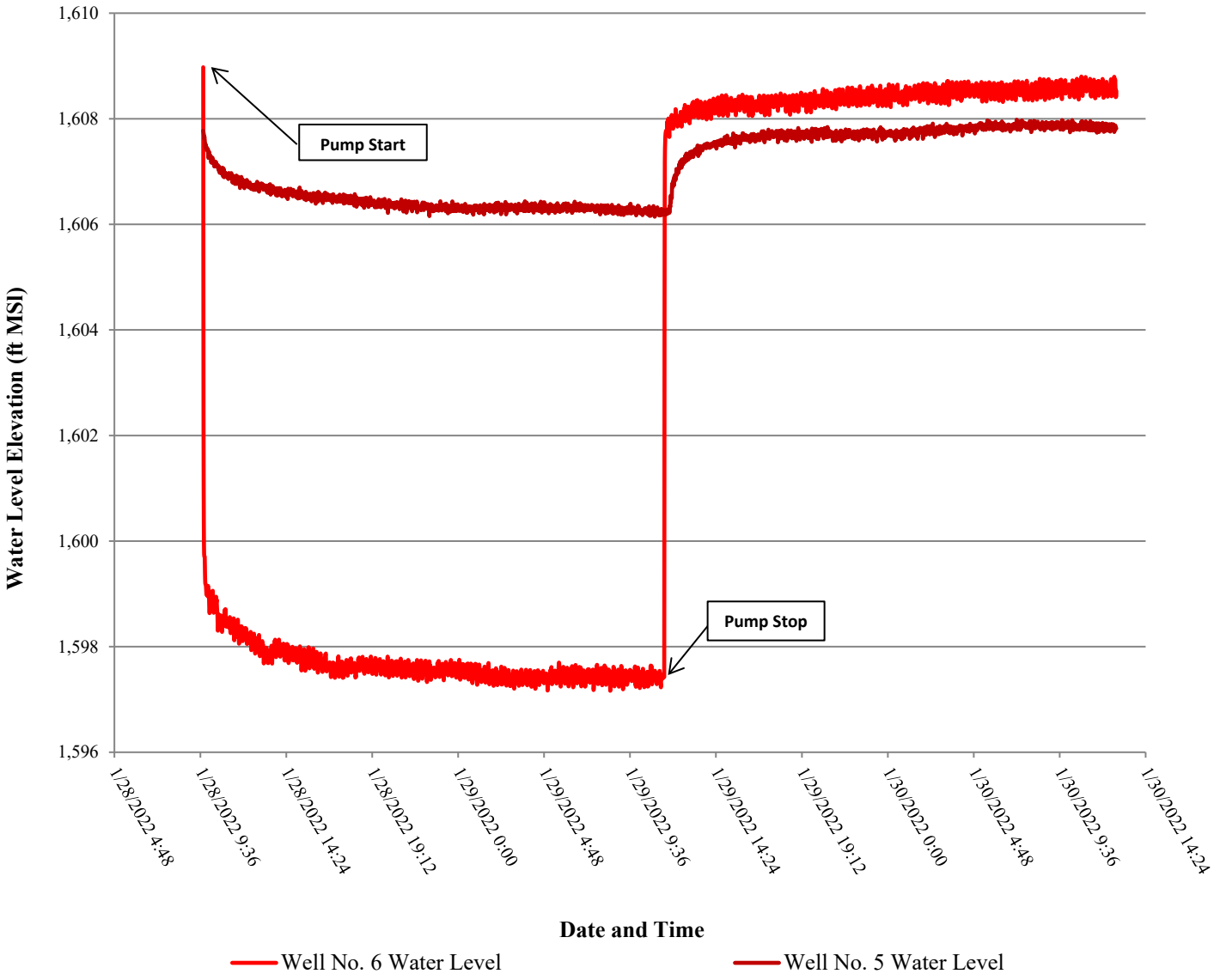


Figure 14: Aquifer test hydrograph of Well No. 6 and Observation Well No. 5 (January 28, 2022)

IV.2.2. Aquifer Test of Well No. 2 (February 2, 2022):

The aquifer test of Well No. 2 was conducted on February 2, 2022 with Well No. 3 as the observation well approximately 400 feet away from the pumping well. The pumping phase started at 2:09 P.M. on February 2, 2022; the water level was monitored for 24.2 hours of pumping and for 92.2 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level in Well No. 2 was measured at 555.1 ft. bgl (1,612.9 ft. MSL) and 569.5 ft. bgl (1,613.5 ft. MSL) in Well No. 3.

Well No. 2 was pumped at an average rate of 12.7 gpm with a final measured pumping rate of 12.5 gpm with 41.3 feet of drawdown, resulting in a specific capacity of 0.30 gpm/ft. The Cooper-Jacob analysis resulted in a transmissivity of 76.8 ft^2/day, and a hydraulic conductivity of 0.28 ft./day. A maximum drawdown of 1.8 feet was observed in Well No. 3 indicating a hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value for Well No. 3 of 4.9×10^{-5}. Figure 15 provides a hydrograph of the pumping well and temperature over the duration of the aquifer test; Figure 16 provides a hydrograph of both the pumping and observation well over the duration of the test.

After an initial drawdown, the water level stabilized for the remainder of the pumping phase. The water level in the observation well showed a noticeable response directly related to starting and stopping the pump in Well No. 2 (Figure 16). After the pump was shut off, recovery was measured in both wells; the water level in the pumping well recovered 90% in approximately 6 minutes. There were no aquifer boundary conditions observed during the testing.

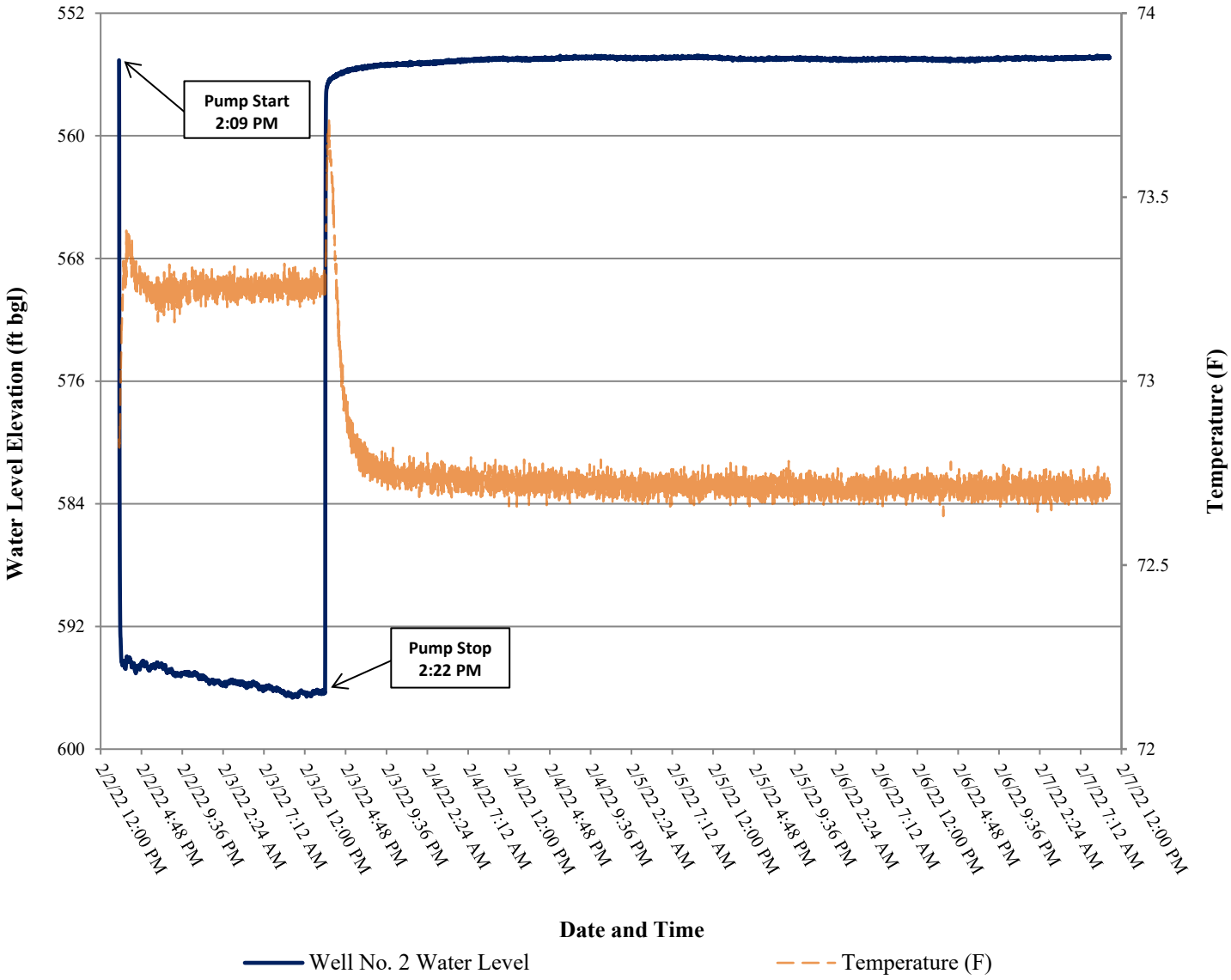


Figure 15: Aquifer test hydrograph of Well No. 2 (February 2, 2022)

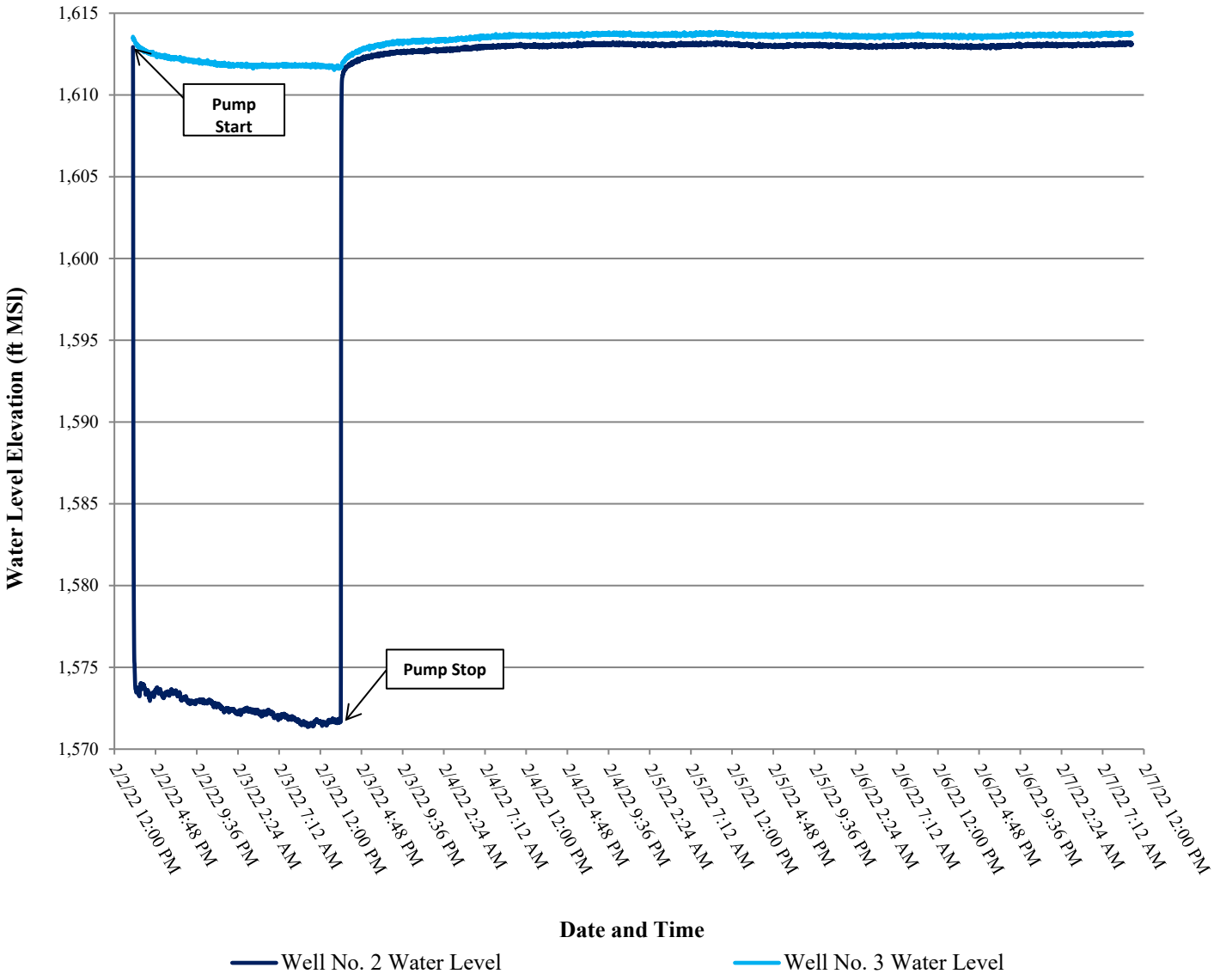


Figure 16: Aquifer test hydrograph of Well No. 2 and Observation Well No. 3 (February 2, 2022)

IV.2.2. Aquifer Test of Well No. 1 (February 7, 2022):

The aquifer test of Well No. 1 was conducted on February 7, 2022 with Well No. 3 as the observation well approximately 388 feet away from the pumping well. The pumping phase started at 11:08 A.M. on February 7, 2022; the water level was monitored for 24.1 hours of pumping and for 27.1 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level in Well No. 1 was measured at 560.3 ft. bgl (1,616.7 ft. MSL) and 569.3 ft. bgl (1,613.7 ft. MSL) in Well No. 3.

Well No. 1 was pumped at an average rate of 13.0 gpm with a final measured pumping rate of 13.0 gpm with 23.3 feet of drawdown, resulting in a specific capacity of 0.56 gpm/ft. The Cooper-Jacob analysis resulted in a transmissivity of 258.9 ft^2/day, and a hydraulic conductivity of 0.94 ft./day. A maximum drawdown of 1.6 feet was observed in Well No. 3 indicating a hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value for Well No. 3 of 1.1×10^{-4}. Figure 17 provides a hydrograph of the pumping well and temperature over the duration of the aquifer test; Figure 18 provides a hydrograph of both the pumping and observation well over the duration of the test.

After an initial drawdown, the water level stabilized for the remainder of the pumping phase. The water level in the observation well showed a noticeable response directly related to starting and stopping the pump in Well No. 1 (Figure 18). After the pump was shut off, recovery was measured in both wells; the water level in the pumping well recovered 89% in approximately 1,623 minutes. There were no aquifer boundary conditions observed during the testing.

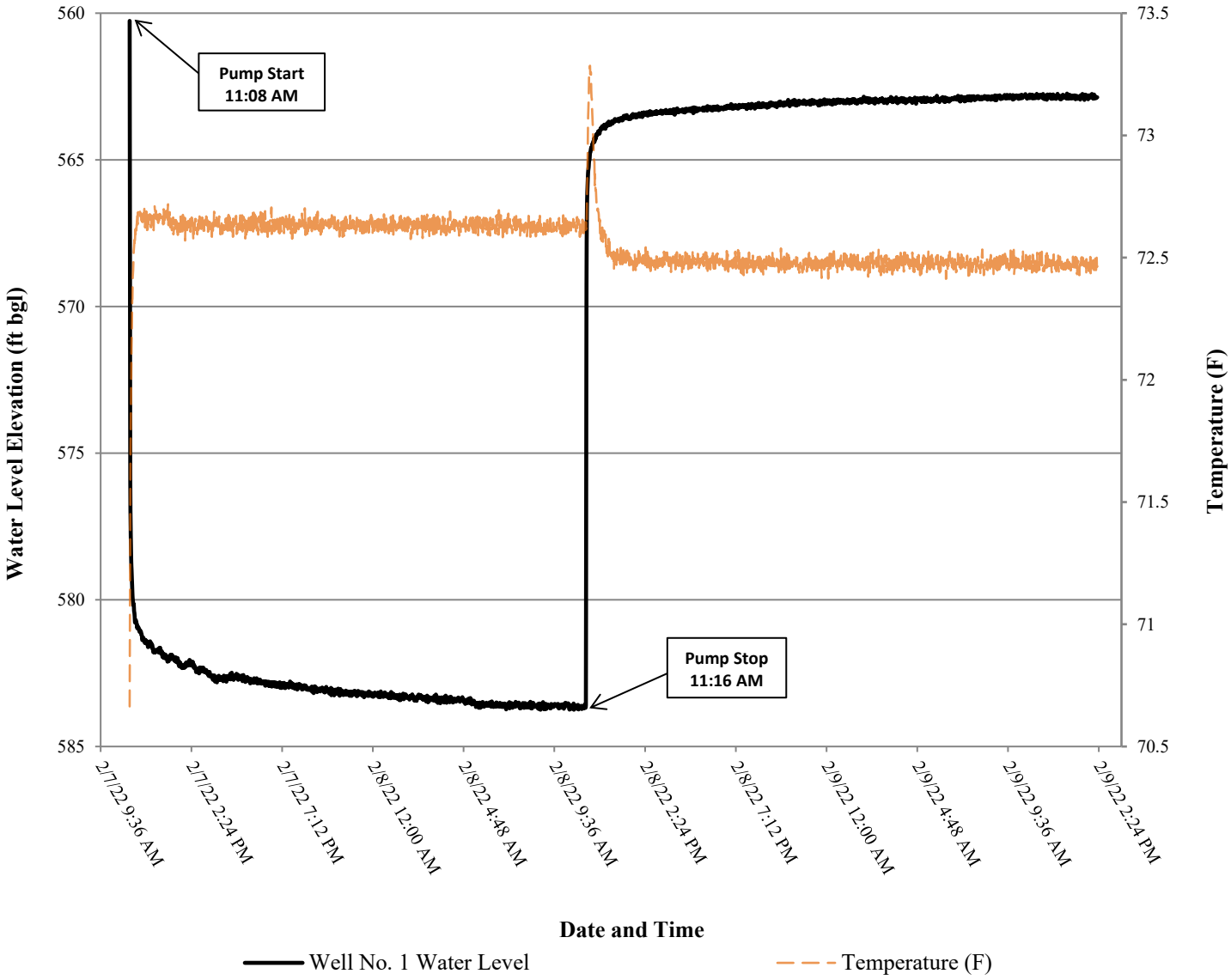


Figure 17: Aquifer test hydrograph of Well No. 1 (February 7, 2022)

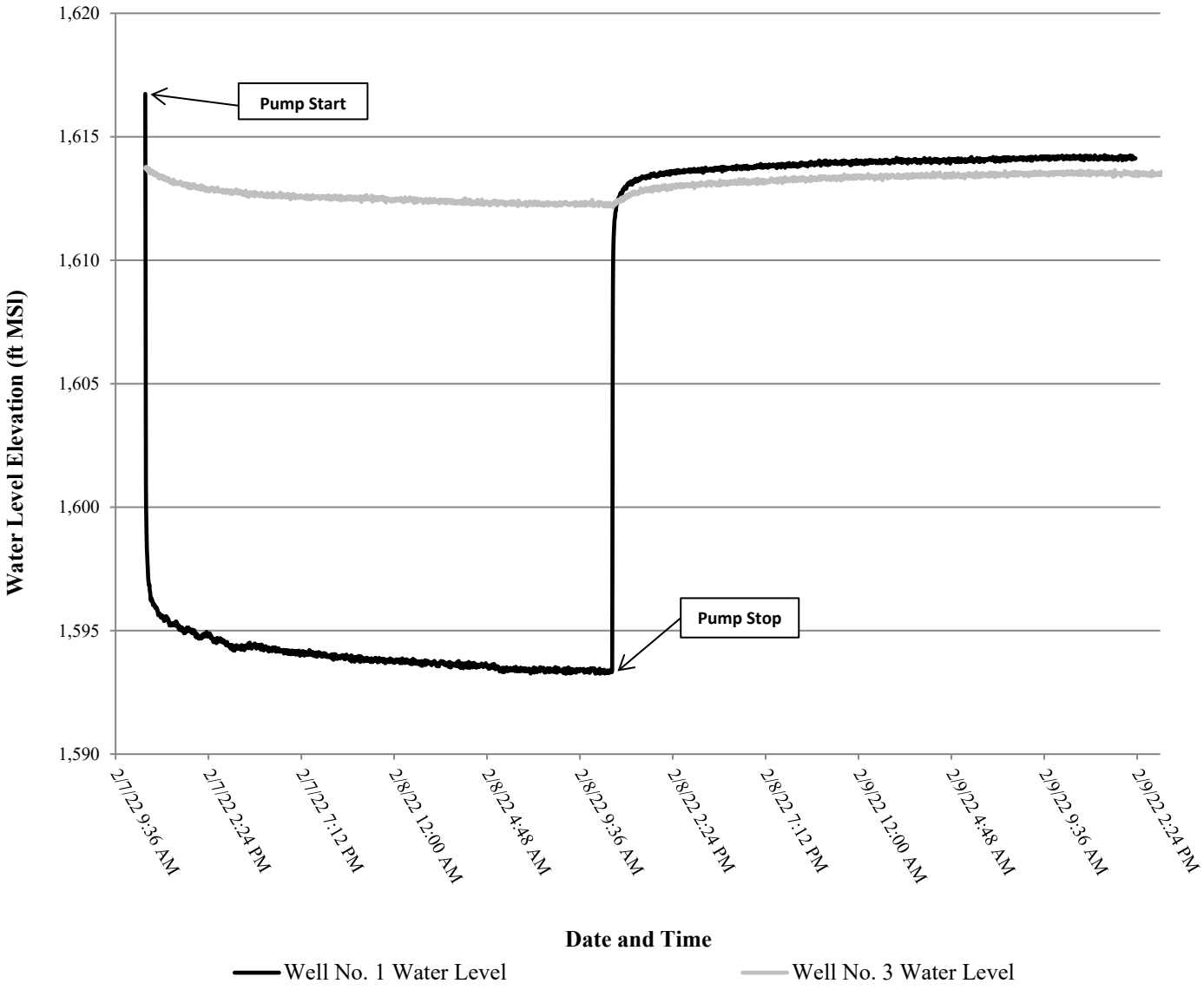


Figure 18: Aquifer test hydrograph of Well No. 1 and Observation Well No. 3 (February 7, 2022)

IV.2.2. Aquifer Test of Well No. 8 (February 10, 2022):

The aquifer test of Well No. 8 was conducted on February 10, 2022 with Well No. 7 as the observation well approximately 457 feet away from the pumping well. The pumping phase started at 11:52 A.M. on February 10, 2022; the water level was monitored for 25.3 hours of pumping and for 68.2 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level in Well No. 8 was measured at 568.2 ft. bgl (1,621.9 ft. MSL) and 574.8 ft. bgl (1,622.3 ft. MSL) in Well No. 7.

Well No. 8 was pumped at an average rate of 12.7 gpm with a final measured pumping rate of 12.5 gpm with 18.9 feet of drawdown, resulting in a specific capacity of 0.66 gpm/ft. The Cooper-Jacob analysis resulted in a transmissivity of 140.2 ft^2/day, and a hydraulic conductivity of 0.53 ft./day. A maximum drawdown of 5.5 feet was observed in Well No. 7 indicating a hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value for Well No. 7 of 2.4×10^{-5}. Figure 19 provides a hydrograph of the pumping well and temperature over the duration of the aquifer test; Figure 20 provides a hydrograph of both the pumping and observation well over the duration of the test.

After an initial drawdown, the water level slowly drewdown and stabilized near the end of the pumping phase. The water level in the observation well showed a noticeable response directly related to starting and stopping the pump in Well No. 8 (Figure 20). During the recovery phase of the observation well (Well No. 7) there was an observable decline in the water level. Texan Water was constructing the nearby Well No. 9 at this time and the drilling operations may likely have been the cause of the water level decline. After the pump was shut off, recovery was measured in both wells; the water level in the pumping well recovered 90% in approximately 300 minutes. There were no aquifer boundary conditions observed during the testing.

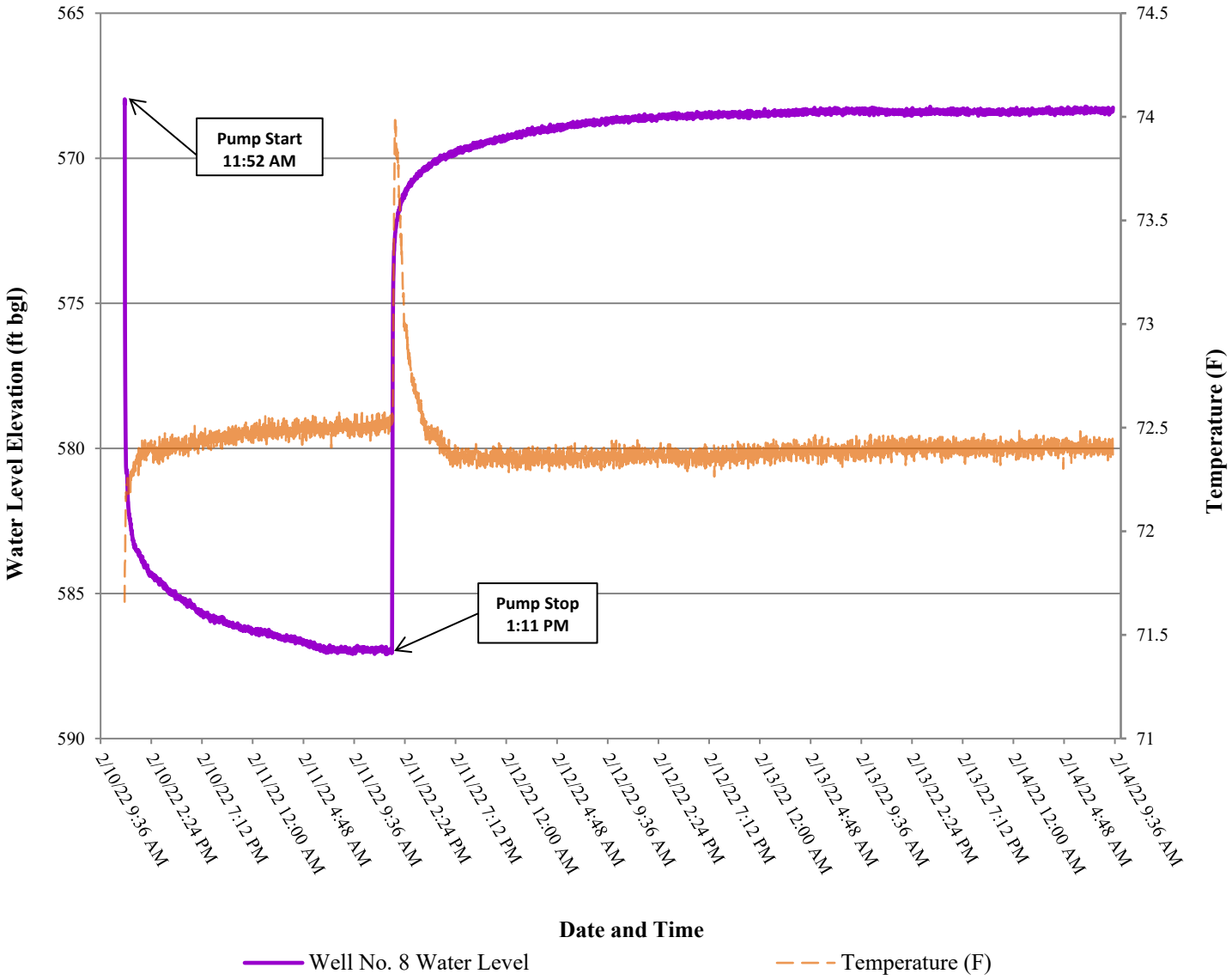


Figure 19: Aquifer test hydrograph of Well No. 8 (February 10, 2022)

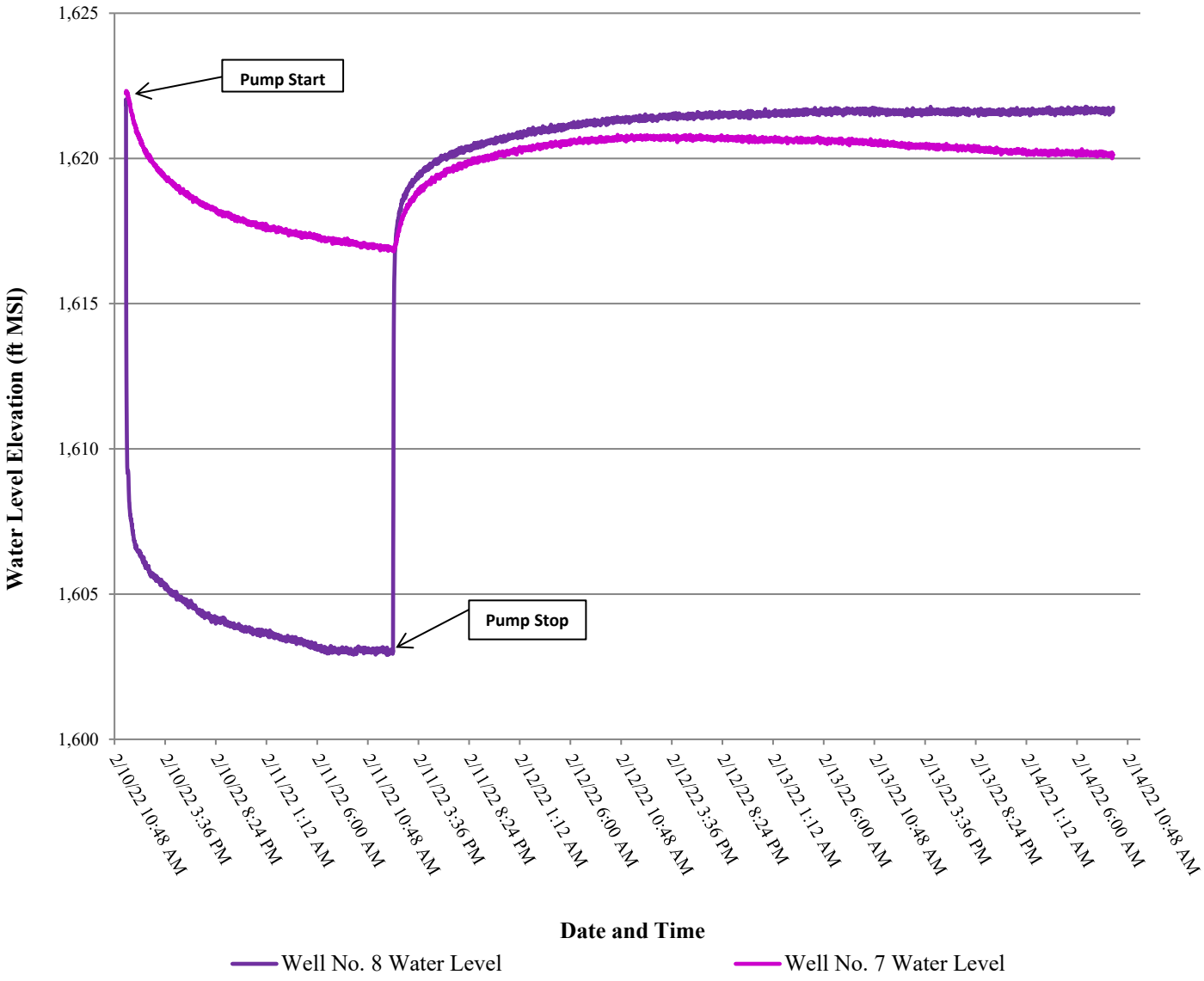


Figure 20: Aquifer test hydrograph of Well No. 8 and Observation Well No. 7 (February 10, 2022)

IV.2.2. Aquifer Test of Well No. 9 (February 15, 2022):

The aquifer test of Well No. 9 was conducted on February 15, 2022 with Well No. 7 as the observation well approximately 368 feet away from the pumping well. The pumping phase started at 11:05 A.M. on February 15, 2022; the water level was monitored for 24.1 hours of pumping and for 24.1 hours of recovery. Prior to the pumping phase of the aquifer test, the static water level in Well No. 9 was measured at 568.3 ft. bgl (1,621.7 ft. MSL) and 577.4 ft. bgl (1,619.6 ft. MSL) in Well No. 7.

Well No. 9 was pumped at an average rate of 9.0 gpm with a final measured pumping rate of 9.5 gpm with 75.9 feet of drawdown, resulting in a specific capacity of 0.13 gpm/ft. The Cooper-Jacob analysis resulted in a transmissivity of 11.4 ft^2/day, and a hydraulic conductivity of 0.04 ft./day. A maximum drawdown of 3.2 feet was observed in Well No. 7 indicating a hydraulic connection between the two wells. Due to the observed hydraulic connection, we calculated a storativity value for Well No. 7 of 3.5×10^{-5}. Figure 21 provides a hydrograph of the pumping well and temperature over the duration of the aquifer test; Figure 22 provides a hydrograph of both the pumping and observation well over the duration of the test.

After an initial drawdown, the pumping rate was reduced twice to keep the pumping level from reaching the pump. After the rate was reduced the pumping level fluctuated throughout the remainder of the pumping phase. The fluctuations may be due to ongoing well development occurring during the aquifer test. The water level in the observation well showed a noticeable response directly related to starting and stopping the pump in Well No. 9 (Figure 22). After the pump was shut off, recovery was measured in both wells; the water level in the pumping well recovered 90% in approximately 12 minutes. There were no aquifer boundary conditions observed during the testing.

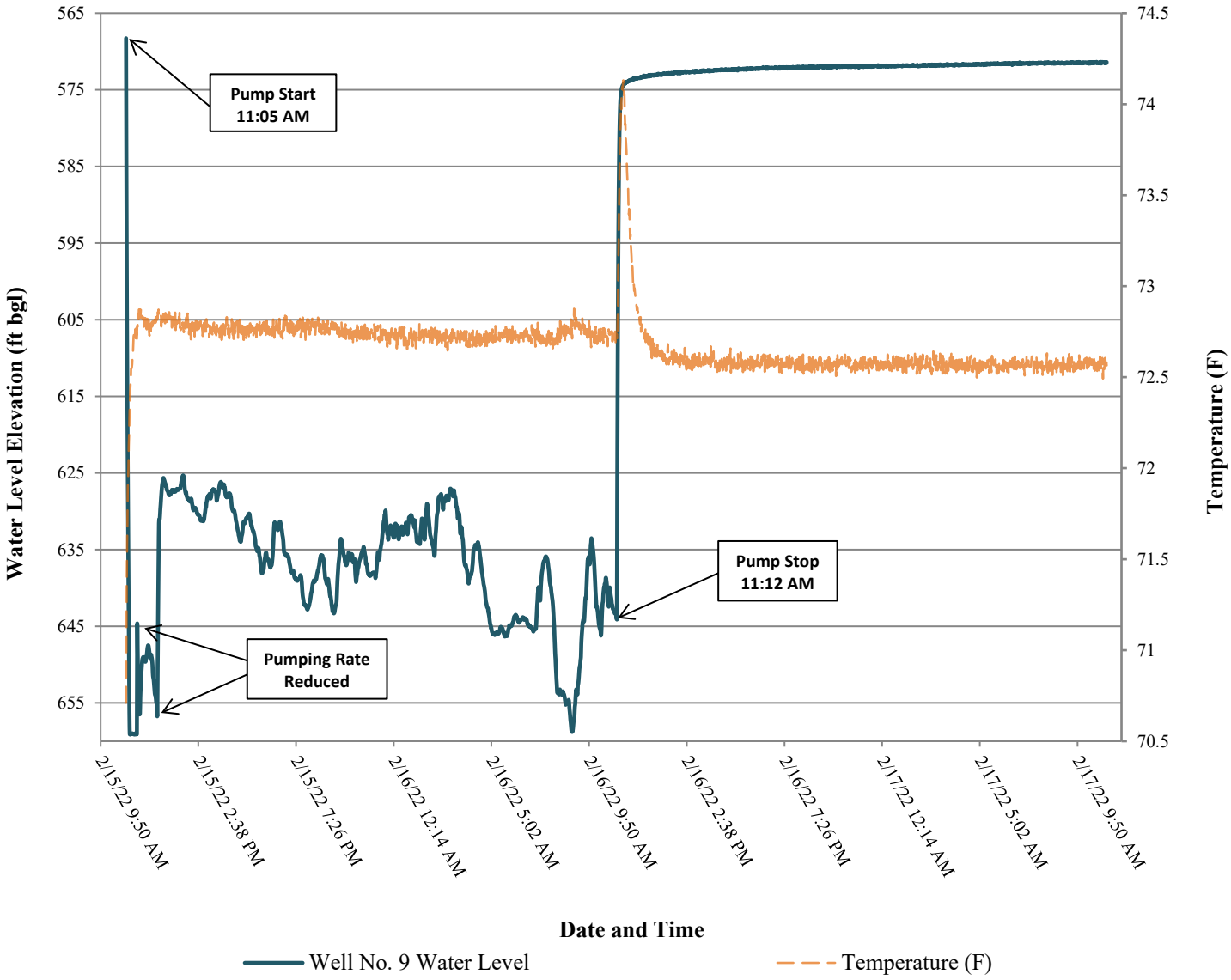


Figure 21: Aquifer test hydrograph of Well No. 9 (February 15, 2022)

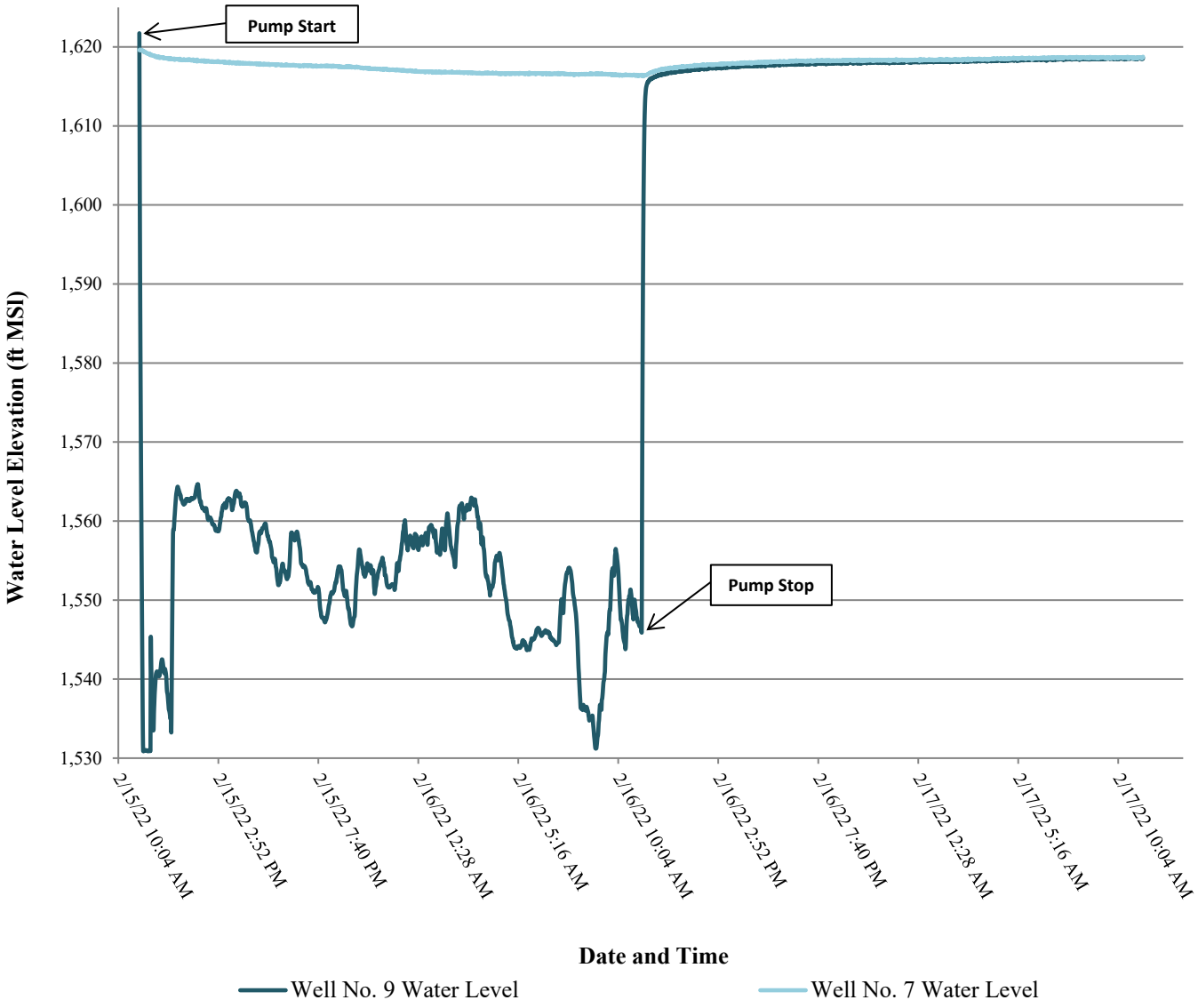


Figure 22: Aquifer test hydrograph of Well No. 9 and Observation Well No. 7 (February 15, 2022)

Table 3: Summary of aquifer test results

Test Date	Well	Average Pump Rate (gpm)	Final Pump Rate (gpm)	Drawdown (ft.)	Specific Capacity (gpm/ft.)	Transmissivity (ft^2/d)	Storativity	Hydraulic Conductivity (ft./d)	Aquifer Thickness (ft.)	Well Efficiency
Jan. 24, 2022	No. 4	10.8	10.5	11.1	0.95	385.2	-	1.31	294	75%
	No. 5	-	-	1.2	-	559.1	5.8×10^{-5}	1.90	294	-
Jan. 28, 2022	No. 6	10.5	10.5	11.6	0.91	322.3	-	1.10	294	90%
	No. 5	-	-	1.6	-	689.5	1.7×10^{-5}	2.35	294	-
Feb. 2, 2022	No. 2	12.7	12.5	41.3	0.30	76.8	-	0.28	276	111%
	No. 3	-	-	1.8	-	569.5	4.9×10^{-5}	2.06	276	-
Feb. 7, 2022	No. 1	13.0	13.0	23.3	0.56	258.9	-	0.94	276	62%
	No. 3	-	-	1.6	-	540.4	1.1×10^{-4}	1.96	276	-
Feb. 10, 2022	No. 8	12.7	12.5	18.9	0.66	140.2	-	0.53	266	143%
	No. 7	-	-	5.5	-	199.7	2.4×10^{-5}	0.75	266	-
Feb. 15, 2022	No. 9	9.0	9.5	75.9	0.13	11.4	-	0.04	266	325%
	No. 7	-	-	3.2	-	245.1	3.5×10^{-5}	0.92	266	-

Note: ft. = feet; gpm = gallons per minute; d = day, observation wells are highlighted in blue, aquifer thickness were based upon geophysical logs.

IV.3. Water Quality

A water quality sample was collected from each of the pumping wells at the end of the pumping phase. The samples were collected by Texan Water staff in a sealed container and stored on ice in a cooler. The samples were transported after collection to Pollution Control Services (PCS) and 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 and SCLs excluding the SCLs for iron and manganese in Well No. 2 and the SCLs for fluoride and iron in Well No. 8. Concentrations above the SCL standards are not considered health risks but may affect the taste and odor of the water.

The elevated iron concentrations in Well No. 2 and No. 8 may be attributed to a slightly turbid sample. A trubid sample will contain clay particles that are dissolved by the lab prior to analysis. The clay particles commonly contain aluminum and iron which results in an elevated concentration. The other wells had low iron concentration suggesting that these were possibly turbid samples.

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 excluding Well No. 9. 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.

Table 4: Summary of the water quality analysis results

Well	Sample Data	Cl	Conductivity (umhos/cm)	F	Fe	NO3	Mn	pH	SO4	Hardness (as CaCO3)	TDS	TC/E. coli
		TCEQ MCLs & SCLs										
		300[2]		4[1] & 2[2]	0.3[2]	10[1]	0.05[2]	≥7[2]	300[2]		1000[2]	Presence
No. 1	2/7/22	19	695	1.95	0.200	<0.2	0.012	7.1	78	330	404	**Present** / Absent
No. 2	2/2/22	18	694	1.80	2.70	<0.2	0.073	7.7	74	340	290	**Present** / Absent
No. 4	1/25/22	28	648	0.96	0.041	0.4	<0.010	7.7	33	310	280	**Present** / Absent
No. 6	1/27/22	18	675	1.53	0.077	<0.2	0.016	7.6	64	330	404	**Present** / Absent
No. 8	2/14/22	18	679	2.34	0.700	<0.2	0.029	7.4	103	360	478	**Present** / Absent
No. 9	2/21/22	19	672	1.58	0.020	<0.2	<0.010	7.1	66	340	320	Absent/Absent

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

IV.4. Groundwater Availability

Based upon the analyses of the aquifer tests, drawdown estimates were calculated after 10 years and 30 years of continuous production. Figure 24 provides a distance-drawdown plot for a single pumping well producing at a rate of 15 gpm for 0.32 hours per day (288 gallons per day). This pumping volume represents the total water demand at full build out of the subdivision per housing unit (0.32 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 (Theis, 1935). The Theis Equation has several assumptions used to derive the formula which include (Driscoll, 1986):

1. The water-bearing formation is uniform in character and the hydraulic conductivity is the same in all directions;
2. The aquifer is uniform in thickness and infinite in areal extent;
3. The aquifer receives no recharge from any source;
4. The well penetrates, and receives water from the full thickness of the aquifer;
5. The water from storage is discharged 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 through 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 Edwards-Trinity (Plateau) Aquifer. These include assumptions 1, 3 and 7. 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 can lead 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).

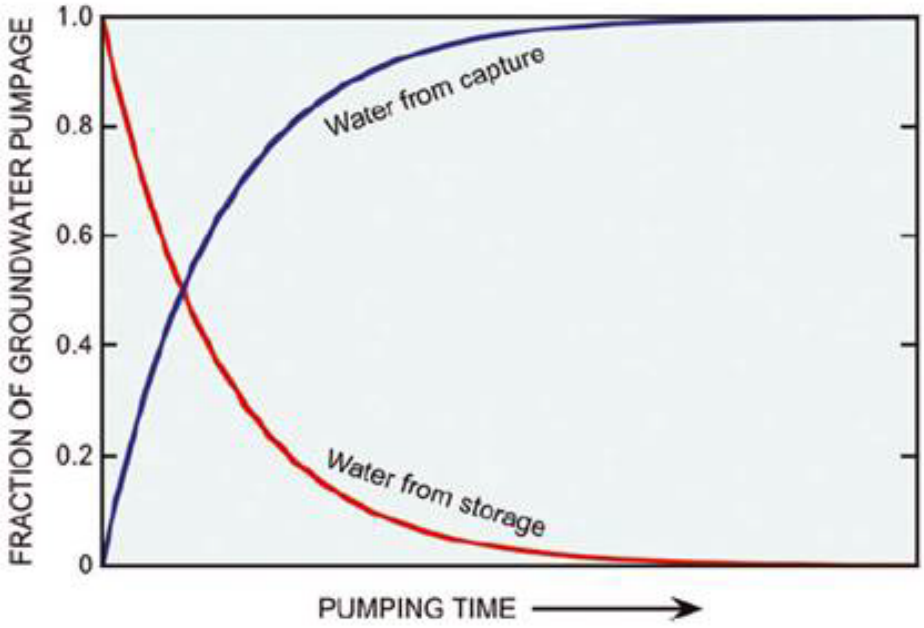


Figure 23: Water sources to a pumping well over time (from Konikow and Leake (2014)

Since the Theis equation (Theis, 1935) 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.

Table 5 provides a summary of the results from the distance-drawdown calculation. Estimates of drawdown are based on the following assumptions:

- Total water demand (entire subdivision) = 19.0 acre-feet/year;
- Total water demand (per housing unit) = 0.32 acre-feet/year = 288 gpd;
- The individual well will be pumped at 15 gpm for 0.32 hours per day (Table 5); and
- Median pumping well transmissivity (199.1 ft^2/day) and storativity ($4.9x10^{-5}$) values calculated from aquifer testing 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. Well Spacing

Based upon the drawdown calculated from the distance-drawdown projection, the drawdown after 10 years of production at 15 gpm and a well spacing of 100 feet results in 3.10 feet. At a spacing of 250 feet, the drawdown reduces to 1.24 feet. At a spacing of 500 feet, the drawdown reduces further to 0.38 feet.

Based upon the drawdown calculated from the distance-drawdown projection, the drawdown after 30 years of production at 15 gpm and a well spacing of 100 feet results in 3.11 feet. At a spacing of 250 feet, the drawdown reduces to 1.26 feet. At a spacing of 500 feet, the drawdown reduces further to 0.40 feet.

From the distance drawdown calculations, we recommend that Hideout Ranch Subdivision wells be spaced a minimum distance of 300 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.

Table 5: Summary of distance-drawdown calculation (15 gpm)

Well	Drawdown at Pumped Well After 10-Years of Pumping (ft)	Drawdown at Pumped Well After 30-Years of Pumping (ft)	Dist. to Outer Edges of Cone of Depression - 10 years (feet)	Dist. to Outer Edges of Cone of Depression - 30 years (feet)
Pumping Well	16.87	16.89	300	300

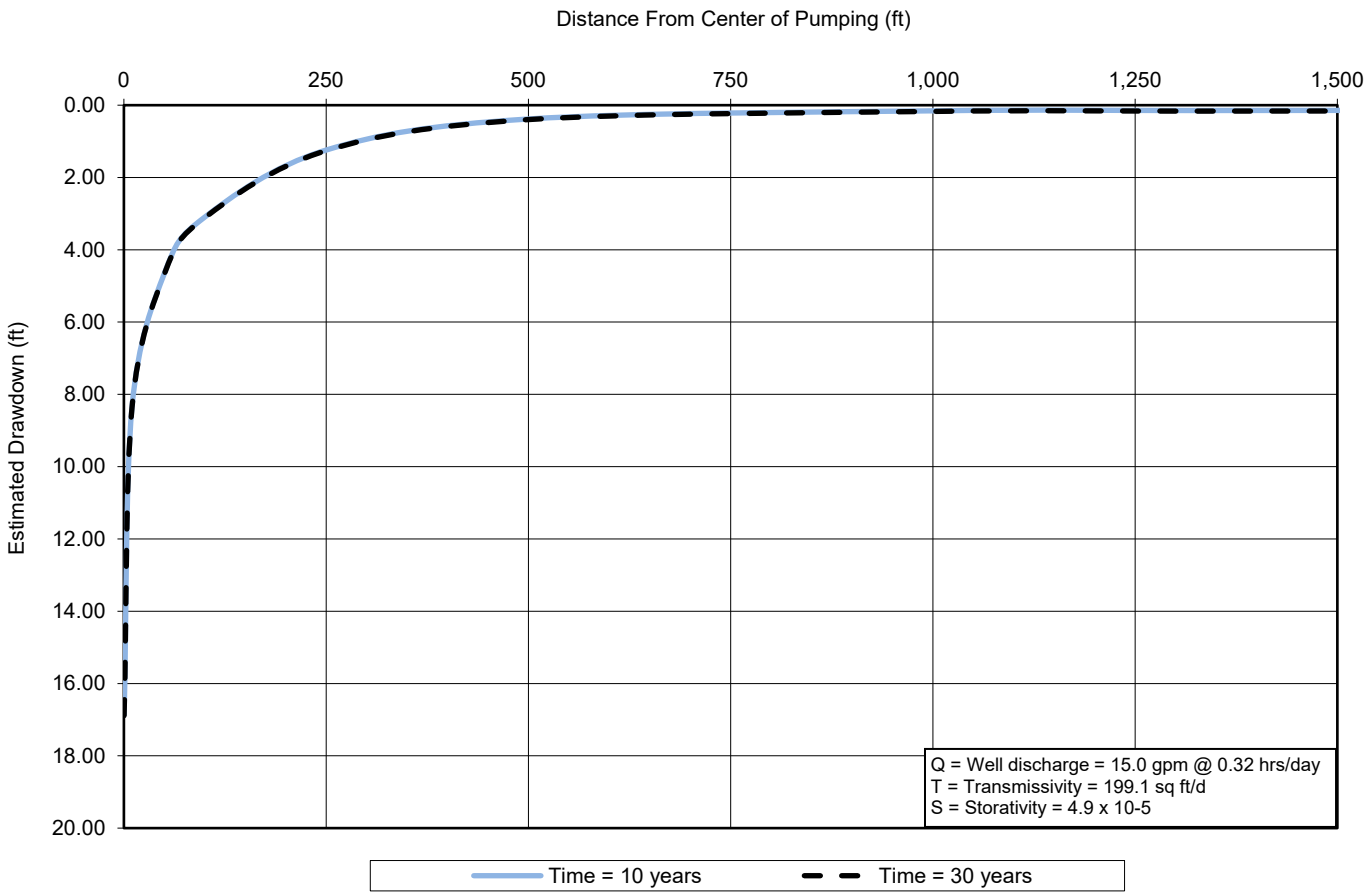


Figure 24: Distance drawdown plot (15 gpm)

IV.4.2. Groundwater Model

A groundwater model was utilized to determine the projected impacts from production at the proposed subdivision at full build out. In order to estimate future groundwater conditions, a one-layer groundwater model, consisting of 370 rows and 370 columns for a total of 136,900 cells, was created to estimate drawdown under a normal production scenario for Hideout Ranch. Each cell has dimensions of 100 feet by 100 feet; the entire grid represents an approximately 49.0 square mile portion of the Edwards-Trinity (Plateau) Aquifer. The boundaries of the grid extend approximately 3.5 miles beyond the center of the proposed subdivision in order to evaluate the potential regional impacts from pumping (Figure 26).

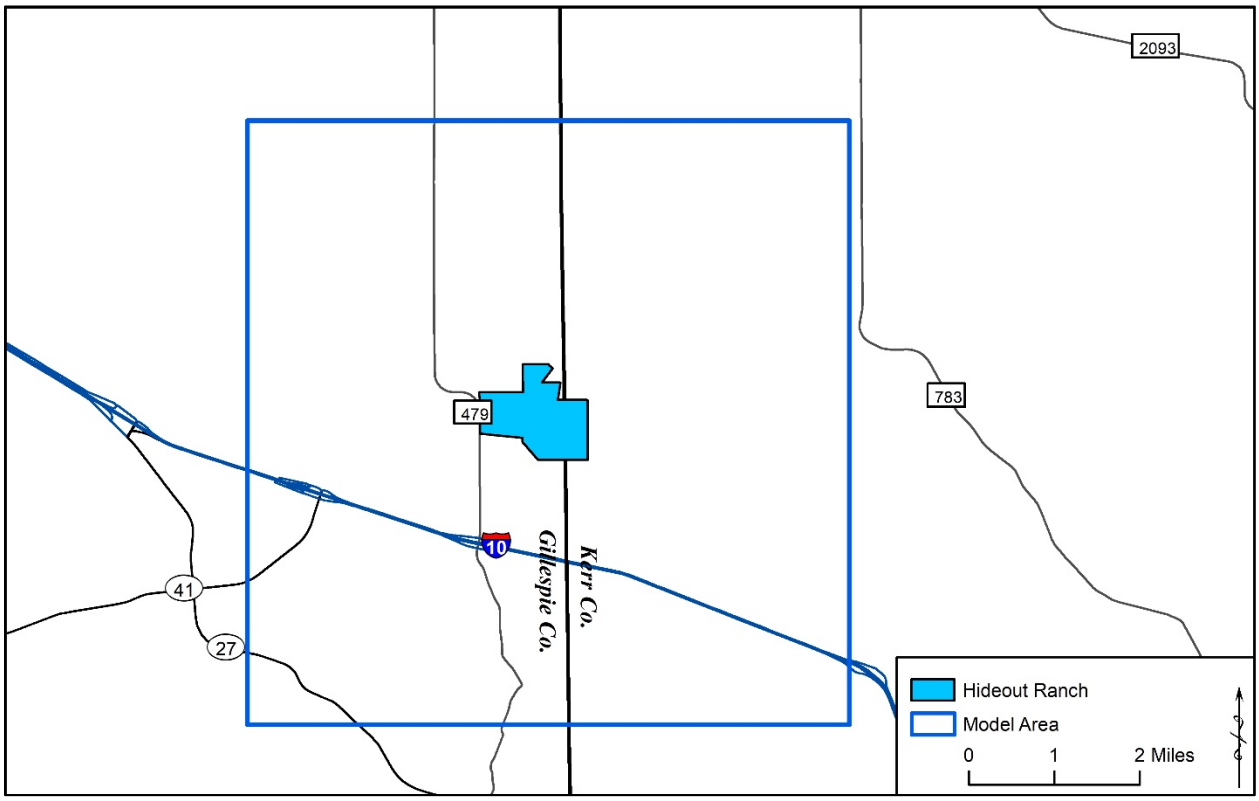


Figure 25: Map showing extent of groundwater model

The model calculates drawdown at each cell using the Theis Equation (Theis, 1935),

$$s = \frac{Q}{4\pi T} W(u) \qquad \textit{(Equation 1)}$$

where:

s = drawdown (feet);

Q = discharge (gallons per minute; gpm);

T = transmissivity (ft.^{2}/day); and

W(u) = well function.

The well function W(u) is estimated by:

$$W(u) = -0.5772 - \ln u + u - \frac{u^2}{2\times 2!} + \frac{u^3}{3\times 3!} - \frac{u^4}{4\times 4} + \ldots \qquad \textit{(Equation 2)}$$

where:

$$u = \frac{r^2 S}{4Tt} \qquad \textit{(Equation 3)}$$

r = the radius at which drawdown is estimated (feet); and

S = storativity (dimensionless).

IV.4.3. Drawdown Analysis – Hideout Ranch (59 Lots)

The groundwater model was designed to estimate drawdown at full buildout (59 lots) after 10 and 30 years of continuous production at a rate of 288 gallons per day (0.2 gpm) per well; the total production rate from the Edwards-Trinity (Plateau) Aquifer equates to approximately 11.8 gpm. The groundwater model was simplified by concentrating pumping to one (1) central locality within the proposed subdivision continuously pumping 11.8 gpm in order to provide a simple solution for estimating long-term effects from pumping multiple wells that are spaced closely together (Figure 26).

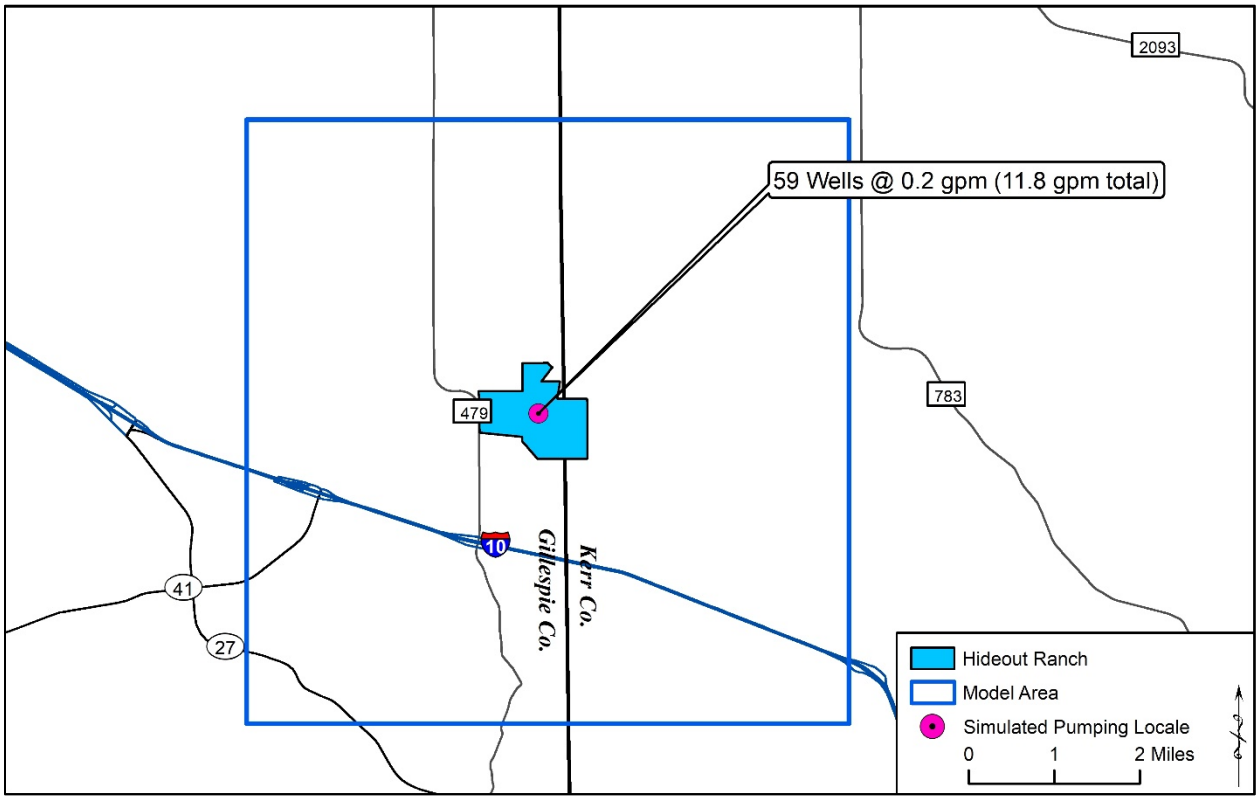


Figure 26: Map showing location of simulated pumping well

In an effort to model the aquifer impacts from the proposed pumping in accordance with site-specific data, the following values calculated from Hideout Ranch aquifer testing were utilized:

- Transmissivity: 199.1 ft.^{2}/day (median value); and,
- Storativity: 4.9x10^{-5} (median value).

Model Results - 10 Years

The results of the model run after 10 years of continuous pumping are summarized in Figure 28, with tabulated results in Table 6. The static water level, modeled water level, projected water level pumping at 288 gallons per day and projected water level above each pump are shown in Table 6. Projected water level above the pump assumes a pump setting at a depth of 10 feet above the bottom of each respective well.

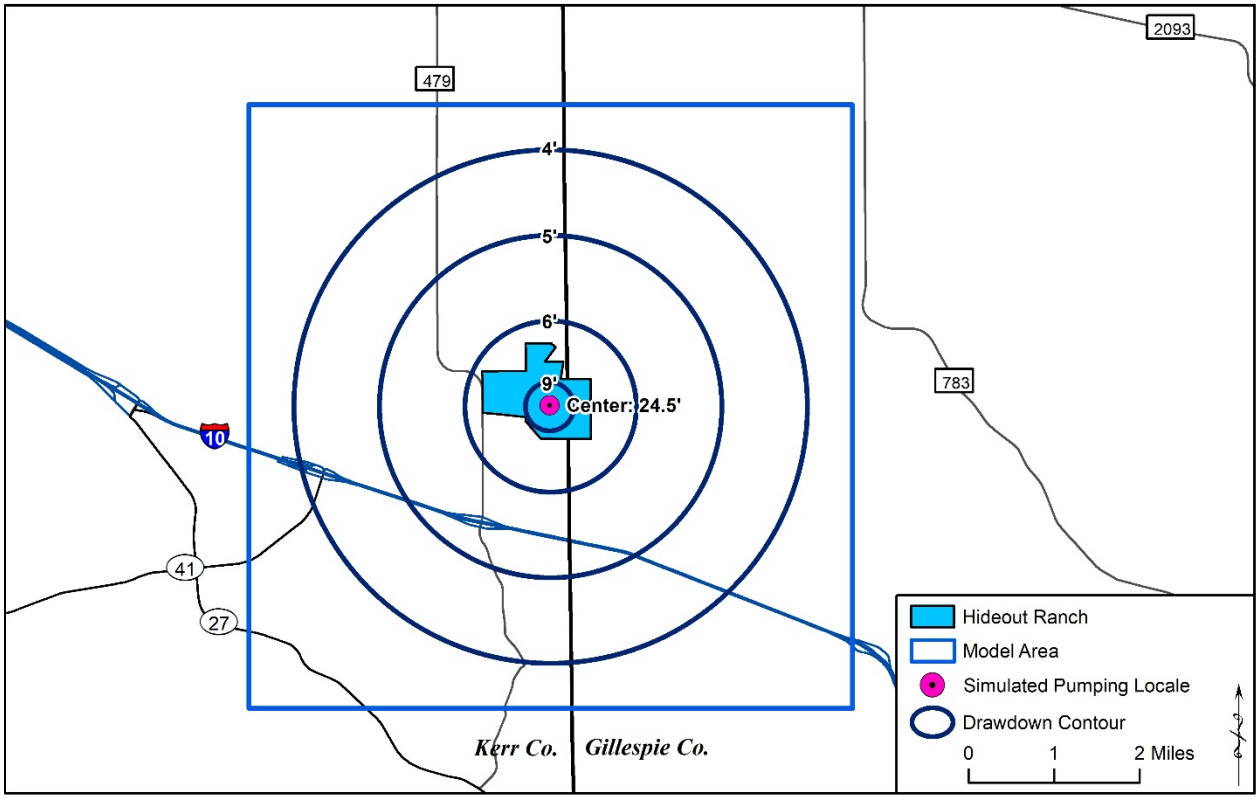


Figure 27: Modeled drawdown after 10 years from production at Hideout Ranch

The drawdown calculated after 10 years of production at 288 gallons per day per well results in approximately 8.7 feet of drawdown at the nearest subdivision boundary (1,500 feet away) and 24.5 feet of drawdown at the simulated pumping locale (Figure 27). To determine the pumping level at each individual well after 10 years of pumping, the modeling results were coupled with the aquifer test data. The drawdown at each well was modeled using the Theis equation utilizing the transmissivity from each aquifer test and a median storativity (4.9x10^{-5}) value pumping at 288 gallons per day. Table 6 provides a summary of the calculations.

Table 6: Summary of 10-year drawdown calculations

Pumping Well	Static Water Level (ft. bgl)	Modeled Water Level (ft. bgl; After 10 years)	Drawdown During Pumping Cycle @ 288 gpd (feet)	Pumping Water Level (ft. bgl)	Projected Water Level above Pump (ft)
No. 1	560.3	568.5	13.1	581.6	108.4
No. 2	555.1	563.8	40.4	604.2	85.8
No. 4	548.6	556.7	9.0	565.7	168.3
No. 6	549.0	556.9	10.7	567.6	142.4
No. 8	568.2	576.7	23.1	599.8	70.2
No. 9	568.3	576.4	85.5	661.9	48.1
Notes: Static water level recorded during the aquifer test; ft. = feet; bgl = below ground level; gpm = gallons per minute.					

Model Results - 30 Years

The results of the model run after 30 years of continuous pumping are summarized in Figure 29, with tabulated results in Table 7. The static water level, modeled water level, projected water level pumping at 288 gallons per day and projected water level above each pump are shown in Table 7. Projected water level above the pump assumes a pump setting at a depth of 10 feet above the bottom of each respective well.

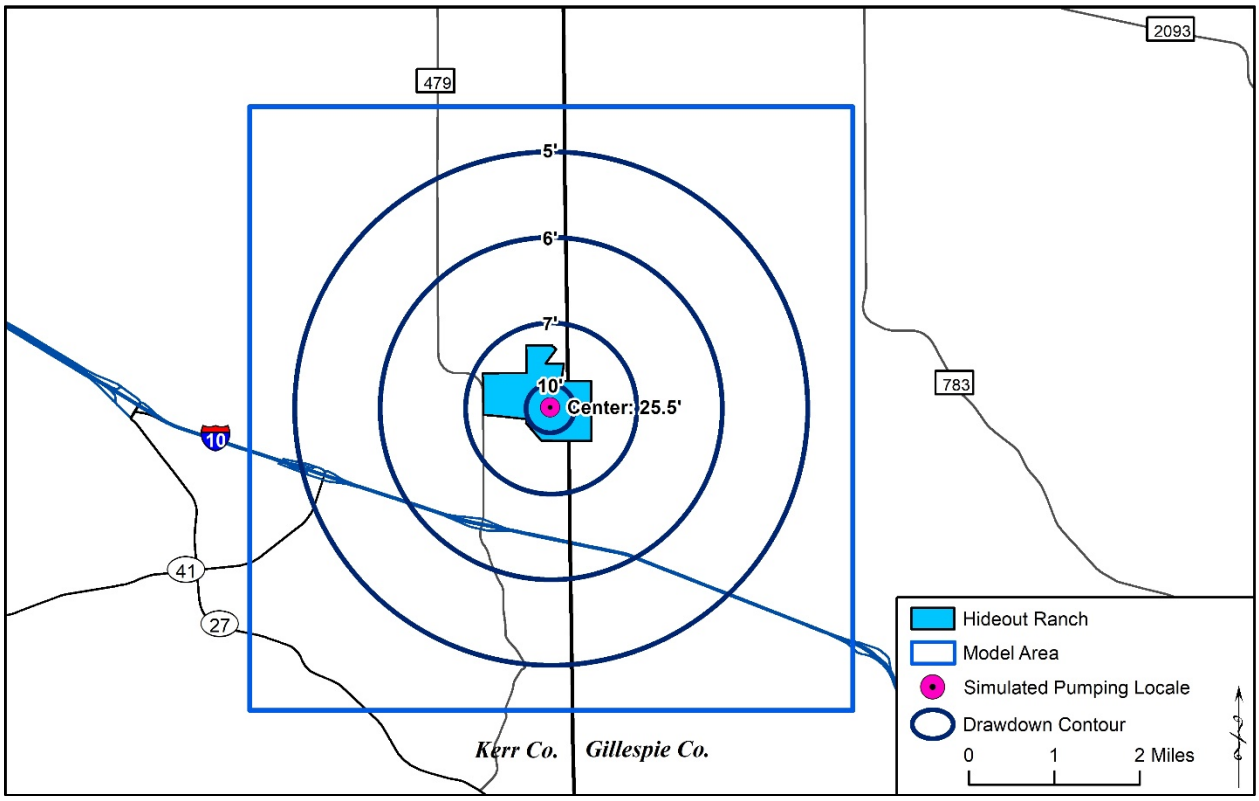


Figure 28: Modeled drawdown after 30 years from production at Hideout Ranch

The drawdown calculated after 30 years of production at 288 gallons per day per well results in approximately 9.7 feet of drawdown at the nearest subdivision boundary (1,500 feet away) and 25.5 feet of drawdown at the simulated pumping locale (Figure 28). To determine the pumping level at each individual well after 30 years of pumping, the modeling results were coupled with the aquifer test data. The drawdown at each well was modeled using the Theis equation utilizing the transmissivity from each aquifer test and a median storativity ($4.9x10^{-5}$) value pumping 288 gallons per day. Table 7 provides a summary of the calculations.

Table 7: Summary of 30-year drawdown calculations

Pumping Well	Static Water Level (ft. bgl; present)	Modeled Water Level (ft. bgl; After 30 years)	Drawdown During Pumping Cycle @ 288 gpd (feet)	Pumping Water Level (ft. bgl)	Projected Water Level above Pump (ft)
No. 1	560.3	569.5	13.1	582.6	107.4
No. 2	555.1	564.8	40.4	605.2	84.8
No. 4	548.6	557.7	9.0	566.7	168.3
No. 6	549.0	557.9	10.7	568.6	141.4
No. 8	568.2	577.7	23.1	600.8	69.2
No. 9	568.3	577.4	85.5	662.9	47.1
Notes: Static water level recorded during the aquifer test; ft. = feet; bgl = below ground level; gpm = gallons per minute					

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.

Modeled water levels decline near the top of the production zone of the Edwards-Trinity (Plateau) Aquifer, which may result in decreased transmissivity and/or specific capacity. Those reductions were not considered in this study. If decreased transmissivity and/or specific capacity is experienced, wells may be susceptible to reduced pumping capabilities and increased drawdown.

The Edwards-Trinity (Plateau) Aquifer at Hideout Ranch 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 Hensell Sand Member within the Edwards-Trinity (Plateau) Aquifer to provide the maximum possible yield and; ii) set their pumps as deep as practical to protect from lowering water levels during drought.

Section VI: References

Anaya, R., and Jones, I., 2009. Groundwater Availability Model for the Edwards-Trinity (Plateau) and Pecos Valley Aquifers of Texas: Texas Water Development Board Report 373, 103 p.

Ashworth, J.B., and Hopkins, J., 1995 Aquifers of Texas: Texas Water Development Board Report 345, 69 p.

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.

Barnes, V. E., and Bell, W. C., 1977. The Moore Hollow Group of Central Texas: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations No, 88, 169 p.

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 (2nd. Ed.): Johnson Division, St. Paul, Minnesota, p. 1021.

George, W. O., 1952. Geology and ground-water resources of Comal County, Tex., with sections on surface-water runoff, by S. D. Breeding and Chemical character of the water, by W. W. Hastings: U.S. Geol. Survey Water-Supply Paper 1138, 126 p.

Johnson, B., 2004. The Llano Uplift and associated Pennsylvanian-age faults: An overview and a field example of faults exposed at Hoover Point in the Backbone Ridge Graben. pp. 62-91 in Tectonic history of southern Laurentia: A look at Mesoproterozoic, late-Paleozoic, and Cenozoic structures in central Texas. Austin Geological Society Field Trip Guidebook.

Jones, I.C., 2003, Groundwater availability modeling: northern segment of the Edwards Aquifer, Texas: TWDB, Report 358,

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.

Loucks, R.G., 1977, Porosity development and distribution in shoal-water carbonate complexes—subsurface Pearsall Formation (Lower Cretaceous) South Texas, in Bebout, D.G., and Loucks, R.G., eds., Cretaceous Carbonates of Texas and Mexico: University of Texas at Austin, Bureau of Economic Geology, Report of Investigations no. 89, p. 97–126

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.

Reese, J. S., Mosher, S., Connelly, J., and Roback, R., 2000. Mesoproterozoic chronostratigraphy of the southeastern Llano Uplift, central Texas, Geological Society of America Bulletin, v. 112, n. 2, p. 278-291.

Standen, A. and Ruggiero, R., 2007. Llano Uplift Aquifers Structure and Stratigraphy. Prepared for Texas Water Development Board Contract Number 0604830614. 28 p.

Theis, C.V. 1935. The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage. Transactions of the American Geophysical Union. V16, p. 519-524.

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.

Wierman, D. A., Broun, A. S., Hunt, B. B., 2010, Hydrogeologic Atlas of the Hill Country Trinity Aquifer, Blanco, Hays, and Travis Counties, Central Texas. Hays-Trinity Groundwater Conservation District, United States.

Wilson, F. 2008. 2008 Hydrogeology of Kerr County. Accessed from http://hgcd.org/wpcontent/uploads/2015/07/2008-Kerr-Hydrogeology-Report-.pdf

Appendix A

Certification of Groundwater Availability for Platting Form

CERTIFICATION OF GROUNDWATER AVAILABILITY FOR PLATTING FORM

Use of this form: If required by a municipal authority pursuant to Texas Local Government Code, §212.0101, or a county authority pursuant to §232.0032, 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, TAC, Chapter 230 to certify that adequate groundwater is available under 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 Texas Local Government Code, §212.004 and §232.001.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 Texas Water Code, §35.019 or Chapter 36.

Administrative Information (30 TAC §230.4)
1. Name of Proposed Subdivision: Hideout Ranch

Texas Commission on Environmental Quality
Chapter 230 - Groundwater Availability Certification for Platting

2. Any Previous Name Which Identifies the Tract of Land:
3. Property Owner's Name(s): TX7 Land, LLC
Address: P.O. Box 661, Murphy, NC 28906
Phone:
Fax:
4. Plat Applicant's Name: TX7 Land, LLC
Address: P.O. Box 661, Murphy, NC 28906
Phone:
Fax:
5. Licensed Professional Engineer or Geoscientist:
Name: Kaveh Khorzad, P.G.
Address: 317 Ranch Road 620 S., Suite 203, Lakeway, Texas 78734
Phone: 512-773-3226
Fax:
Certificate Number: TBPG License No.: 1126
6. Location and Property Description of Proposed Subdivision: approximately 4.5 miles northeast of Mountain Home, Texas in northern Kerr County and southwest Gillespie County located along Ranch to Market 479
7. Tax Assessor Parcel Number(s).
Book:
Map:
Parcel: Kerr County: 17680, 17681, 28477, 28478, 28480, 46634 and 64208 And Gillespie County: 35985 and 36000.

Proposed Subdivision Information (30 TAC §230.5)
8. Purpose of Proposed Subdivision (single family/multi-family residential, non-residential, commercial): single family
9. Size of Proposed Subdivision (acres): 587
10. Number of Proposed Lots: 59
11. Average Size of Proposed Lots (acres): 9.95
12. Anticipated Method of Water Distribution. Individual wells to serve individual lots.

Texas Commission on Environmental Quality
Chapter 230 - Groundwater Availability Certification for Platting

Expansion of Existing Public Water Supply System?	Yes	(No)
New (Proposed) Public Water Supply System?	Yes	(No)
Individual Water Wells to Serve Individual Lots?	(Yes)	No
Combination of Methods?	Yes	(No)
Description (if needed):		

13. Additional Information (if required by the municipal or county authority):

Note: If public water supply system is anticipated, written application for service to existing water providers within a 1/2-mile radius should be attached to this form (30 TAC §230.5(f) of this title).

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): 59 single family housing units
Average Number of Persons per Housing Unit: 2.34
Gallons of Water Required per Person per Day: 123 gallons per capita per day (gpcd)
Water Demand per Housing Unit per Year (acre feet/year): 0.32
Total Expected Residential Water Demand per Year (acre feet/year): 19.0
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):
16. Total Water Demand Estimate at Full Build Out (acre feet/year): 19.0
17. Sources of Information Used for Demand Estimates: US Census data and TWDB

General Groundwater Resource Information (30 TAC §230.7)

Texas Commission on Environmental Quality
Chapter 230 - Groundwater Availability Certification for Platting

18. Identify and describe, using Texas Water Development Board names, the aquifer(s) which underlies the proposed subdivision: Edwards-Trinity (Plateau) Aquifer

Note: Users may refer to the most recent State Water Plan to obtain general information pertaining to the state's aquifers. The State Water Plan is available on the Texas Water Development Board's Internet website at: www.twdb.state.tx.us

Obtaining Site-Specific Groundwater Data (30 TAC §230.8)		
19. Have all known existing, abandoned, and inoperative wells within the proposed subdivision been located, identified, and shown on the plat as required under §230.8(b) of this title?	(Yes)	No
20. Were the geologic and groundwater resource factors identified under §230.7(b) of this title considered in planning and designing the aquifer test required under §230.8(c) of this title?	(Yes)	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) - (4) of this title?	(Yes)	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) of this title)?	(Yes)	No
23. Has an aquifer test been conducted which meets the requirements of §230.8(c)(1) and (6) of this title?	(Yes)	No
24. Were existing wells or previous aquifer test data used?	Yes	(No)
25. If yes, did they meet the requirements of §230.8(c)(7) of this title?	Yes	No
26. Were additional observation wells or aquifer testing utilized?	Yes	(No)
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 of this title (relating 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) of this title.		

Texas Commission on Environmental Quality
Chapter 230 - Groundwater Availability Certification for Platting

Determination of Groundwater Quality (30 TAC §230.9)		
27. Have water quality samples been collected as required by §230.9 of this title?	(Yes)	No
28. Has a water quality analysis been performed which meets the requirements of §230.9 of this title?	(Yes)	No

Determination of Groundwater Availability (30 TAC §230.10)		
29. Have the aquifer parameters required by §230.10(c) of this title been determined?	(Yes)	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)		
Were any recharge or barrier boundaries detected?	Yes	(No)
If yes, please describe:		
Thickness of aquifer(s): 266 – 294 ft.		
31. Have time-drawdown determinations been calculated as required under §230.10(d)(1) of this title?	(Yes)	No
32. Have distance-drawdown determinations been calculated as required under §230.10(d)(2) of this title?	(Yes)	No
33. Have well interference determinations been made as required under §230.10(d)(3) of this title?	(Yes)	No
34. Has the anticipated method of water delivery, the annual groundwater demand estimates at full build out, and geologic and groundwater information been taken into account in making these determinations?	(Yes)	No
35. Has the water quality analysis required under §230.9 of this title been compared to primary and secondary public drinking water standards as required under §230.10(e) of	(Yes)	No

this title?		
Does the concentration of any analyzed constituent exceed the standards?	(Yes)	No
If yes, please list the constituent(s) and concentration measure(s) which exceed standards: Secondary standards were exceed for the following constituents (Table 4): Well No. 2: Fe and Mn Well No. 8: F and Fe		

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)**
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 Section IV.4.3)**
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 Table 5)**
39. The recommended minimum spacing limit between wells is___300___feet with a recommended well yield of___15___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 Section IV.4)**

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,_____Kaveh Khorzad_____, Texas Licensed Professional Engineer or (Texas Licensed Professional Geoscientist) (circle which applies), certificate number_____1126_____, based on best professional judgment, 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.

Texas Commission on Environmental Quality
Chapter 230 - Groundwater Availability Certification for Platting

Date: 3-3-22

Adopted July 9, 2008

Effective July 31, 2008

Appendix B

Geophysical Logs

Geophysical Log

Well No. 3

GEO CAM

Borehole: HIDE OUT WELL NO. 3

Logs: GAMMA, SPR

Water Well Logging & Video Recording Services

Geo Cam, Inc. 17118 Classen Rd, San Antonio, TX 78247 877-495-9121

Project: HIDE OUT WELL NO. 3 Date: 2/26/2022

Client: **TEXAN WATER WELLS** County: GILLESPIE

Location: **N 30* 12' 25.5" W 99* 18' 8.5"** State: TX

BOREHOLE DATA

Drilling Contractor: TEXAN WATER WELLS **Driller T.D. (ft) : 720'**

Elevation: 2216' Logger T.D. (ft) : 716'

Depth Ref: T.C. Date Drilled: 2/25/2022

BIT RECORD				CASING RECORD		
RUN	BIT SIZE (in)	FROM (ft)	TO (ft)	SIZE/WGT/THK	FROM (ft)	TO (ft)
1	N/A			4.5"	+2.5'	
2						
3						

Drill Method: AIR ROTARY Weight: **Fluid Level (ft) :** 621'

Hole Medium: Mud Type: Time Since Circ:

Viscosity: Rm: at: Deg C

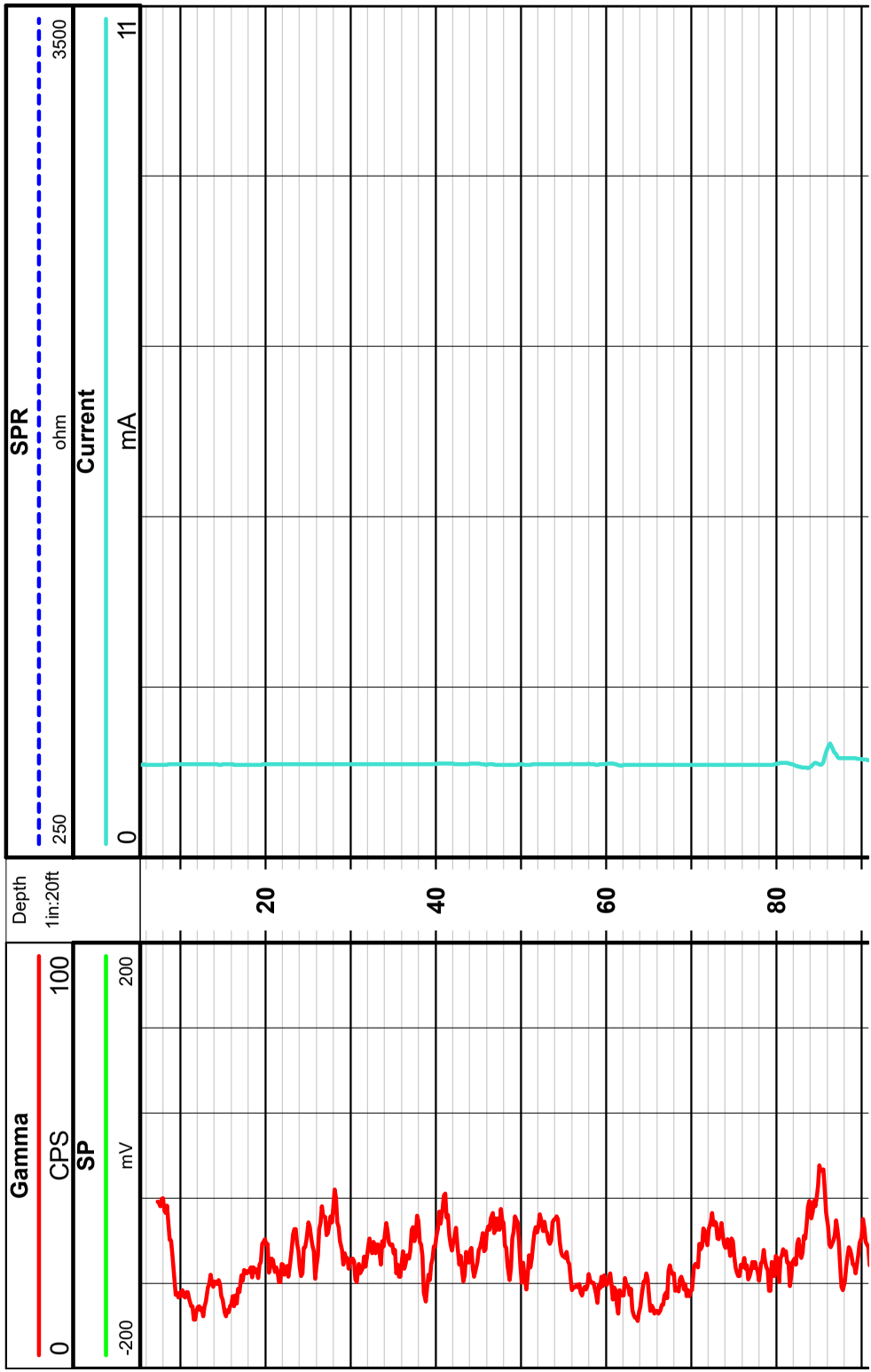
GENERAL DATA

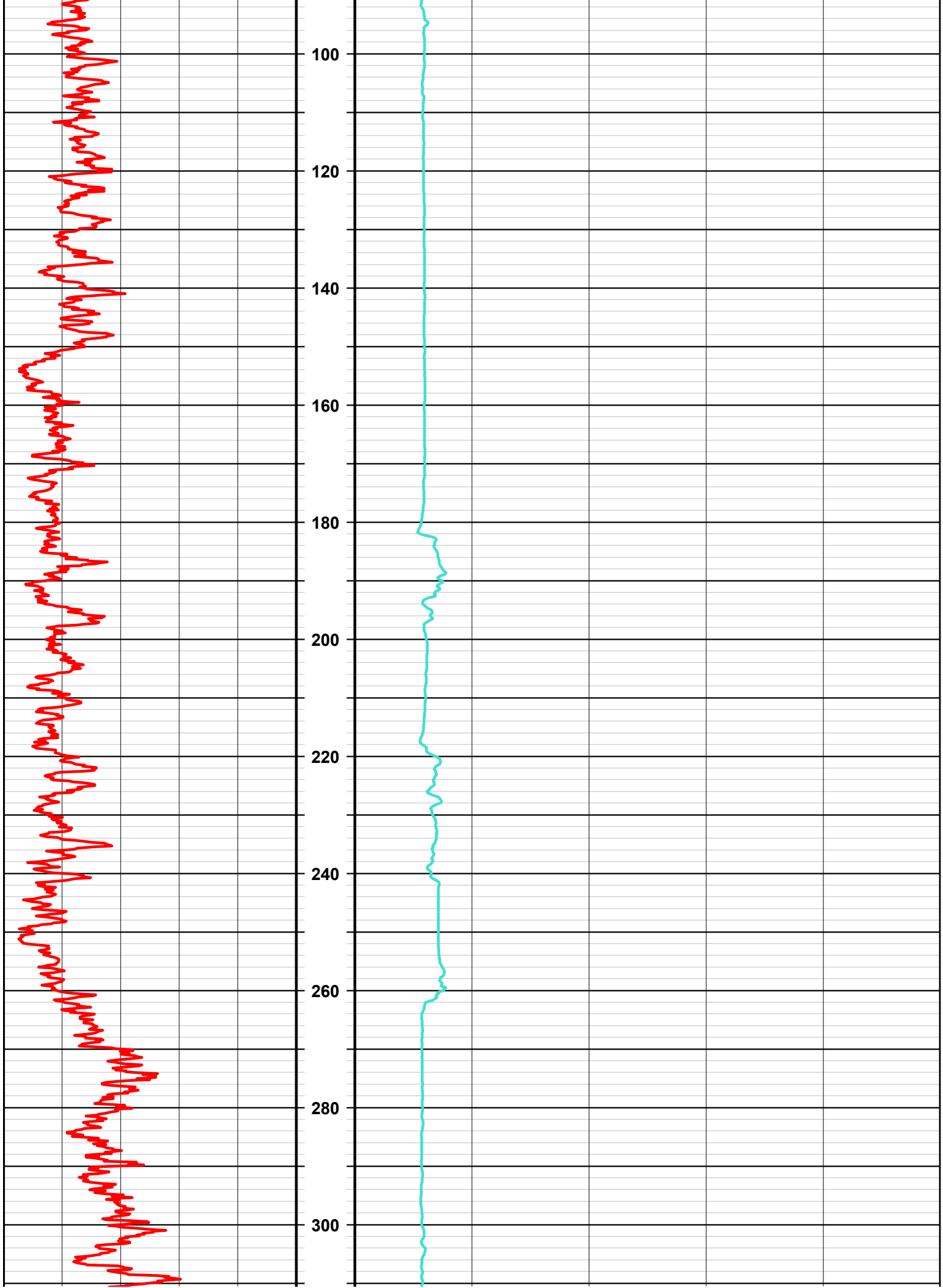
Logged By: CHRISTOPHER C. Unit/Truck: 11

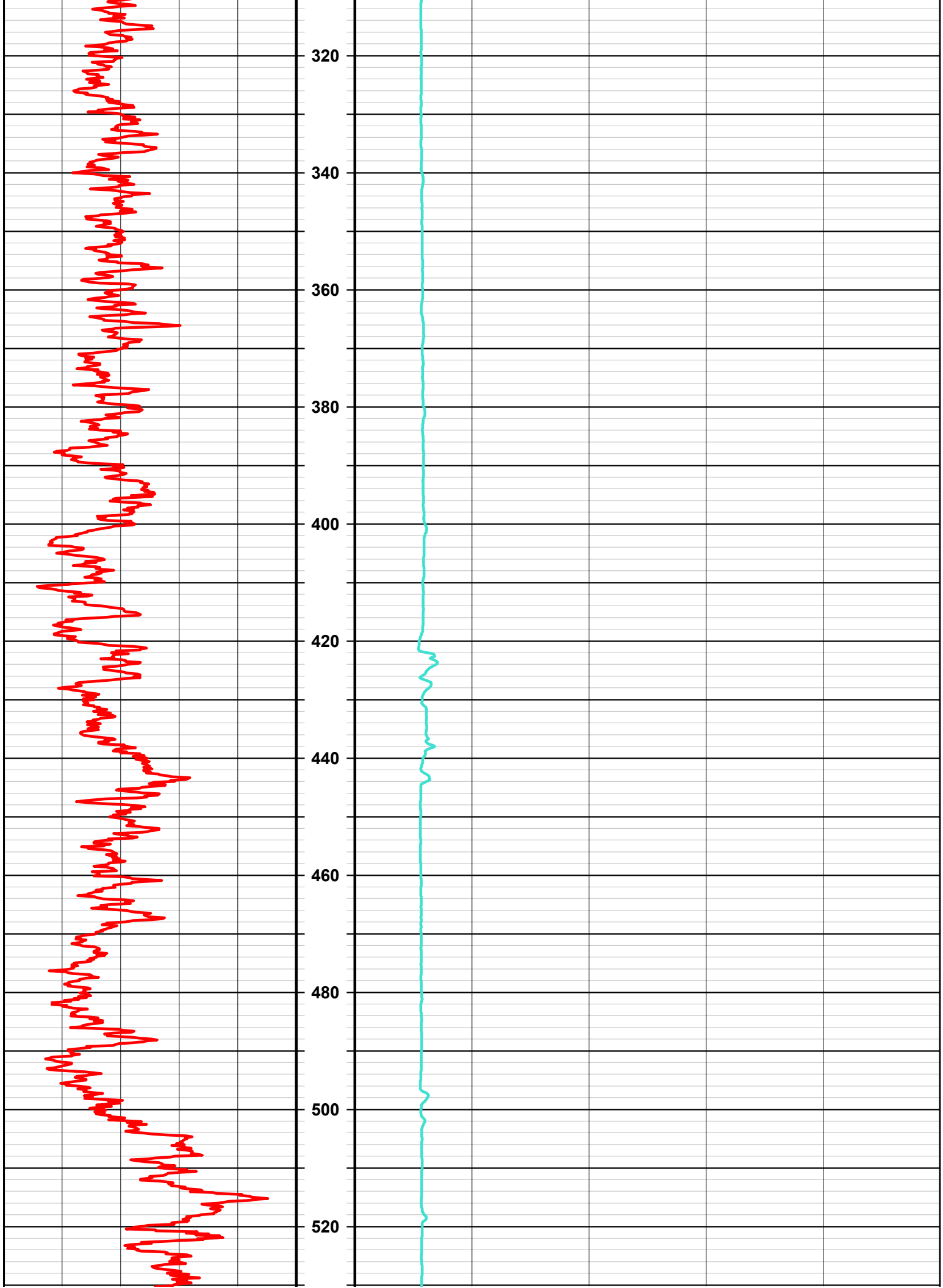
Witness:

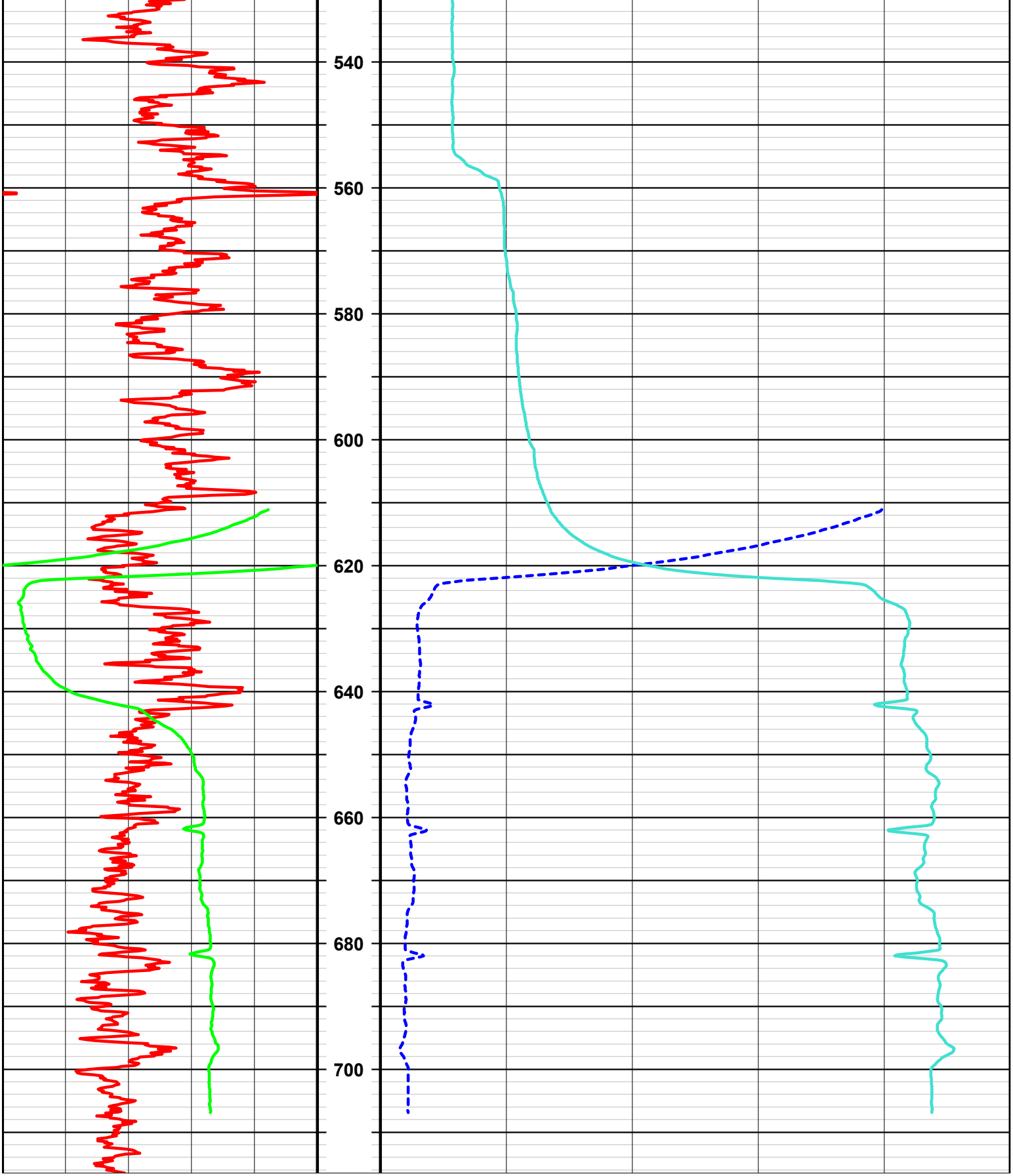
LOG TYPE	RUN NO	SPEED (ft/min)	FROM (ft)	TO (ft)	FT./ IN.
GAMMA	1	35	7'	716'	20
SPR	1	35	611'	706'	20
					20

Comments: ALL MEASUREMENTS WERE TAKEN FROM THE TOP OF CASING +2.5'




100
120
140
160
180
200
220
240
260
280
300


320
340
360
380
400
420
440
460
480
500
520


540
560
580
600
620
640
660
680
700

Geophysical Log

Well No. 5

GEO CAM

Borehole: HIDEOUT RANCH NO. 5

Logs: GAMMA, RESISTIVITY, SP

Water Well Logging & Video Recording Services

Geo Cam, Inc. 17118 Classen rd. San Antonio, TX 78247 877-495-9121

Project: HIDEOUT RANCH WELL NO. 5 Date: 10/15/2021

Client: **TEXAN WW** County: KERR

Location: N 30 12 25 W 99 18 46.5 State: TX

BOREHOLE DATA

Drilling Contractor: TEXAN WW **Driller T.D. (ft) : 740'**

Elevation: 2149' GPS Logger T.D. (ft) : 720'

Depth Ref: GL Date Drilled: 10/15/2021

BIT RECORD				CASING RECORD		
RUN	BIT SIZE (in)	FROM (ft)	TO (ft)	SIZE/WGT/THK	FROM (ft)	TO (ft)
1	8 3/4	0	TD	10IN STEEL	AGL	300
2						
3						

Drill Method: MUD ROTARY Weight: **Fluid Level (ft) :** 50'

Hole Medium: Mud Type: Time Since Circ:

Viscosity: Rm: at: Deg C

GENERAL DATA

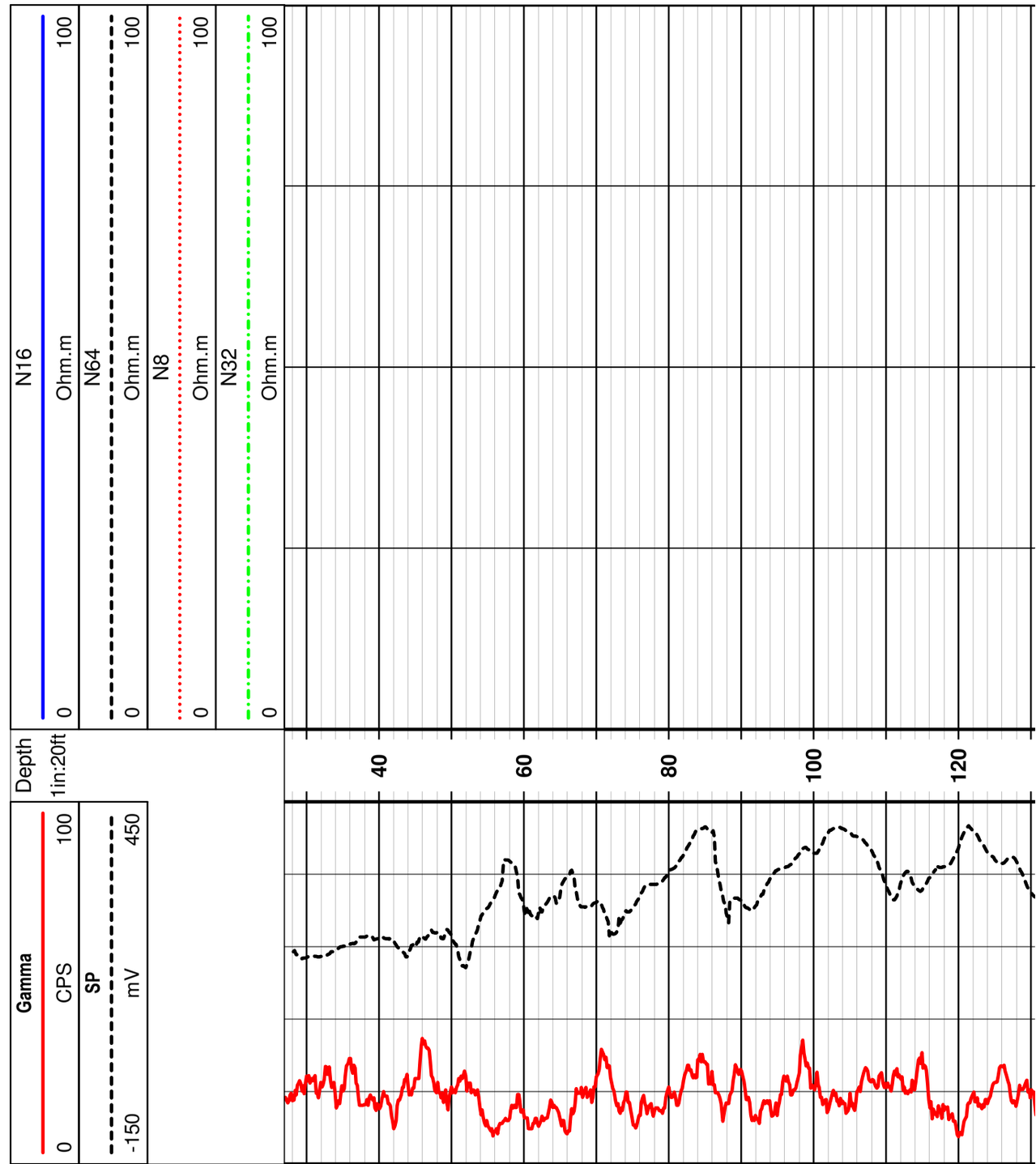
Logged by: JASON O Unit/Truck: 08

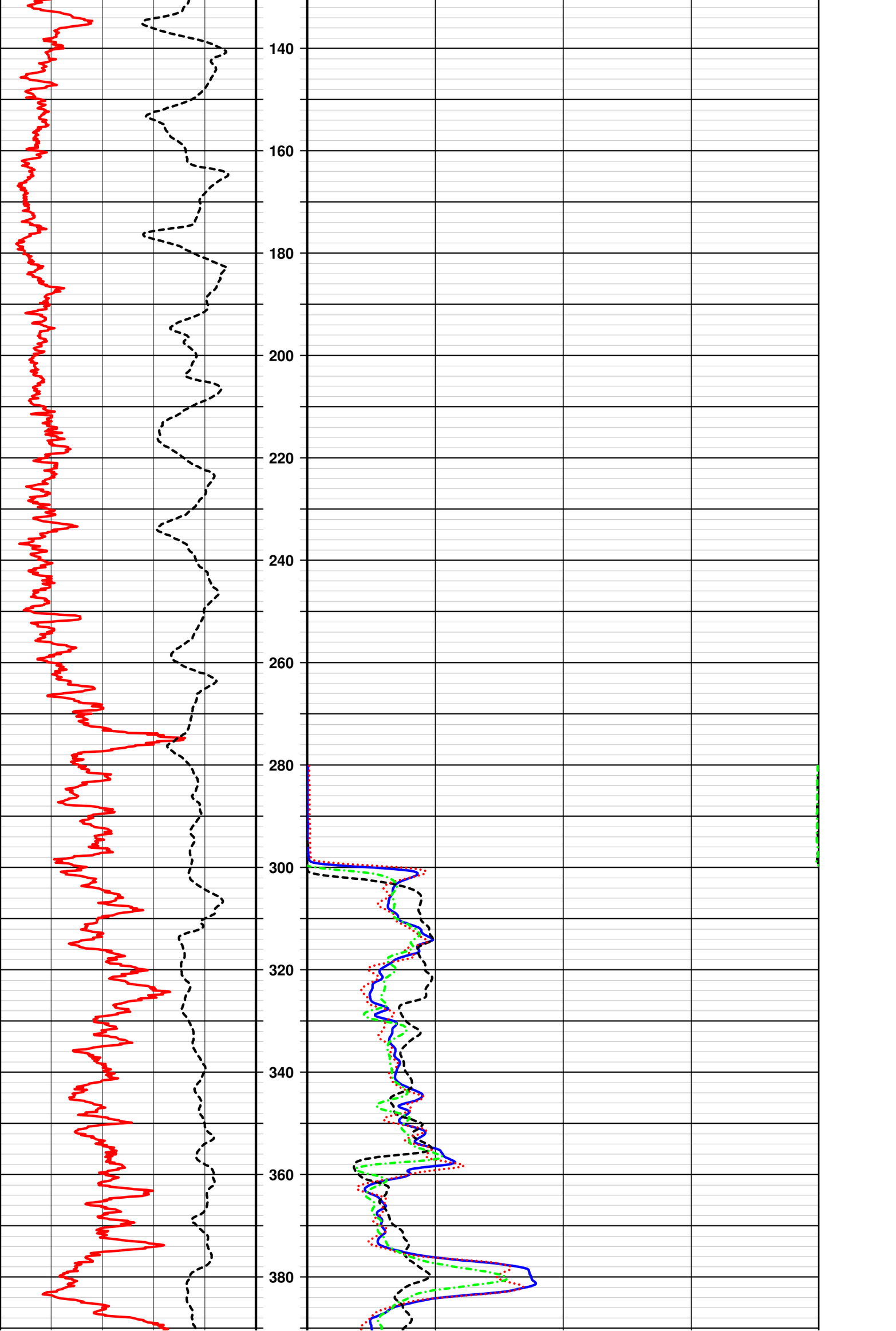
Witness:

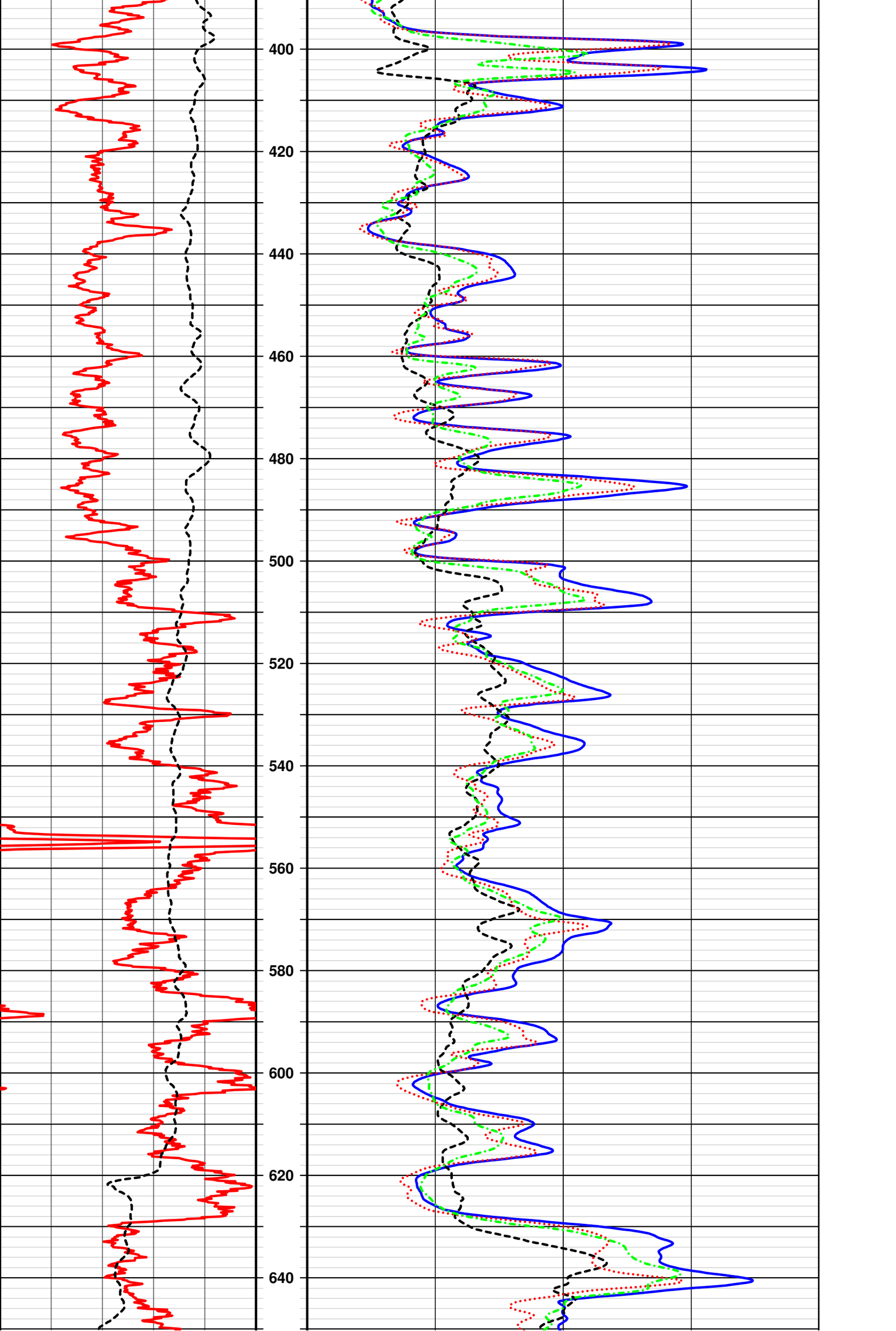
LOG TYPE	RUN NO	SPEED (ft/min)	FROM (ft)	TO (ft)	FT./ IN.
GAMMA	1	35	709	26	20
RESISTIVITY	1	35	715	280	20

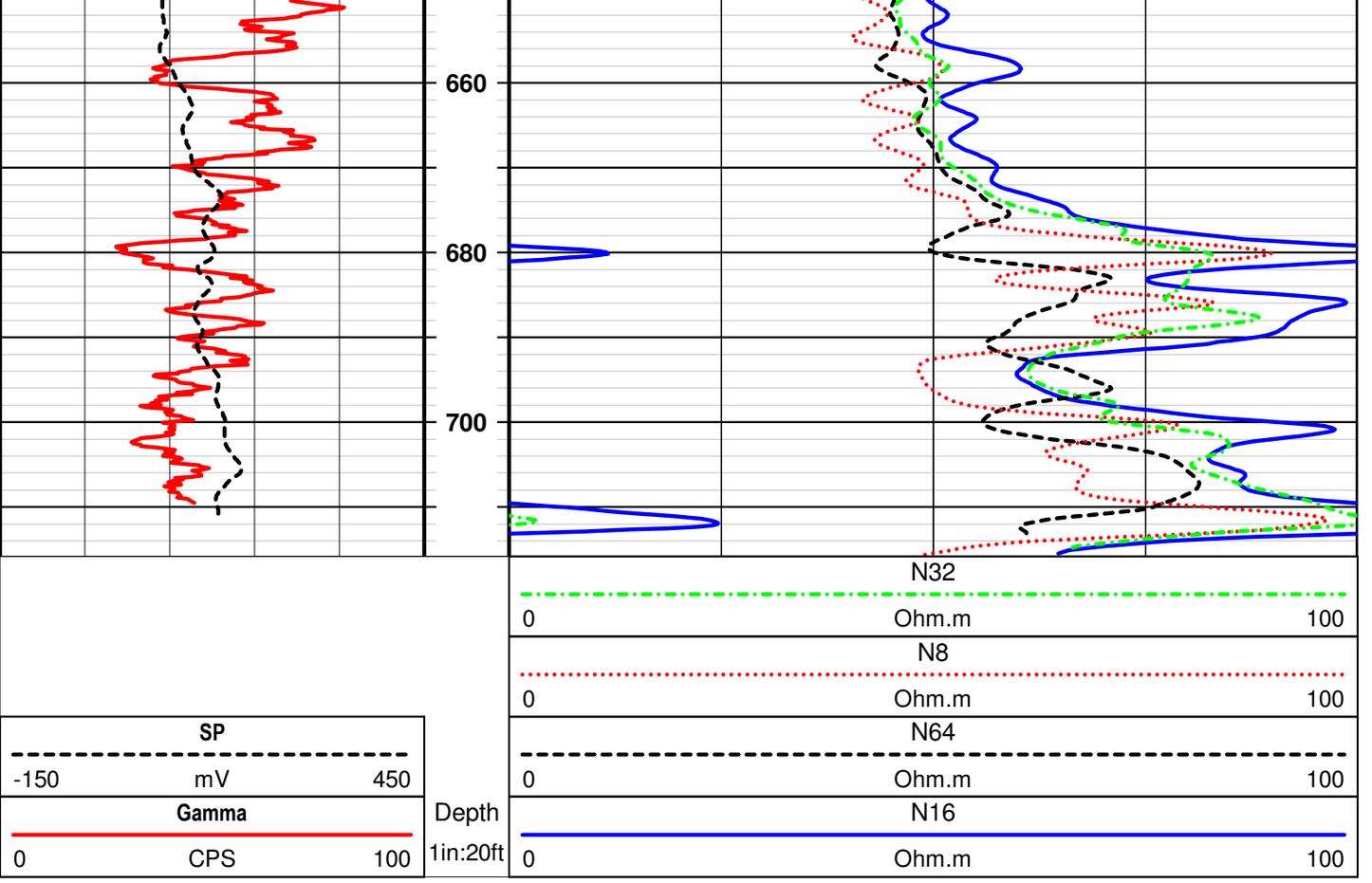
Tool Serial No.

Comments: ALL MEASUREMENTS TAKEN FROM GROUND LEVEL




140
160
180
200
220
240
260
280
300
320
340
360
380


400
420
440
460
480
500
520
540
560
580
600
620
640



N32

0 Ohm.m 100

N8

0 Ohm.m 100

N64

0 Ohm.m 100

N16

0 Ohm.m 100

SP

-150 mV 450

Gamma

0 CPS 100

Depth

1in:20ft

Geophysical Log

Well No. 8

GEO CAM

Borehole: HIDE OUT WELL NO. 8

Logs: GAMMA, SPR

Water Well Logging & Video Recording Services

Geo Cam, Inc. 17118 Classen Rd, San Antonio, TX 78247 877-495-9121

Project: HIDE OUT WELL NO. 8 Date: 2/26/2022

Client: **TEXAN WATER WELLS** County: GILLESPIE

Location: **N 30* 12' 45.6" W 99* 18' 24.9"** State: TX

BOREHOLE DATA

Drilling Contractor: TEXAN WATER WELLS **Driller T.D. (ft) : 674'**

Elevation: 2149' Logger T.D. (ft) : 675'

Depth Ref: T.C. Date Drilled: 2/25/2022

BIT RECORD				CASING RECORD		
RUN	BIT SIZE (in)	FROM (ft)	TO (ft)	SIZE/WGT/THK	FROM (ft)	TO (ft)
1	N/A			4.5"	+2.5'	
2						
3						

Drill Method: AIR ROTARY Weight: **Fluid Level (ft) :** 580'

Hole Medium: Mud Type: Time Since Circ:

Viscosity: Rm: at: Deg C

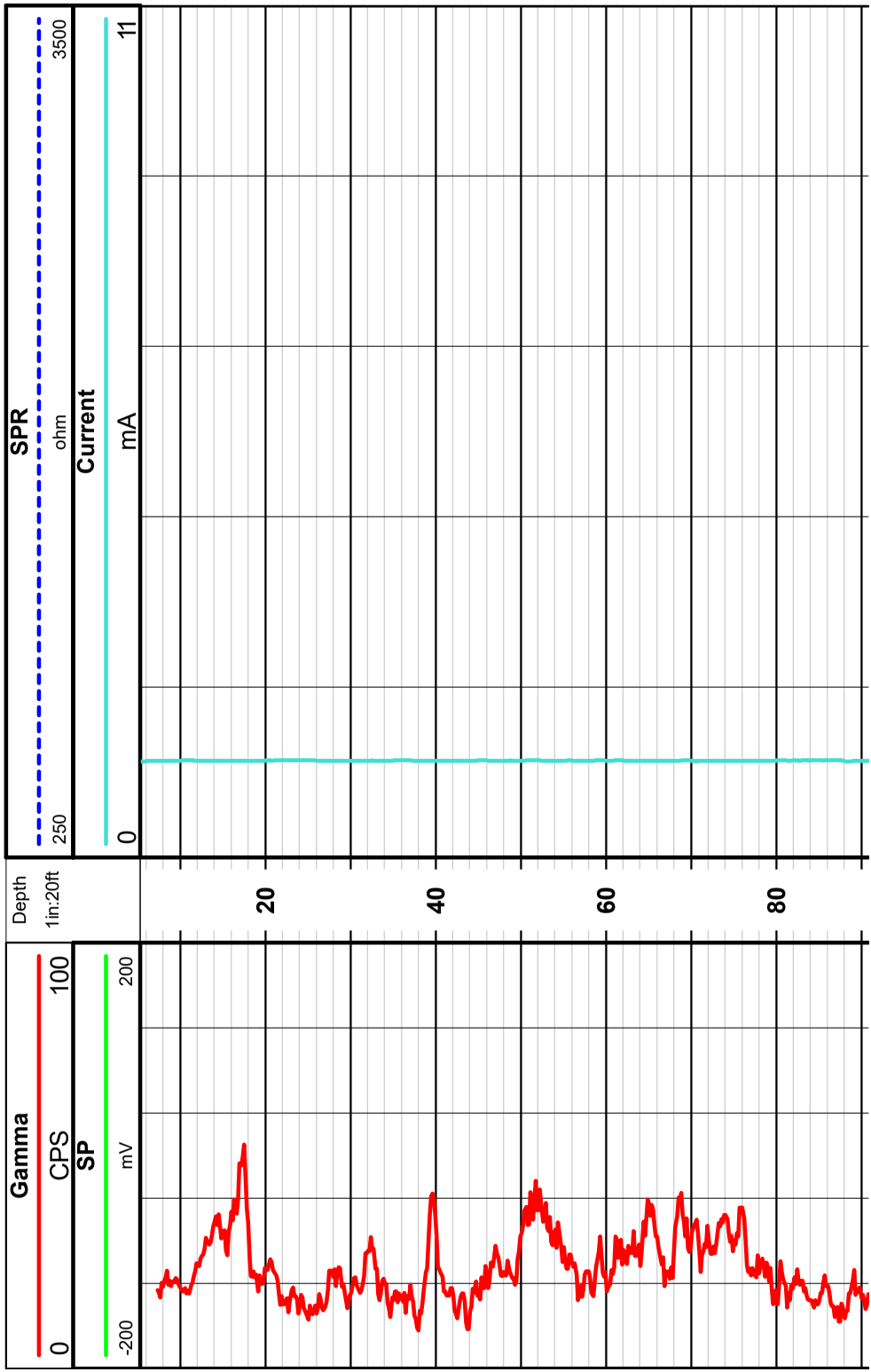
GENERAL DATA

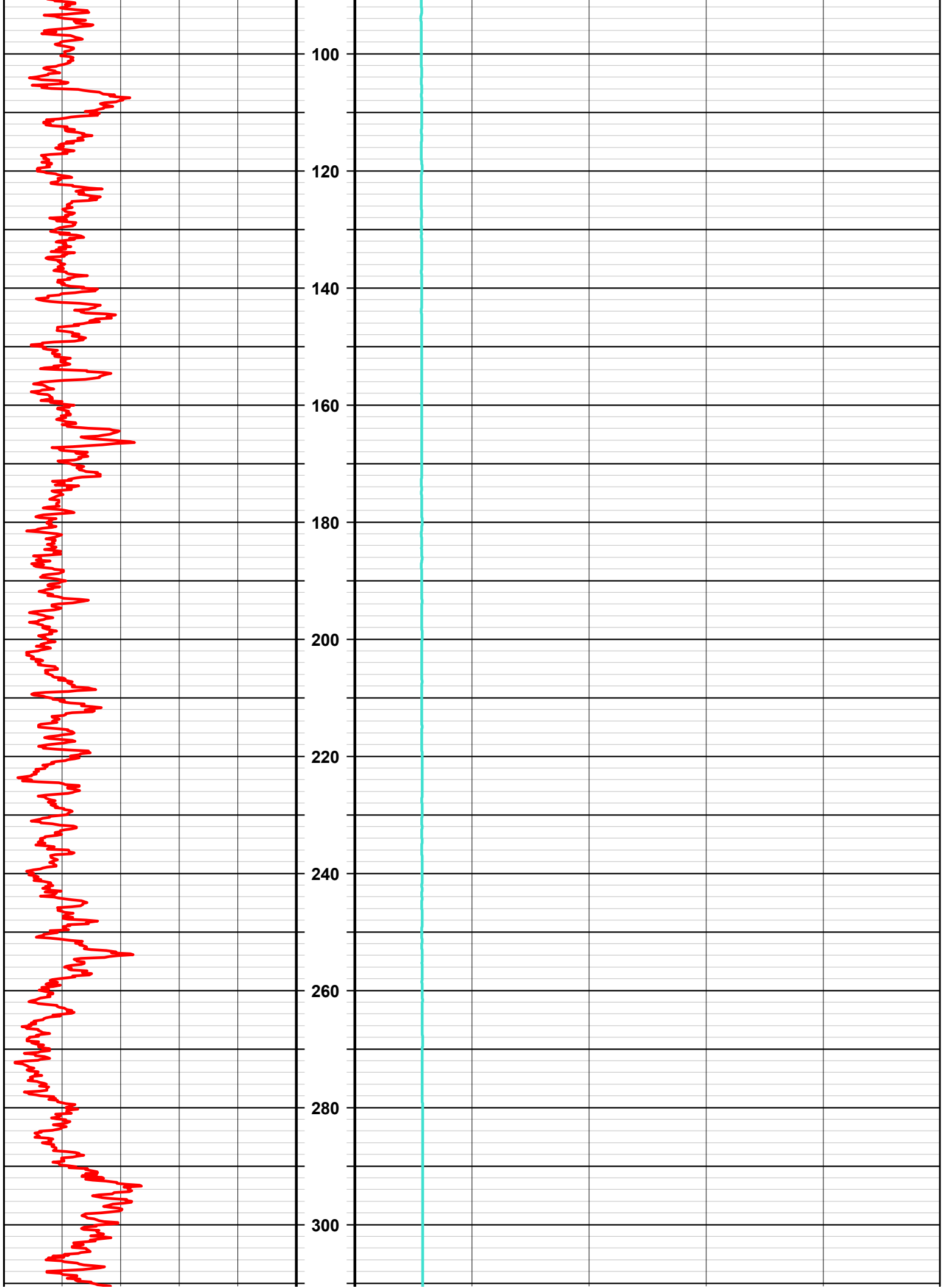
Logged By: CHRISTOPHER C. Unit/Truck: 11

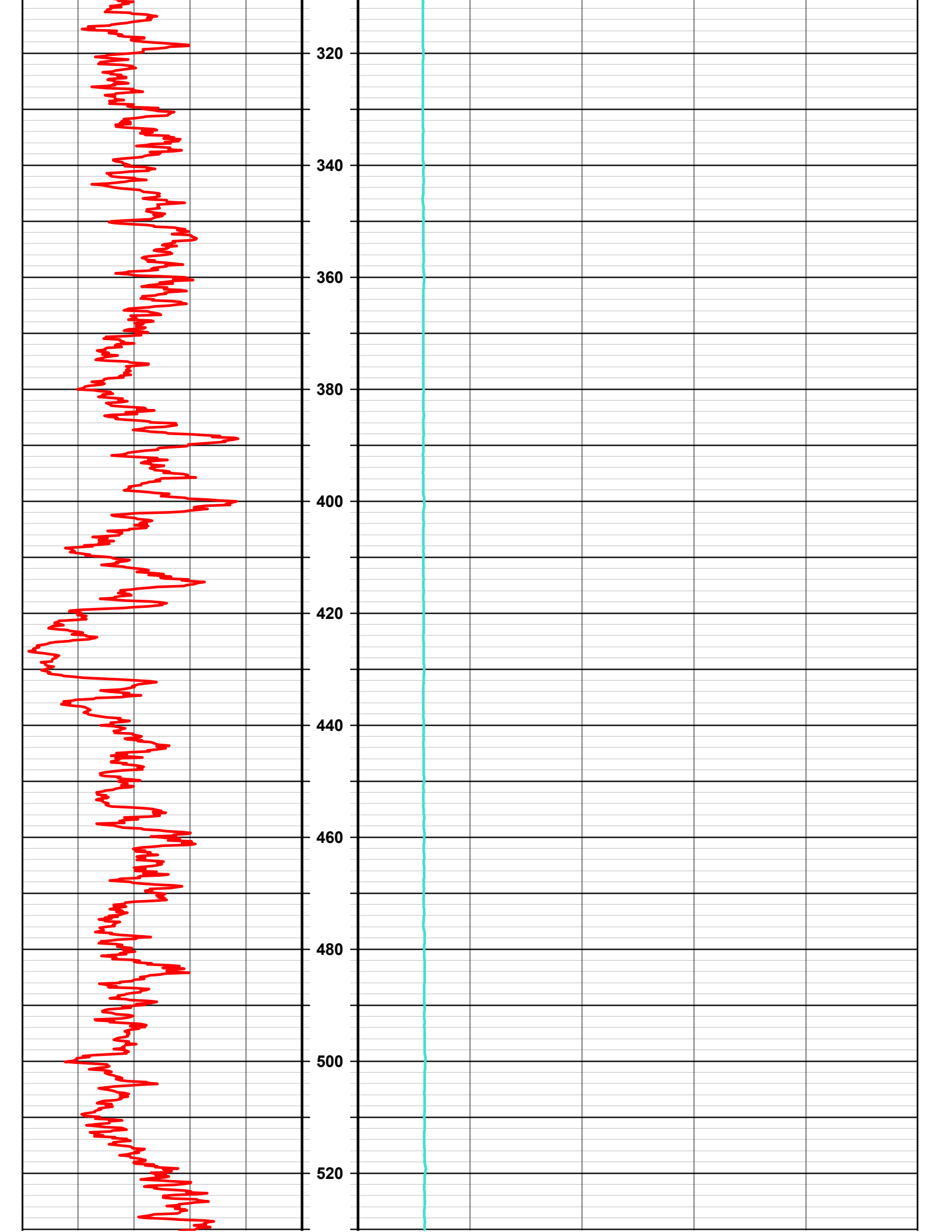
Witness:

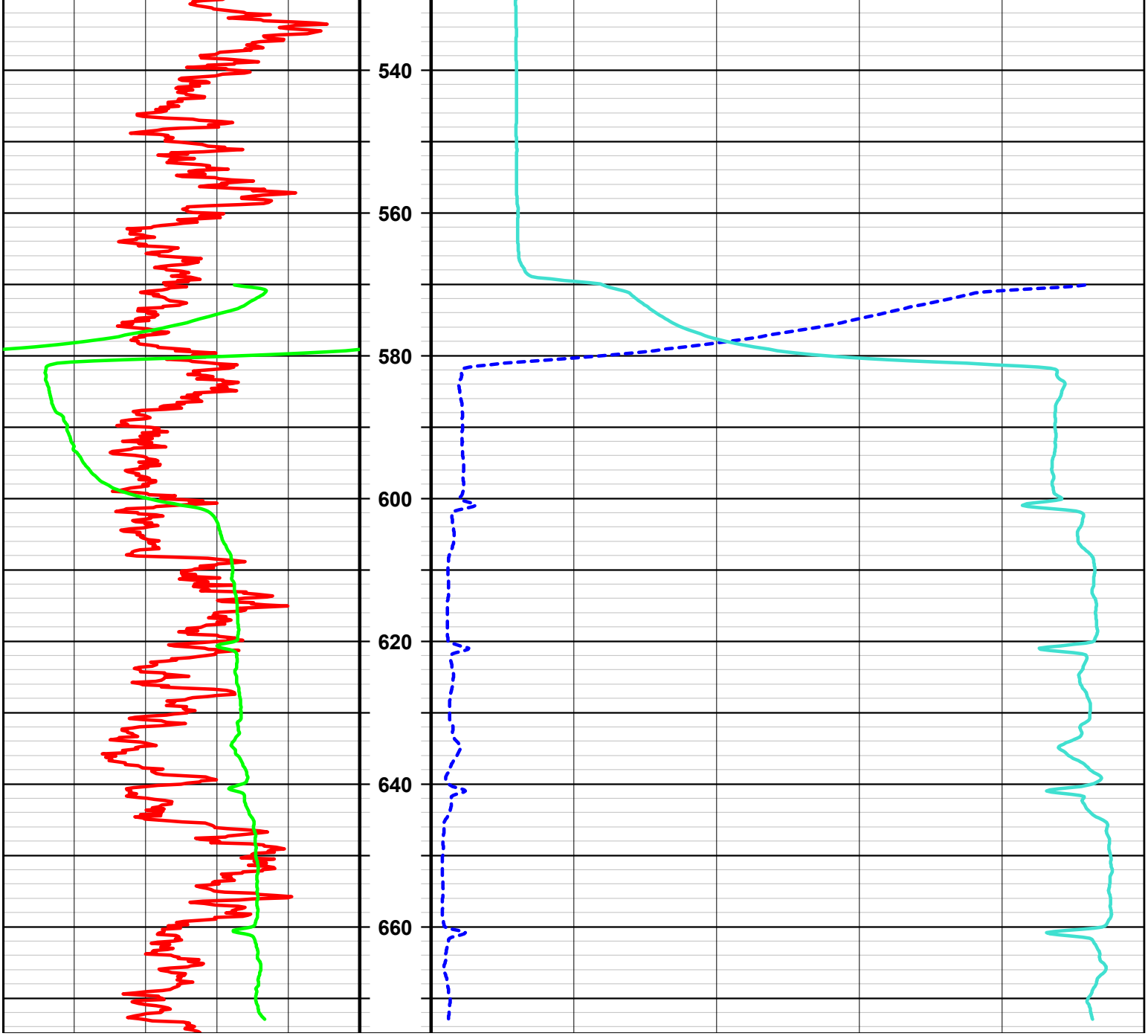
LOG TYPE	RUN NO	SPEED (ft/min)	FROM (ft)	TO (ft)	FT./ IN.
GAMMA	1	35	7'	675'	20
SPR	1	35	570'	673'	20
					20

Comments: ALL MEASUREMENTS WERE TAKEN FROM THE TOP OF CASING +2.5'




100
120
140
160
180
200
220
240
260
280
300


320
340
360
380
400
420
440
460
480
500
520


540
560
580
600
620
640
660

Appendix C

State Well Reports

Well Report

Well No. 1

STATE OF TEXAS WELL REPORT for Tracking #598339

Owner:	**TX7 Land, LLC**	Owner Well #:	**1**
Address:	**PO Box 661 Murphy, NC 28906**	Grid #:	**56-54-5**
Well Location:	**1079 FM 479 Harper, TX 78631**	Latitude:	**30° 12' 25.4" N**
		Longitude:	**099° 18' 01.3" W**
Well County:	**Gillespie**	Elevation:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **12/20/2021** Drilling End Date: **2/28/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**700**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
520	**700**	**Gravel**	

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 4 Bags/Sacks**
10	**490**	**Bentonite 237 Bags/Sacks**
490	**520**	**Cement 11 Bags/Sacks**

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **560 ft.** below land surface on **2022-02-07**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Pump** **Yield: 10-12 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
520 - 700	**Good**

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**260**	**White limestone**
260	**280**	**Light grey limestone**
280	**300**	**Dark grey and light grey limestone**
300	**318**	**Dark grey clay**
318	**335**	**White limestone and flint**
335	**375**	**White limestone and flint with light grey clay**
375	**400**	**Grey clay with white limestone**
400	**420**	**White limestone and clay**
420	**425**	**White limestone and flint**
425	**440**	**White and yellow limestone with blue/grey clay**
440	**460**	**Light grey sandstone**
460	**480**	**White limestone with flint**
480	**520**	**White limestone**
520	**540**	**Blue/green clay**
540	**550**	**Red sandstone with green/blue clay**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**600**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17 0.032**	**600**	**700**

550	**580**	**White and grey sandstone**
580	**600**	**White and red sandstone with green/blue clay**
600	**620**	**Green/blue clay**
620	**640**	**White sandstone with yellow/green limestone**
640	**660**	**Tan sandstone with orange/red clay**
660	**670**	**Coarse sand**
670	**680**	**Blue/green clay and tan sandstone**
680	**690**	**Orange clay with red limestone**
690	**700**	**Sandy and fractured pink limestone**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well Report

Well No. 2

STATE OF TEXAS WELL REPORT for Tracking #598343

Owner: **TX7 Land, LLC**

Address: **PO Box 661**
Murphy, NC 28906

Well Location: **1079 FM 479**
Harper, TX 78631

Well County: **Kerr**

Number of Wells Drilled: **2**

Owner Well #: **2**

Grid #: **56-54-5**

Latitude: **30° 12' 25.8" N**

Longitude: **099° 18' 06.5" W**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **12/10/2021** Drilling End Date: **2/25/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**700**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
520	**700**	**Gravel**	

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 4**
10	**490**	**Bentonite 297**
490	**520**	**Cement 11**

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **555 ft.** below land surface on **2022-02-02**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Pump** **Yield: 10-12 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
520 - 700	**No Data**

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**240**	**White limestone**
240	**300**	**Lost returns**
300	**315**	**White limestone with flint**
315	**330**	**Blue/green clay**
330	**335**	**Light grey limestone**
335	**410**	**Light grey limestone clay**
410	**425**	**Tan sandstone**
425	**440**	**Light grey sandy clay**
440	**460**	**Dark grey limestone and clay**
460	**505**	**Light grey limestone and clay**
505	**510**	**Grey sandy clay**
510	**525**	**Dark grey sandstone**
525	**540**	**Blue/grey sandy clay**
540	**550**	**Coarse sand and sandstone**
550	**555**	**Green/grey limestone with red sandy clay**
555	**565**	**Brown/red clay**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**620**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17 0.032**	**620**	**700**

565	**575**	**Yellow, green, and red sandy clay**
575	**580**	**Tan sandstone**
580	**595**	**Sandy grey clay and coarse sand**
595	**615**	**Redish brown and grey sandstone**
615	**640**	**Yellow sandy clay and pink sandstone**
640	**665**	**Pink sandy clay and coarse sand**
665	**685**	**Red and pink sandstone**
685	**700**	**Sandy and fractured pink limestone**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well Report

Well No. 3

STATE OF TEXAS WELL REPORT for Tracking #598340

Owner: **TX7 Land, LLC**

Address: **PO Box 661**
Murphy, NC 28906

Well Location: **1079 FM 479**
Harper, TX 78631

Well County: **Gillespie**

Number of Wells Drilled: **3**

Owner Well #: **3**

Grid #: **56-54-5**

Latitude: **30° 12' 28.7" N**

Longitude: **099° 18' 03.4" W**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **1/4/2022** Drilling End Date: **2/26/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**720**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
510	**720**	**Gravel**	

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 4 Bags/Sacks**
10	**480**	**Bentonite 236 Bags/Sacks**
480	**510**	**Cement 11 Bags/Sacks**

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **569 ft.** below land surface on **2022-02-07**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 10-12 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
510 - 720	**Good**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**120**	**White limestone**
120	**525**	**No returns**
525	**535**	**Brown/orange clay with brown and grey limestone**
535	**540**	**Light green/grey sandstone**
540	**555**	**Corse sand and grey sandstone**
555	**570**	**Grey clay and sand**
570	**580**	**Dark grey sandstone**
580	**600**	**Brown clay**
600	**605**	**Tan sandy clay**
605	**615**	**Brown sandstone**
615	**635**	**Yellow sandy clay and tan sandstone**
635	**645**	**Tan sandstone with coarse sand**
645	**670**	**Red sandstone with clay**
670	**690**	**Red sandy clay and coarse sand**
690	**700**	**Red and pink sandstone**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**620**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17 0.032**	**620**	**720**

700	**720**	**Sandy and fractured pink limestone**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well Report

Well No. 4

STATE OF TEXAS WELL REPORT for Tracking #598344

Owner: **TX7 Land, LLC**

Address: **PO Box 661**
Murphy, NC 28906

Well Location: **1079 FM 479**
Harper, TX 78631

Well County: **Kerr**

Number of Wells Drilled: **4**

Owner Well #: **4**

Grid #: **56-54-5**

Latitude: **30° 12' 21.58" N**

Longitude: **099° 18' 45.36" W**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **11/8/2021** Drilling End Date: **3/1/2022**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**9**	**0**	**750**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
590	**745**	**Gravel**	

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 4**
10	**560**	**Bentonite 305**
560	**590**	**Cement 11**

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **548 ft.** below land surface on **2022-01-24**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Pump** **Yield: 10-12 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
590 - 745	**Good**

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**110**	**Tan limestone w/ streaks of red and yellow clay**
110	**255**	**Tan limestone - large voids/fractures**
255	**275**	**Blue clay w/ limestone streaks**
275	**400**	**Clay**
400	**440**	**Sand w/ streaks of clay**
440	**520**	**Clay w/ streaks of sand**
520	**530**	**Sandstone**
530	**640**	**Yellow and red clay w/ streaks of red sandy clay**
640	**745**	**Tan sandy clay w/ streaks of clay and sandstone**
745	**750**	**Sandy and fractured pink limestone**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**665**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17**	**665**	**745**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well Report

Well No. 5

STATE OF TEXAS WELL REPORT for Tracking #598428

Owner:	**TX7 Land, LLC**	Owner Well #:	**5**
Address:	**PO Box 661 Murphy, NC 28906**	Grid #:	**56-54-5**
Well Location:	**1079 FM 479 Harper, TX 78631**	Latitude:	**30° 12' 25.13" N**
		Longitude:	**099° 18' 46.35" W**
Well County:	**Kerr**	Elevation:	**No Data**
Number of Wells Drilled:	**5**		
Type of Work:	**New Well**	Proposed Use:	**Domestic**

Drilling Start Date: **11/16/2021** Drilling End Date: **3/3/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**745**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
595	**730**	**Gravel**	

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 4 Bags/Sacks**
10	**90**	**Bentonite 60 Bags/Sacks**
90	**100**	**Cement 6 Bags/Sacks**
100	**185**	**Gravel 5 Yards**
185	**565**	**Bentonite 215 Bags/Sacks**
565	**595**	**Cement 11 Bags/Sacks**

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **553 ft.** below land surface on **2022-01-28**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 10-12 GPM**

Water Quality:

Strata Depth (ft.)	*Water Type*
595 - 730	**Good**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	*Bottom (ft.)*	*Description*
0	**90**	**Tan limestone w/ streaks of red and yellow clay**
90	**255**	**Tan limestone - large voids/fractures**
255	**275**	**Blue clay w/ limestone streaks**
275	**400**	**Grey clay**
400	**440**	**Sand w/ streaks of clay**
440	**520**	**Clay w/ streaks of sand**
520	**530**	**Sandstone**
530	**640**	**Yellow and red clay w/ streaks of sand**
640	**740**	**Sand w/ streaks of clay**
740	**745**	**Sandy and fractured pink limestone**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	*Type*	*Material*	*Sch./Gage*	*Top (ft.)*	*Bottom (ft.)*
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**650**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17 0.032**	**650**	**730**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well Report

Well No. 6

STATE OF TEXAS WELL REPORT for Tracking #598430

Owner:	**TX7 Land, LLC**	Owner Well #:	**6**
Address:	**PO Box 661 Murphy, NC 28906**	Grid #:	**56-54-5**
Well Location:	**1079 FM 479 Harper, TX 78631**	Latitude:	**30° 12' 26.02" N**
		Longitude:	**099° 18' 50.33" W**
Well County:	**Kerr**	Elevation:	**No Data**
Number of Wells Drilled:	**6**		

Type of Work: **New Well** Proposed Use: **Domestic**

Drilling Start Date: **11/29/2021** Drilling End Date: **3/2/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**720**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
610	**720**	**Gravel**	

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 4 Bags/Sacks**
10	**90**	**Bentonite 70 Bags/Sacks**
90	**100**	**Cement 7 Bags/Sacks**
100	**172**	**Gravel 3 Yards**
172	**580**	**Bentonite 288 Bags/Sacks**
580	**610**	**Cement 11 Bags/Sacks**

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **549 ft.** below land surface on **2022-01-28**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Pump** **Yield: 10-12 GPM**

Water Quality:

Strata Depth (ft.)	*Water Type*
610 - 720	**Good**

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	*Bottom (ft.)*	*Description*
0	**120**	**Tan and limestone w/ streaks of red and yellow clay**
120	**250**	**Tan and limestone - large voids/fractures**
250	**275**	**Blue clay w/ limestone streaks**
275	**420**	**Grey clay**
420	**440**	**Sand w/ streaks of clay**
440	**520**	**Clay w/ streaks of sand**
520	**535**	**Clay w/ limestone and sandstone streaks**
535	**640**	**Yellow and red clay w/ streaks of read sand**
640	**690**	**Red and brown sand w/ streaks of sandy clay**
690	**720**	**Sandy and fractured pink limestone**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	*Type*	*Material*	*Sch./Gage*	*Top (ft.)*	*Bottom (ft.)*
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**640**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17**	**640**	**720**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well Report

Well No. 7

STATE OF TEXAS WELL REPORT for Tracking #598346

Owner: **TX7 Land, LLC**

Address: **PO Box 661**
Murphy, NC 28906

Well Location: **1079 FM 479**
Harper, TX 78631

Well County: **Kerr**

Number of Wells Drilled: **7**

Owner Well #: **7**

Grid #: **56-54-2**

Latitude: **30° 12' 50" N**

Longitude: **099° 18' 24.5" W**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **1/17/2022** Drilling End Date: **2/28/2022**

Borehole:

Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
9	**0**	**720**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
530	**710**	**Gravel**	

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 4 Bags/Sacks**
10	**500**	**Bentonite 178 Bags/Sacks**
500	**530**	**Cement 11 Bags/Sacks**

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **577 ft.** below land surface on **2022-02-15**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Jetted** **Yield: 10-12 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
530 - 710	**Good**

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**300**	**White limestone**
300	**340**	**Grey limestone with clay**
340	**435**	**No returns**
435	**450**	**White limestone with blue/grey clay**
450	**460**	**Light grey sandstone**
460	**500**	**Light grey limestone**
500	**525**	**Light grey clay**
525	**535**	**Tan limestone**
535	**540**	**Dark grey sandstone**
540	**545**	**Light grey sand**
545	**555**	**Dark grey sandstone with coarse sand**
555	**560**	**Blue/grey sand and clay**
560	**570**	**Brown/red sand and clay**
570	**575**	**Brown clay**
575	**585**	**Brown and blue/grey sandy clay**
585	**595**	**Brown clay**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**610**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17 0.032**	**610**	**710**

595	**600**	**Grey sandy clay**
600	**610**	**Yellow sandy clay with coarse sand**
610	**615**	**Coarse sand with grey clay**
615	**705**	**Red, yellow, and grey sandy clay and sandstone**
705	**715**	**Sandy and fractured pink limestone**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well Report

Well No. 8

STATE OF TEXAS WELL REPORT for Tracking #598347

Owner: **TX7 Land, LLC**

Address: **PO Box 661**
Murphy, NC 28906

Well Location: **1079 FM 479**
Harper, TX 78631

Well County: **Kerr**

Number of Wells Drilled: **8**

Owner Well #: **8**

Grid #: **56-54-2**

Latitude: **30° 12' 45.6" N**

Longitude: **099° 18' 25.2" W**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **1/24/2022** Drilling End Date: **3/1/2022**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**9**	**0**	**690**

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Filter Material*	*Size*
500	**680**	**Gravel**	

Annular Seal Data:

Top Depth (ft.)	*Bottom Depth (ft.)*	*Description (number of sacks & material)*
0	**10**	**Cement 4 Bags/Sacks**
10	**470**	**Bentonite 175 Bags/Sacks**
470	**500**	**Cement 11 Bags/Sacks**

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **568 ft.** below land surface on **2022-02-10**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Pump** **Yield: 10-12 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
500 - 680	**Good**

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**180**	**White limestone**
180	**520**	**No returns**
520	**530**	**Light grey sand**
530	**545**	**Blue/grey sand and clay**
545	**575**	**Red and yellow sandy clay**
575	**580**	**Red clay**
580	**585**	**Red and yellow sandy clay**
585	**605**	**Pink and tan sandstone with coarse sand**
605	**615**	**Coarse sand**
615	**650**	**Yellow sandy clay with coarse sand**
650	**670**	**Coarse sand with grey clay**
670	**680**	**Red, yellow, and grey sandy clay and sandstone**
680	**690**	**Sandy and fractured pink limestone**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**580**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17 0.032**	**580**	**680**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well Report

Well No. 9

STATE OF TEXAS WELL REPORT for Tracking #598348

Owner: **TX7 Land, LLC**

Address: **PO Box 661**
Murphy, NC 28906

Well Location: **1079 FM 479**
Harper, TX 78631

Well County: **Kerr**

Number of Wells Drilled: **9**

Owner Well #: **9**

Grid #: **56-54-2**

Latitude: **30° 12' 50" N**

Longitude: **099° 18' 28.8" W**

Elevation: **No Data**

Type of Work: **New Well**

Proposed Use: **Domestic**

Drilling Start Date: **1/26/2022** Drilling End Date: **3/1/2022**

Borehole:

Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
9	0	720

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:

Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
520	720	Gravel	

Annular Seal Data:

Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
0	10	Cement 4 Bags/Sacks
10	490	Bentonite 117 Bags/Sacks
490	520	Cement 11 Bags/Sacks

Seal Method: **Tremie**

Sealed By: **Driller**

Distance to Property Line (ft.): **75+**

Distance to Septic Field or other concentrated contamination (ft.): **100+**

Distance to Septic Tank (ft.): **50+**

Method of Verification: **Owner**

Surface Completion: **Surface Sleeve Installed** **Surface Completion by Driller**

Water Level: **568 ft.** below land surface on **2022-02-15**

Packers: **No Data**

Type of Pump: **No Data**

Well Tests: **Pump** **Yield: 8-10 GPM**

Water Quality:

Strata Depth (ft.)	Water Type
520 - 720	**Good**

Chemical Analysis Made: **Yes**

Did the driller knowingly penetrate any strata which contained injurious constituents?: **No**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: **Texan Water**

161 Industrial Loop
Fredericksburg, TX 78624

Driller Name: **Brice Bormann** License Number: **54855**

Apprentice Name: **Elias Abrego** Apprentice Number: **60547**

Comments: **No Data**

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	**40**	**White limestone**
40	**60**	**White limestone w/ flint**
60	**140**	**No returns**
140	**160**	**White limestone**
160	**180**	**Grey and white limestone**
180	**220**	**White limestone**
220	**280**	**Tan limestone**
280	**300**	**Tan and white limestone**
300	**320**	**Light grey clay w/ grey sandstone**
320	**340**	**Light grey clay**
340	**520**	**No returns**
520	**550**	**Grey clay and sandstone**
550	**565**	**Brown clay w/ green limestone**
565	**600**	**Coarse sand and brown clay**
600	**640**	**Red, brown, and tan sandy clay**
640	**680**	**Yellow, orange, and grey sandy clay**

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
4.5	**Blank**	**New Plastic (PVC)**	**SDR-17**	**0**	**620**
4.5	**Screen**	**New Plastic (PVC)**	**SDR-17 0.032**	**620**	**720**

680	**700**	**Pink sandstone and orange clay**
700	**720**	**Sandy and fractured pink limestone**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. 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.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Appendix D

Aquifer Test Data and Analysis

Aquifer Test

Well No. 1

Hideout Well No. 1 - Aquifer Test (February 7, 2022)

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. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/7/22 11:08 AM	0		70.66	560.26	1,616.74	0.00			Pump Start	1,613.72	0.00
2/7/22 11:09 AM	1		71.09	568.11	1,608.89	7.85			Meter: 83,251.38 gallons	1,613.70	0.03
2/7/22 11:10 AM	2		71.43	575.94	1,601.07	15.67				1,613.78	-0.06
2/7/22 11:11 AM	3		71.70	577.36	1,599.65	17.09				1,613.70	0.02
2/7/22 11:12 AM	4		71.88	578.09	1,598.91	17.83				1,613.69	0.03
2/7/22 11:13 AM	5		72.01	578.70	1,598.30	18.43	13.0	0.71		1,613.64	0.08
2/7/22 11:14 AM	6		72.13	578.97	1,598.03	18.70				1,613.73	-0.01
2/7/22 11:15 AM	7		72.22	579.27	1,597.73	19.01				1,613.76	-0.04
2/7/22 11:16 AM	8		72.33	579.55	1,597.45	19.29				1,613.65	0.08
2/7/22 11:17 AM	9		72.33	579.85	1,597.15	19.59				1,613.71	0.01
2/7/22 11:18 AM	10		72.42	580.00	1,597.00	19.74				1,613.55	0.18
2/7/22 11:19 AM	11		72.45	580.10	1,596.90	19.83				1,613.68	0.05
2/7/22 11:20 AM	12		72.48	580.18	1,596.82	19.91				1,613.71	0.01
2/7/22 11:21 AM	13		72.53	580.15	1,596.86	19.88				1,613.59	0.13
2/7/22 11:22 AM	14		72.55	580.38	1,596.63	20.11				1,613.58	0.14
2/7/22 11:23 AM	15		72.57	580.44	1,596.56	20.18				1,613.65	0.07
2/7/22 11:28 AM	20		72.63	580.70	1,596.30	20.44				1,613.61	0.11
2/7/22 11:33 AM	25		72.64	580.89	1,596.11	20.63				1,613.52	0.20
2/7/22 11:38 AM	30		72.66	581.03	1,595.97	20.76				1,613.55	0.17
2/7/22 11:53 AM	45		72.68	581.36	1,595.64	21.09				1,613.40	0.32
2/7/22 12:08 PM	60		72.66	581.48	1,595.52	21.22				1,613.38	0.34
2/7/22 12:23 PM	75		72.65	581.79	1,595.22	21.52				1,613.22	0.51
2/7/22 12:38 PM	90		72.64	581.78	1,595.22	21.51				1,613.15	0.58
2/7/22 12:53 PM	105		72.67	581.96	1,595.05	21.69				1,613.17	0.56
2/7/22 1:08 PM	120		72.64	582.11	1,594.89	21.84				1,613.04	0.69
2/7/22 1:38 PM	150		72.65	582.01	1,594.99	21.75				1,612.99	0.73
2/7/22 2:08 PM	180		72.62	582.24	1,594.76	21.98	13.0	0.59	pH: 7.6 / EC: 0.84	1,613.00	0.72
2/7/22 2:38 PM	210		72.66	582.40	1,594.60	22.13				1,612.86	0.86
2/7/22 3:08 PM	240		72.64	582.39	1,594.61	22.12				1,612.84	0.88
2/7/22 4:08 PM	300		72.62	582.74	1,594.26	22.48				1,612.70	1.02
2/7/22 5:08 PM	360		72.63	582.70	1,594.31	22.43				1,612.74	0.99
2/7/22 6:08 PM	420		72.60	582.84	1,594.16	22.57				1,612.62	1.11
2/7/22 7:08 PM	480		72.62	582.99	1,594.01	22.73				1,612.61	1.12
2/7/22 8:08 PM	540		72.65	582.97	1,594.03	22.71				1,612.48	1.24
2/7/22 9:08 PM	600		72.62	583.10	1,593.90	22.84				1,612.58	1.15

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 1 - Aquifer Test (February 7, 2022)

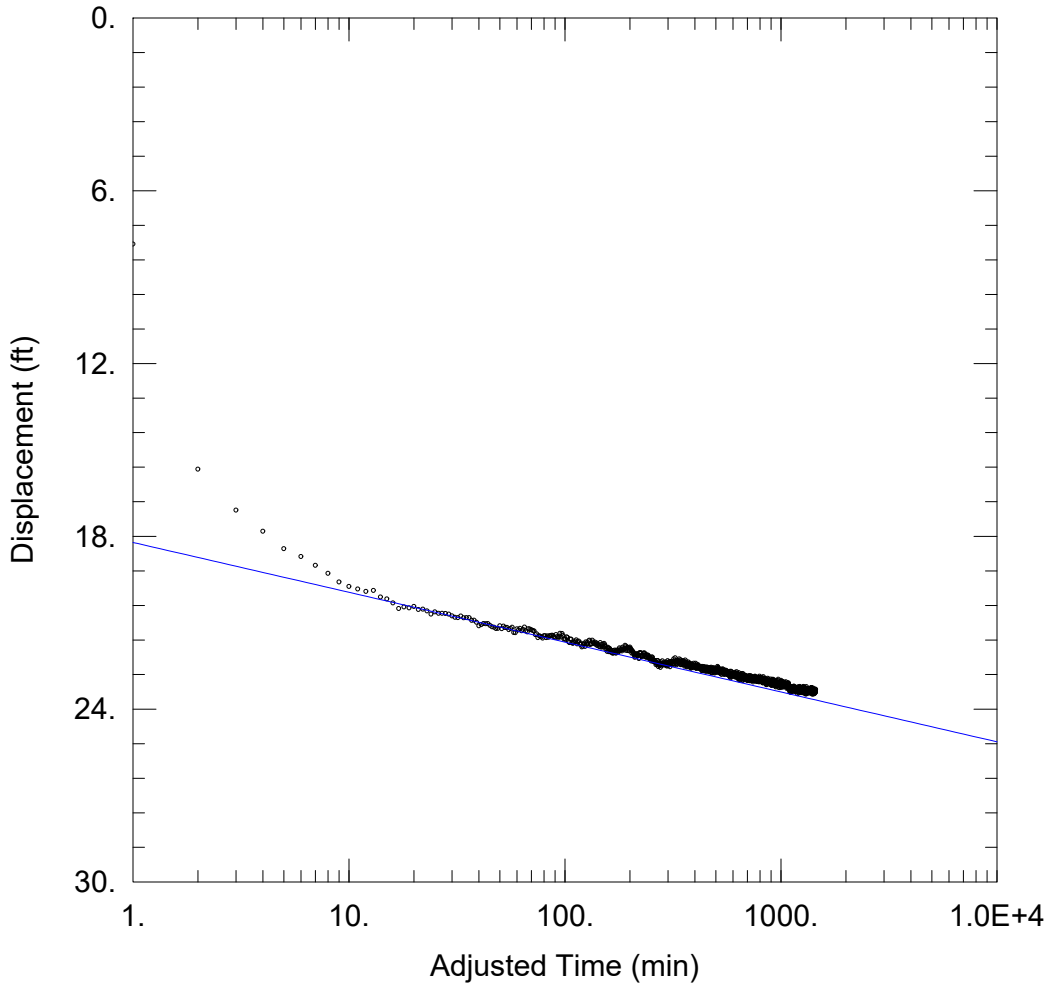
Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 1 Temperature (F)	PW Well No. 1 Water Level (ft bgs)	PW Well No. 1 Water Level (ft MSL)	PW Well No. 1 Drawdown (ft)	PW Well No. 1 Pump Rate (gpm)	PW Well No. 1 Specific Capacity (gpm/ft)	Comments	OW Well No. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/7/22 10:08 PM	660		72.65	583.05	1,593.95	22.79				1,612.52	1.20
2/7/22 11:08 PM	720		72.61	583.27	1,593.73	23.00				1,612.43	1.29
2/8/22 12:08 AM	780		72.61	583.20	1,593.81	22.93				1,612.41	1.31
2/8/22 1:08 AM	840		72.66	583.26	1,593.74	22.99				1,612.35	1.38
2/8/22 2:08 AM	900		72.64	583.31	1,593.69	23.04				1,612.38	1.34
2/8/22 3:08 AM	960		72.66	583.36	1,593.64	23.10				1,612.36	1.36
2/8/22 4:08 AM	1,020		72.62	583.44	1,593.56	23.17				1,612.37	1.35
2/8/22 5:08 AM	1,080		72.63	583.40	1,593.60	23.14				1,612.33	1.39
2/8/22 6:08 AM	1,140		72.64	583.59	1,593.41	23.33				1,612.36	1.36
2/8/22 7:08 AM	1,200		72.64	583.62	1,593.38	23.36				1,612.23	1.49
2/8/22 8:08 AM	1,260		72.61	583.66	1,593.34	23.39				1,612.26	1.46
2/8/22 9:08 AM	1,320		72.60	583.64	1,593.36	23.38				1,612.28	1.44
2/8/22 10:08 AM	1,380		72.60	583.65	1,593.35	23.39				1,612.35	1.37
2/8/22 11:08 AM	1,440		72.63	583.67	1,593.33	23.40				1,612.33	1.39
2/8/22 11:16 AM	1,448	0	72.65	583.59	1,593.41	23.33	13.0	0.56	Pump Stop	1,612.26	1.46
2/8/22 11:17 AM	1,449	1	72.62	576.31	1,600.69	16.05			Meter: 101,783.06 gallons	1,612.21	1.52
2/8/22 11:18 AM	1,450	2	72.63	569.22	1,607.78	8.96			Avg. Pump Rate: 13 gpm	1,612.27	1.46
2/8/22 11:19 AM	1,451	3	72.70	567.10	1,609.90	6.84				1,612.15	1.57
2/8/22 11:20 AM	1,452	4	72.80	566.32	1,610.68	6.06				1,612.32	1.40
2/8/22 11:21 AM	1,453	5	72.85	565.96	1,611.04	5.70				1,612.23	1.49
2/8/22 11:22 AM	1,454	6	72.98	565.68	1,611.32	5.42				1,612.24	1.48
2/8/22 11:23 AM	1,455	7	73.07	565.43	1,611.57	5.17				1,612.25	1.48
2/8/22 11:24 AM	1,456	8	73.11	565.32	1,611.68	5.06				1,612.37	1.36
2/8/22 11:25 AM	1,457	9	73.16	565.24	1,611.77	4.97				1,612.24	1.48
2/8/22 11:26 AM	1,458	10	73.24	565.06	1,611.95	4.79				1,612.31	1.42
2/8/22 11:27 AM	1,459	11	73.25	565.02	1,611.98	4.75				1,612.27	1.45
2/8/22 11:28 AM	1,460	12	73.28	564.93	1,612.07	4.67				1,612.32	1.40
2/8/22 11:29 AM	1,461	13	73.29	564.77	1,612.23	4.50				1,612.30	1.42
2/8/22 11:30 AM	1,462	14	73.25	564.75	1,612.25	4.48				1,612.41	1.31
2/8/22 11:31 AM	1,463	15	73.26	564.70	1,612.30	4.43				1,612.37	1.36
2/8/22 11:36 AM	1,468	20	73.10	564.47	1,612.53	4.21				1,612.46	1.27
2/8/22 11:41 AM	1,473	25	72.93	564.36	1,612.64	4.09				1,612.41	1.31
2/8/22 11:46 AM	1,478	30	72.79	564.22	1,612.78	3.96				1,612.53	1.19
2/8/22 12:01 PM	1,493	45	72.60	564.01	1,612.99	3.74				1,612.63	1.10
2/8/22 12:16 PM	1,508	60	72.58	563.85	1,613.15	3.58				1,612.66	1.06

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 1 - Aquifer Test (February 7, 2022)

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. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/8/22 12:31 PM	1,523	75	72.56	563.74	1,613.26	3.47				1,612.70	1.02
2/8/22 12:46 PM	1,538	90	72.53	563.68	1,613.32	3.41				1,612.84	0.88
2/8/22 1:01 PM	1,553	105	72.48	563.69	1,613.31	3.42				1,612.80	0.92
2/8/22 1:16 PM	1,568	120	72.48	563.50	1,613.50	3.24				1,612.86	0.87
2/8/22 1:46 PM	1,598	150	72.45	563.53	1,613.47	3.27				1,612.89	0.84
2/8/22 2:16 PM	1,628	180	72.46	563.40	1,613.60	3.13				1,613.00	0.72
2/8/22 2:46 PM	1,658	210	72.47	563.46	1,613.54	3.20				1,612.95	0.77
2/8/22 3:16 PM	1,688	240	72.50	563.34	1,613.67	3.07				1,613.08	0.65
2/8/22 4:16 PM	1,748	300	72.48	563.35	1,613.65	3.09				1,613.14	0.59
2/8/22 5:16 PM	1,808	360	72.48	563.27	1,613.73	3.01				1,613.06	0.67
2/8/22 6:16 PM	1,868	420	72.48	563.20	1,613.81	2.93				1,613.25	0.47
2/8/22 7:16 PM	1,928	480	72.50	563.17	1,613.83	2.91				1,613.20	0.53
2/8/22 8:16 PM	1,988	540	72.48	563.15	1,613.85	2.89				1,613.24	0.48
2/8/22 9:16 PM	2,048	600	72.46	563.14	1,613.86	2.88				1,613.17	0.55
2/8/22 10:16 PM	2,108	660	72.50	563.05	1,613.95	2.79				1,613.40	0.32
2/8/22 11:16 PM	2,168	720	72.48	563.05	1,613.95	2.79				1,613.30	0.42
2/9/22 12:16 AM	2,228	780	72.49	563.06	1,613.94	2.80				1,613.40	0.33
2/9/22 1:16 AM	2,288	840	72.50	563.05	1,613.95	2.79				1,613.40	0.33
2/9/22 2:16 AM	2,348	900	72.48	562.93	1,614.07	2.67				1,613.40	0.32
2/9/22 3:16 AM	2,408	960	72.47	562.95	1,614.06	2.68				1,613.50	0.23
2/9/22 4:16 AM	2,468	1020	72.51	562.97	1,614.03	2.70				1,613.41	0.31
2/9/22 5:16 AM	2,528	1080	72.46	562.97	1,614.03	2.70				1,613.40	0.32
2/9/22 6:16 AM	2,588	1140	72.47	562.87	1,614.13	2.61				1,613.43	0.30
2/9/22 7:16 AM	2,648	1200	72.48	562.87	1,614.13	2.61				1,613.52	0.20
2/9/22 8:16 AM	2,708	1260	72.47	562.89	1,614.11	2.63				1,613.44	0.28
2/9/22 9:16 AM	2,768	1320	72.51	562.88	1,614.12	2.62				1,613.45	0.27
2/9/22 10:16 AM	2,828	1380	72.46	562.89	1,614.12	2.62				1,613.51	0.21
2/9/22 11:16 AM	2,888	1440	72.45	562.79	1,614.21	2.52				1,613.49	0.23
2/9/22 12:16 PM	2,948	1500	72.47	562.82	1,614.18	2.55				1,613.52	0.21
2/9/22 1:16 PM	3,008	1560	72.48	562.86	1,614.14	2.60				1,613.41	0.32
2/9/22 2:16 PM	3,068	1620	72.47	562.86	1,614.14	2.60				1,613.49	0.23
2/9/22 2:19 PM	3,071	1623	72.46	562.87	1,614.13	2.61				1,613.60	0.13

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)



WELL TEST ANALYSIS

Data Set: \...\PW 1.aqt
Date: 02/25/22 Time: 11:11:30

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 1
Test Date: 2-7-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

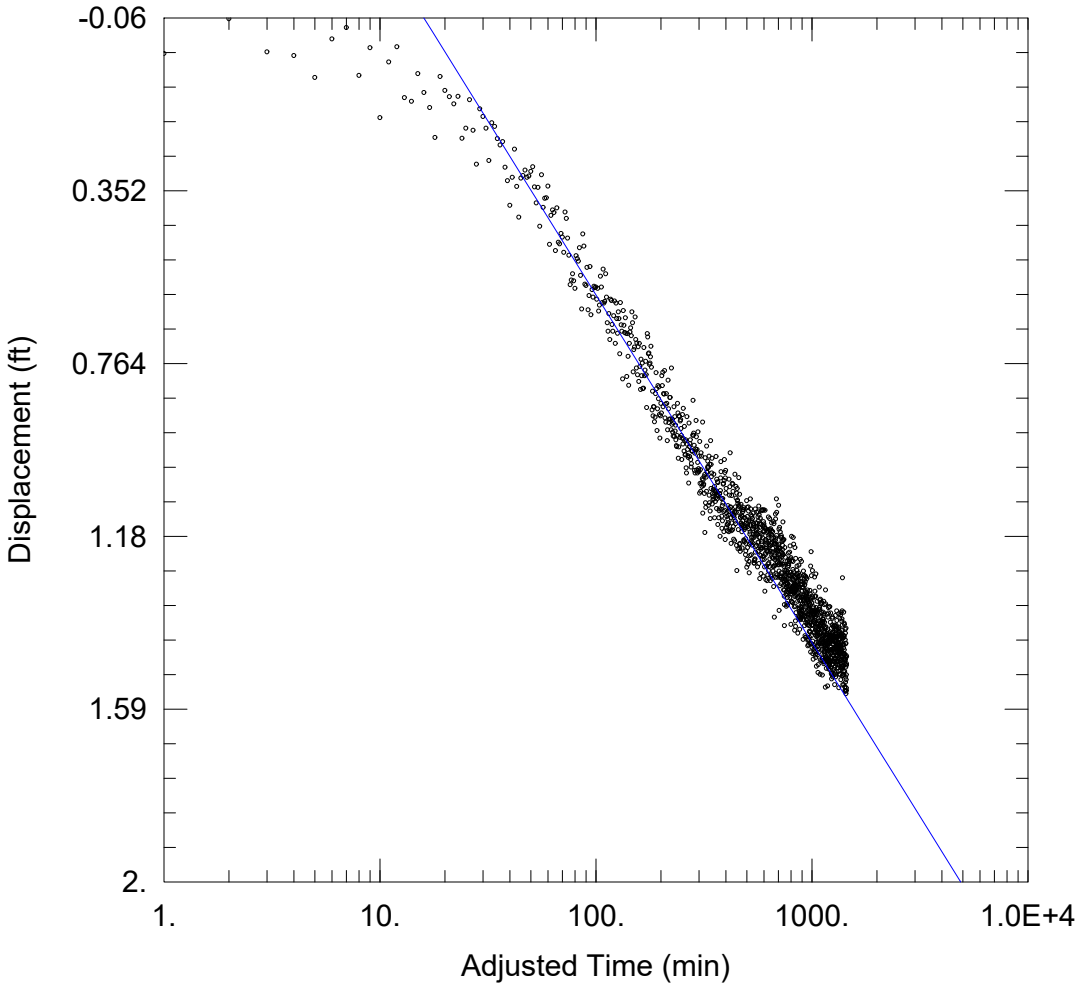
Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 1	0	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 258.9 ft^2/day



WELL TEST ANALYSIS

Data Set: \...\OW 3.aqt
Date: 02/25/22 Time: 11:10:21

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 1
Test Date: 2-7-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 1	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
◦ Well No. 3	388	0

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Jacob
T = 540.4 ft^2/day
S = 0.0001057

Aquifer Test

Well No. 2

Hideout Well No. 2 - Aquifer Test (February 2, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 2 Temperature (F)	PW Well No. 2 Water Level (ft bgs)	PW Well No. 2 Water Level (ft MSL)	PW Well No. 2 Drawdown (ft)	PW Well No. 2 Pump Rate (gpm)	PW Well No. 2 Specific Capacity (gpm/ft)	Comments	OW Well No. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/2/22 2:09 PM	0		72.84	555.07	1,612.93	0.00			Pump Start	1,613.46	0.00
2/2/22 2:10 PM	1		72.84	560.57	1,607.44	5.49			Meter: 64,789.51 gallons	1,613.57	-0.11
2/2/22 2:11 PM	2		72.82	572.51	1,595.50	17.43				1,613.52	-0.07
2/2/22 2:12 PM	3		72.84	579.48	1,588.52	24.41				1,613.40	0.05
2/2/22 2:13 PM	4		72.82	583.94	1,584.06	28.87	12.5		pH: 7.71 / EC: 1.21	1,613.46	-0.01
2/2/22 2:14 PM	5		72.88	587.10	1,580.90	32.03				1,613.35	0.11
2/2/22 2:15 PM	6		72.89	589.21	1,578.79	34.14				1,613.37	0.09
2/2/22 2:16 PM	7		72.87	590.55	1,577.45	35.48				1,613.45	0.01
2/2/22 2:17 PM	8		72.90	591.74	1,576.26	36.67				1,613.34	0.12
2/2/22 2:18 PM	9		72.94	592.44	1,575.56	37.37				1,613.34	0.11
2/2/22 2:19 PM	10		73.01	592.70	1,575.30	37.63				1,613.32	0.14
2/2/22 2:20 PM	11		73.00	592.79	1,575.21	37.72				1,613.38	0.07
2/2/22 2:21 PM	12		73.03	593.18	1,574.82	38.11				1,613.31	0.14
2/2/22 2:22 PM	13		73.02	593.43	1,574.57	38.36				1,613.31	0.15
2/2/22 2:23 PM	14		73.05	593.75	1,574.25	38.68				1,613.25	0.20
2/2/22 2:24 PM	15		73.08	593.99	1,574.01	38.92				1,613.27	0.19
2/2/22 2:29 PM	20		73.16	594.37	1,573.63	39.30				1,613.12	0.33
2/2/22 2:34 PM	25		73.20	594.42	1,573.58	39.35				1,613.15	0.31
2/2/22 2:39 PM	30		73.28	594.49	1,573.51	39.42				1,613.03	0.42
2/2/22 2:54 PM	45		73.32	594.76	1,573.24	39.69				1,612.86	0.59
2/2/22 3:09 PM	60		73.39	594.00	1,574.00	38.93				1,612.80	0.65
2/2/22 3:24 PM	75		73.36	594.18	1,573.82	39.11				1,612.74	0.71
2/2/22 3:39 PM	90		73.34	594.59	1,573.41	39.52				1,612.60	0.85
2/2/22 3:54 PM	105		73.30	594.40	1,573.61	39.32				1,612.59	0.86
2/2/22 4:09 PM	120		73.33	594.91	1,573.09	39.84				1,612.54	0.91
2/2/22 4:39 PM	150		73.25	594.56	1,573.44	39.49				1,612.45	1.01
2/2/22 5:09 PM	180		73.29	594.57	1,573.43	39.50				1,612.36	1.09
2/2/22 5:39 PM	210		73.26	594.83	1,573.17	39.76				1,612.38	1.07
2/2/22 6:09 PM	240		73.27	594.57	1,573.43	39.50				1,612.34	1.11
2/2/22 7:09 PM	300		73.21	594.51	1,573.49	39.44				1,612.22	1.23
2/2/22 8:09 PM	360		73.25	594.79	1,573.21	39.72				1,612.15	1.30
2/2/22 9:09 PM	420		73.22	595.11	1,572.89	40.04				1,612.07	1.38
2/2/22 10:09 PM	480		73.24	594.95	1,573.05	39.88				1,611.96	1.50
2/2/22 11:09 PM	540		73.30	595.13	1,572.87	40.06				1,611.93	1.52
2/3/22 12:09 AM	600		73.25	595.23	1,572.77	40.16				1,611.88	1.58

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP
MSL = Mean Sea Level Pump Setting = 300 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 2 - Aquifer Test (February 2, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 2 Temperature (F)	PW Well No. 2 Water Level (ft bgs)	PW Well No. 2 Water Level (ft MSL)	PW Well No. 2 Drawdown (ft)	PW Well No. 2 Pump Rate (gpm)	PW Well No. 2 Specific Capacity (gpm/ft)	Comments	OW Well No. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/3/22 1:09 AM	660		73.22	595.53	1,572.47	40.46				1,611.88	1.57
2/3/22 2:09 AM	720		73.26	595.72	1,572.29	40.65				1,611.81	1.65
2/3/22 3:09 AM	780		73.28	595.62	1,572.39	40.54				1,611.77	1.69
2/3/22 4:09 AM	840		73.22	595.74	1,572.27	40.67				1,611.85	1.61
2/3/22 5:09 AM	900		73.22	595.86	1,572.14	40.79				1,611.77	1.68
2/3/22 6:09 AM	960		73.26	595.83	1,572.17	40.76				1,611.74	1.71
2/3/22 7:09 AM	1,020		73.26	595.98	1,572.03	40.90				1,611.78	1.67
2/3/22 8:09 AM	1,080		73.24	596.10	1,571.90	41.03				1,611.88	1.58
2/3/22 9:09 AM	1,140		73.24	596.19	1,571.81	41.12				1,611.82	1.63
2/3/22 10:09 AM	1,200		73.24	596.44	1,571.56	41.37				1,611.84	1.62
2/3/22 11:09 AM	1,260		73.25	596.51	1,571.49	41.44				1,611.77	1.68
2/3/22 12:09 PM	1,320		73.24	596.40	1,571.60	41.33				1,611.69	1.76
2/3/22 1:09 PM	1,380		73.29	596.31	1,571.69	41.24				1,611.78	1.68
2/3/22 2:09 PM	1,440		73.27	596.19	1,571.81	41.12				1,611.66	1.80
2/3/22 2:22 PM	1,453	0	73.28	596.33	1,571.67	41.26	12.5	0.30	Pump Stop	1,611.75	1.71
2/3/22 2:23 PM	1,454	1	73.29	593.72	1,574.28	38.65			Meter: 83,204.06 gallons	1,611.68	1.78
2/3/22 2:24 PM	1,455	2	73.23	577.44	1,590.56	22.37			Avg. Pump Rate: 12.7 gpm	1,611.66	1.79
2/3/22 2:25 PM	1,456	3	73.26	567.71	1,600.29	12.64				1,611.65	1.80
2/3/22 2:26 PM	1,457	4	73.30	562.29	1,605.71	7.22				1,611.78	1.68
2/3/22 2:27 PM	1,458	5	73.35	559.50	1,608.50	4.43				1,611.71	1.74
2/3/22 2:28 PM	1,459	6	73.33	558.10	1,609.90	3.03				1,611.71	1.74
2/3/22 2:29 PM	1,460	7	73.42	557.47	1,610.53	2.40				1,611.76	1.70
2/3/22 2:30 PM	1,461	8	73.41	557.17	1,610.83	2.10				1,611.77	1.69
2/3/22 2:31 PM	1,462	9	73.46	557.05	1,610.95	1.98				1,611.82	1.64
2/3/22 2:32 PM	1,463	10	73.46	556.95	1,611.05	1.88				1,611.84	1.61
2/3/22 2:33 PM	1,464	11	73.51	556.93	1,611.07	1.86				1,611.90	1.56
2/3/22 2:34 PM	1,465	12	73.53	556.89	1,611.11	1.82				1,611.92	1.54
2/3/22 2:35 PM	1,466	13	73.58	556.79	1,611.21	1.72				1,611.96	1.49
2/3/22 2:36 PM	1,467	14	73.57	556.76	1,611.24	1.69				1,611.95	1.51
2/3/22 2:37 PM	1,468	15	73.59	556.81	1,611.19	1.74				1,612.02	1.44
2/3/22 2:42 PM	1,473	20	73.67	556.56	1,611.44	1.49				1,611.98	1.47
2/3/22 2:47 PM	1,478	25	73.65	556.54	1,611.46	1.47				1,612.10	1.36
2/3/22 2:52 PM	1,483	30	73.66	556.43	1,611.57	1.36				1,612.14	1.32
2/3/22 3:07 PM	1,498	45	73.59	556.30	1,611.70	1.23				1,612.27	1.18
2/3/22 3:22 PM	1,513	60	73.43	556.23	1,611.77	1.16				1,612.37	1.09

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP
MSL = Mean Sea Level Pump Setting = 300 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 2 - Aquifer Test (February 2, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 2 Temperature (F)	PW Well No. 2 Water Level (ft bgs)	PW Well No. 2 Water Level (ft MSL)	PW Well No. 2 Drawdown (ft)	PW Well No. 2 Pump Rate (gpm)	PW Well No. 2 Specific Capacity (gpm/ft)	Comments	OW Well No. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/3/22 3:37 PM	1,528	75	73.32	556.05	1,611.95	0.98				1,612.43	1.03
2/3/22 3:52 PM	1,543	90	73.22	556.03	1,611.97	0.96				1,612.57	0.89
2/3/22 4:07 PM	1,558	105	73.10	555.95	1,612.05	0.88				1,612.56	0.89
2/3/22 4:22 PM	1,573	120	73.01	555.80	1,612.20	0.73				1,612.62	0.84
2/3/22 4:52 PM	1,603	150	72.93	555.79	1,612.21	0.72				1,612.83	0.63
2/3/22 5:22 PM	1,633	180	72.82	555.71	1,612.30	0.63				1,612.86	0.59
2/3/22 5:52 PM	1,663	210	72.85	555.66	1,612.34	0.59				1,612.94	0.51
2/3/22 6:22 PM	1,693	240	72.80	555.58	1,612.43	0.50				1,612.92	0.53
2/3/22 7:22 PM	1,753	300	72.78	555.57	1,612.43	0.50				1,613.10	0.36
2/3/22 8:22 PM	1,813	360	72.75	555.46	1,612.54	0.39				1,613.28	0.18
2/3/22 9:22 PM	1,873	420	72.77	555.35	1,612.65	0.28				1,613.19	0.26
2/3/22 10:22 PM	1,933	480	72.74	555.36	1,612.64	0.29				1,613.21	0.25
2/3/22 11:22 PM	1,993	540	72.77	555.33	1,612.67	0.26				1,613.27	0.19
2/4/22 12:22 AM	2,053	600	72.71	555.31	1,612.69	0.24				1,613.24	0.21
2/4/22 1:22 AM	2,113	660	72.74	555.22	1,612.78	0.15				1,613.38	0.07
2/4/22 2:22 AM	2,173	720	72.75	555.25	1,612.75	0.18				1,613.33	0.13
2/4/22 3:22 AM	2,233	780	72.77	555.17	1,612.83	0.10				1,613.32	0.13
2/4/22 4:22 AM	2,293	840	72.77	555.18	1,612.82	0.11				1,613.46	-0.01
2/4/22 5:22 AM	2,353	900	72.73	555.21	1,612.79	0.14				1,613.46	-0.01
2/4/22 6:22 AM	2,413	960	72.76	555.10	1,612.90	0.03				1,613.55	-0.09
2/4/22 7:22 AM	2,473	1020	72.75	555.12	1,612.88	0.05				1,613.63	-0.18
2/4/22 8:22 AM	2,533	1080	72.74	555.02	1,612.98	-0.05				1,613.57	-0.12
2/4/22 9:22 AM	2,593	1140	72.72	554.98	1,613.02	-0.09				1,613.57	-0.11
2/4/22 10:22 AM	2,653	1200	72.70	555.04	1,612.96	-0.03				1,613.63	-0.18
2/4/22 11:22 AM	2,713	1260	72.73	555.01	1,612.99	-0.06				1,613.68	-0.22
2/4/22 12:22 PM	2,773	1320	72.76	554.97	1,613.03	-0.10				1,613.64	-0.18
2/4/22 1:22 PM	2,833	1380	72.74	555.01	1,613.00	-0.07				1,613.64	-0.19
2/4/22 2:22 PM	2,893	1440	72.75	555.04	1,612.96	-0.03				1,613.62	-0.17
2/4/22 3:22 PM	2,953	1500	72.75	555.05	1,612.95	-0.02				1,613.61	-0.15
2/4/22 4:22 PM	3,013	1560	72.72	554.92	1,613.08	-0.15				1,613.66	-0.20
2/4/22 5:22 PM	3,073	1620	72.75	554.93	1,613.07	-0.14				1,613.65	-0.19
2/4/22 6:22 PM	3,133	1680	72.74	554.95	1,613.05	-0.12				1,613.63	-0.18
2/4/22 7:22 PM	3,193	1740	72.71	554.86	1,613.14	-0.21				1,613.76	-0.30

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP
MSL = Mean Sea Level Pump Setting = 300 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 2 - Aquifer Test (February 2, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 2 Temperature (F)	PW Well No. 2 Water Level (ft bgs)	PW Well No. 2 Water Level (ft MSL)	PW Well No. 2 Drawdown (ft)	PW Well No. 2 Pump Rate (gpm)	PW Well No. 2 Specific Capacity (gpm/ft)	Comments	OW Well No. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/4/22 8:22 PM	3,253	1800	72.72	554.93	1,613.07	-0.14				1,613.79	-0.34
2/4/22 9:22 PM	3,313	1860	72.72	554.87	1,613.13	-0.20				1,613.71	-0.25
2/4/22 10:22 PM	3,373	1920	72.73	554.92	1,613.08	-0.15				1,613.71	-0.26
2/4/22 11:22 PM	3,433	1980	72.72	554.91	1,613.09	-0.16				1,613.69	-0.23
2/5/22 12:22 AM	3,493	2040	72.73	554.90	1,613.10	-0.17				1,613.69	-0.23
2/5/22 1:22 AM	3,553	2100	72.75	554.93	1,613.07	-0.14				1,613.70	-0.25
2/5/22 2:22 AM	3,613	2160	72.72	554.95	1,613.05	-0.12				1,613.72	-0.26
2/5/22 3:22 AM	3,673	2220	72.68	554.91	1,613.09	-0.16				1,613.58	-0.13
2/5/22 4:22 AM	3,733	2280	72.75	554.89	1,613.12	-0.19				1,613.65	-0.19
2/5/22 5:22 AM	3,793	2340	72.73	555.02	1,612.98	-0.05				1,613.69	-0.24
2/5/22 6:22 AM	3,853	2400	72.71	554.98	1,613.02	-0.09				1,613.65	-0.19
2/5/22 7:22 AM	3,913	2460	72.71	554.95	1,613.05	-0.12				1,613.66	-0.21
2/5/22 8:22 AM	3,973	2520	72.72	554.87	1,613.13	-0.20				1,613.77	-0.32
2/5/22 9:22 AM	4,033	2580	72.69	554.88	1,613.12	-0.19				1,613.78	-0.32
2/5/22 10:22 AM	4,093	2640	72.69	554.84	1,613.16	-0.23				1,613.68	-0.22
2/5/22 11:22 AM	4,153	2700	72.73	554.87	1,613.13	-0.20				1,613.62	-0.16
2/5/22 12:22 PM	4,213	2760	72.70	554.93	1,613.07	-0.14				1,613.64	-0.18
2/5/22 1:22 PM	4,273	2820	72.72	554.92	1,613.09	-0.16				1,613.73	-0.27
2/5/22 2:22 PM	4,333	2880	72.72	554.92	1,613.08	-0.15				1,613.64	-0.18
2/5/22 3:22 PM	4,393	2940	72.72	555.01	1,612.99	-0.06				1,613.56	-0.11
2/5/22 4:22 PM	4,453	3000	72.71	554.99	1,613.01	-0.08				1,613.64	-0.19
2/5/22 5:22 PM	4,513	3060	72.68	554.99	1,613.01	-0.08				1,613.72	-0.27
2/5/22 6:22 PM	4,573	3120	72.73	554.98	1,613.02	-0.09				1,613.62	-0.16
2/5/22 7:22 PM	4,633	3180	72.69	554.98	1,613.02	-0.09				1,613.57	-0.11
2/5/22 8:22 PM	4,693	3240	72.72	554.94	1,613.06	-0.13				1,613.67	-0.22
2/5/22 9:22 PM	4,753	3300	72.74	554.93	1,613.07	-0.14				1,613.69	-0.24
2/5/22 10:22 PM	4,813	3360	72.70	554.94	1,613.06	-0.13				1,613.57	-0.11
2/5/22 11:22 PM	4,873	3420	72.70	555.05	1,612.95	-0.02				1,613.72	-0.27
2/6/22 12:22 AM	4,933	3480	72.72	555.05	1,612.95	-0.02				1,613.62	-0.17
2/6/22 1:22 AM	4,993	3540	72.75	554.98	1,613.02	-0.09				1,613.57	-0.11

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP
MSL = Mean Sea Level Pump Setting = 300 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 2 - Aquifer Test (February 2, 2022)

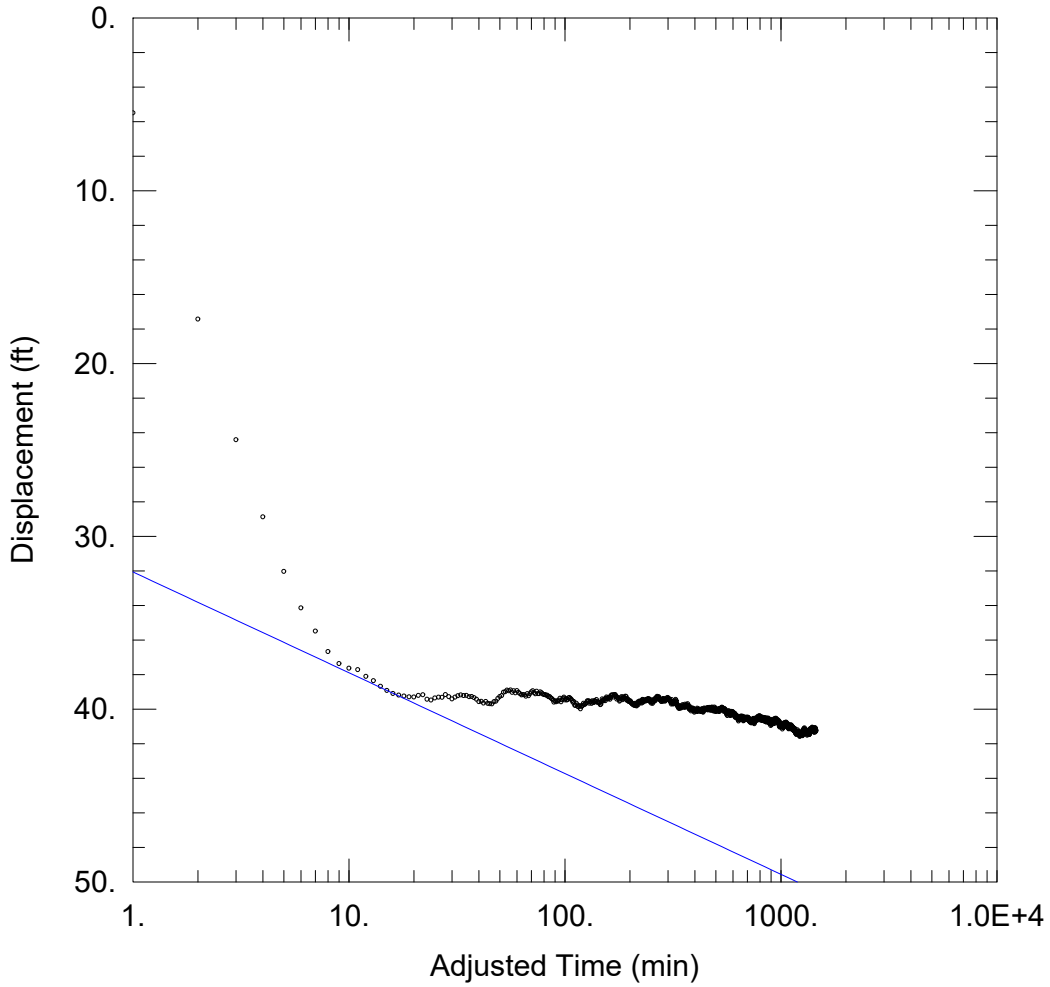
Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 2 Temperature (F)	PW Well No. 2 Water Level (ft bgs)	PW Well No. 2 Water Level (ft MSL)	PW Well No. 2 Drawdown (ft)	PW Well No. 2 Pump Rate (gpm)	PW Well No. 2 Specific Capacity (gpm/ft)	Comments	OW Well No. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/6/22 2:22 AM	5,053	3600	72.71	555.03	1,612.97	-0.04				1,613.53	-0.07
2/6/22 3:22 AM	5,113	3660	72.70	555.03	1,612.97	-0.04				1,613.50	-0.05
2/6/22 4:22 AM	5,173	3720	72.68	554.97	1,613.03	-0.10				1,613.55	-0.10
2/6/22 5:22 AM	5,233	3780	72.73	555.08	1,612.92	0.01				1,613.55	-0.10
2/6/22 6:22 AM	5,293	3840	72.66	555.00	1,613.01	-0.08				1,613.57	-0.12
2/6/22 7:22 AM	5,353	3900	72.71	555.03	1,612.97	-0.04				1,613.67	-0.21
2/6/22 8:22 AM	5,413	3960	72.74	555.05	1,612.95	-0.02				1,613.56	-0.10
2/6/22 9:22 AM	5,473	4020	72.74	554.91	1,613.10	-0.17				1,613.66	-0.21
2/6/22 10:22 AM	5,533	4080	72.70	554.94	1,613.06	-0.13				1,613.66	-0.20
2/6/22 11:22 AM	5,593	4140	72.74	554.97	1,613.03	-0.10				1,613.65	-0.19
2/6/22 12:22 PM	5,653	4200	72.73	555.04	1,612.96	-0.03				1,613.64	-0.18
2/6/22 1:22 PM	5,713	4260	72.74	555.03	1,612.97	-0.04				1,613.57	-0.12
2/6/22 2:22 PM	5,773	4320	72.72	555.08	1,612.92	0.01				1,613.56	-0.11
2/6/22 3:22 PM	5,833	4380	72.74	554.96	1,613.04	-0.11				1,613.55	-0.10
2/6/22 4:22 PM	5,893	4440	72.69	555.09	1,612.91	0.02				1,613.62	-0.17
2/6/22 5:22 PM	5,953	4500	72.70	555.01	1,612.99	-0.06				1,613.51	-0.06
2/6/22 6:22 PM	6,013	4560	72.71	555.07	1,612.93	0.00				1,613.67	-0.21
2/6/22 7:22 PM	6,073	4620	72.68	555.08	1,612.92	0.01				1,613.53	-0.07
2/6/22 8:22 PM	6,133	4680	72.71	554.98	1,613.03	-0.10				1,613.61	-0.15
2/6/22 9:22 PM	6,193	4740	72.68	555.04	1,612.96	-0.03				1,613.60	-0.14
2/6/22 10:22 PM	6,253	4800	72.71	555.01	1,612.99	-0.06				1,613.65	-0.20
2/6/22 11:22 PM	6,313	4860	72.70	554.91	1,613.09	-0.16				1,613.64	-0.18
2/7/22 12:22 AM	6,373	4920	72.69	554.96	1,613.04	-0.11				1,613.64	-0.18
2/7/22 1:22 AM	6,433	4980	72.70	554.94	1,613.06	-0.13				1,613.71	-0.25
2/7/22 2:22 AM	6,493	5040	72.74	554.90	1,613.10	-0.17				1,613.70	-0.24
2/7/22 3:22 AM	6,553	5100	72.74	554.91	1,613.09	-0.16				1,613.70	-0.25
2/7/22 4:22 AM	6,613	5160	72.71	554.94	1,613.06	-0.13				1,613.65	-0.19
2/7/22 5:22 AM	6,673	5220	72.68	554.91	1,613.10	-0.17				1,613.68	-0.23
2/7/22 6:22 AM	6,733	5280	72.71	554.97	1,613.03	-0.10				1,613.76	-0.31
2/7/22 7:22 AM	6,793	5340	72.68	554.88	1,613.13	-0.20				1,613.69	-0.23

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP
MSL = Mean Sea Level Pump Setting = 300 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 2 - Aquifer Test (February 2, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 2 Temperature (F)	PW Well No. 2 Water Level (ft bgs)	PW Well No. 2 Water Level (ft MSL)	PW Well No. 2 Drawdown (ft)	PW Well No. 2 Pump Rate (gpm)	PW Well No. 2 Specific Capacity (gpm/ft)	Comments	OW Well No. 3 Water Level (ft MSL)	OW Well No. 3 Drawdown (ft)
2/7/22 8:22 AM	6,853	5400	72.73	554.91	1,613.09	-0.16				1,613.71	-0.26
2/7/22 9:22 AM	6,913	5460	72.71	554.84	1,613.16	-0.23				1,613.66	-0.21
2/7/22 10:22 AM	6,973	5520	72.72	554.79	1,613.21	-0.28				1,613.74	-0.29
2/7/22 10:36 AM	6,987	5534	72.70	554.90	1,613.10	-0.17				1,613.71	-0.26

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 2 HP
MSL = Mean Sea Level Pump Setting = 300 ft EC=Electrical conductivity (mS/cm)



WELL TEST ANALYSIS

Data Set: \...\PW 2.aqt
Date: 02/22/22 Time: 17:01:34

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 2
Test Date: 2-2-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

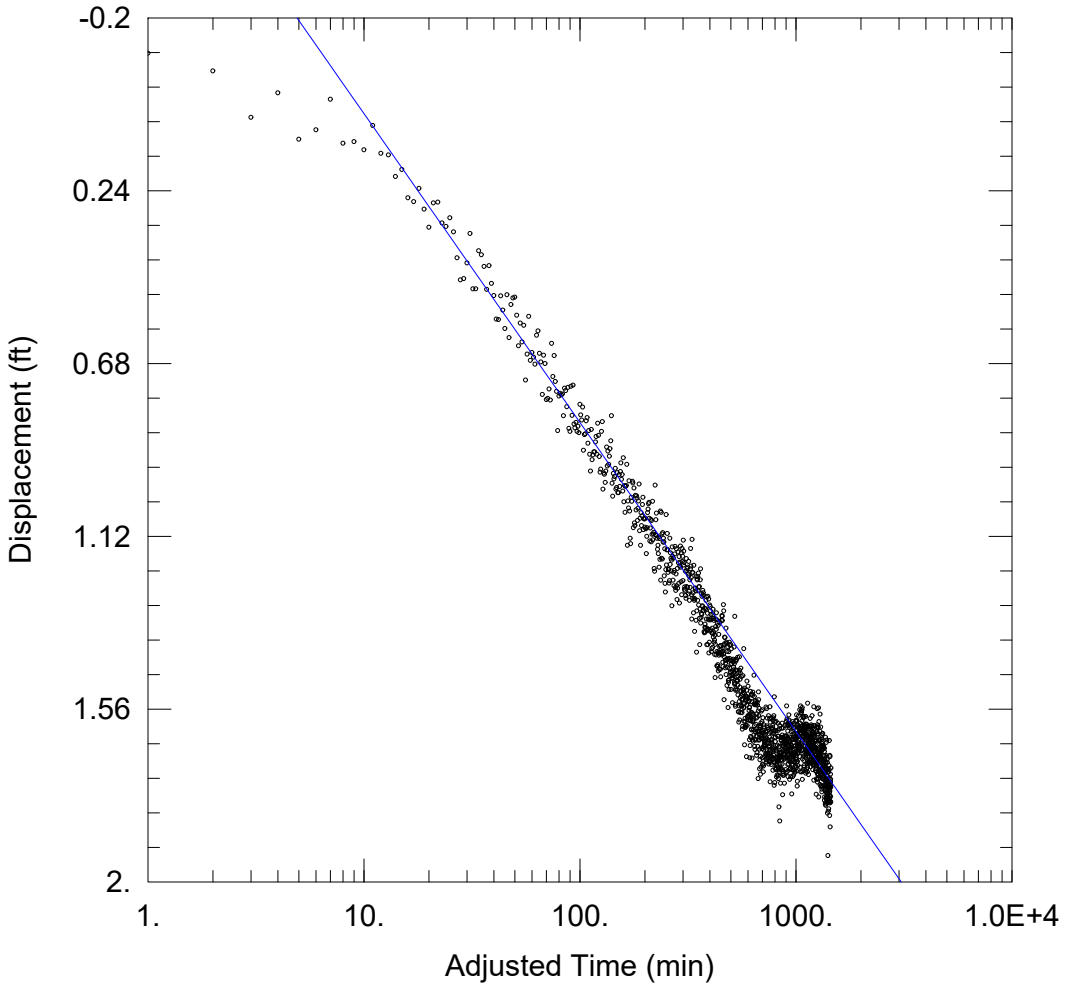
Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 2	0	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 76.81 ft^2/day



WELL TEST ANALYSIS

Data Set: \...\OW 3.aqt
Date: 02/22/22 Time: 17:00:17

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 2
Test Date: 2-2-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 2	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
◦ Well No. 3	400	0

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Jacob
T = 569.5 ft^2/day
S = 4.888E-5

Aquifer Test

Well No. 4

Hideout Ranch Well No. 4 - Aquifer Test (January 24, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 4 Temperature (F)	PW Well No. 4 Water Level (ft bgs)	PW Well No. 4 Water Level (ft MSL)	PW Well No. 4 Drawdown (ft)	PW Well No. 4 Pump Rate (gpm)	PW Well No. 4 Specific Capacity (gpm/ft)	Comments	OW Well No. 5 Water Level (ft MSL)	OW Well No. 5 Drawdown (ft)
1/24/22 11:00 AM	0		70.66	548.57	1,605.43	0.00			Pump Start	1,607.93	0.00
1/24/22 11:01 AM	1		71.05	554.77	1,599.23	6.20	11.5	1.86	Meter: 32,389.66 gallons	1,608.03	-0.10
1/24/22 11:02 AM	2		71.33	556.83	1,597.17	8.26				1,607.94	-0.01
1/24/22 11:03 AM	3		71.52	557.37	1,596.63	8.81				1,607.93	0.00
1/24/22 11:04 AM	4		71.68	557.48	1,596.52	8.91				1,607.87	0.05
1/24/22 11:05 AM	5		71.80	557.43	1,596.57	8.86				1,607.91	0.02
1/24/22 11:06 AM	6		71.90	557.52	1,596.48	8.95				1,607.85	0.07
1/24/22 11:07 AM	7		72.00	557.69	1,596.31	9.12				1,607.80	0.12
1/24/22 11:08 AM	8		72.07	557.72	1,596.28	9.15				1,607.84	0.09
1/24/22 11:09 AM	9		72.14	557.89	1,596.12	9.32				1,607.78	0.15
1/24/22 11:10 AM	10		72.20	557.98	1,596.02	9.41				1,607.73	0.20
1/24/22 11:11 AM	11		72.26	558.06	1,595.94	9.49				1,607.75	0.18
1/24/22 11:12 AM	12		72.30	558.05	1,595.95	9.49				1,607.71	0.21
1/24/22 11:13 AM	13		72.34	558.02	1,595.99	9.45				1,607.66	0.27
1/24/22 11:14 AM	14		72.38	558.08	1,595.92	9.51				1,607.71	0.22
1/24/22 11:15 AM	15		72.41	558.07	1,595.93	9.50				1,607.79	0.13
1/24/22 11:20 AM	20		72.58	558.20	1,595.80	9.63				1,607.68	0.25
1/24/22 11:25 AM	25		72.70	558.15	1,595.85	9.58				1,607.59	0.34
1/24/22 11:30 AM	30		72.79	558.21	1,595.79	9.64				1,607.51	0.41
1/24/22 11:45 AM	45		72.91	558.33	1,595.67	9.76				1,607.39	0.54
1/24/22 12:00 PM	60		73.06	558.67	1,595.33	10.10				1,607.42	0.51
1/24/22 12:15 PM	75		73.15	558.52	1,595.48	9.95				1,607.29	0.63
1/24/22 12:30 PM	90		73.26	558.62	1,595.38	10.05	10.5	1.04	pH: 7.63 / EC: 0.88	1,607.30	0.63
1/24/22 12:45 PM	105		73.34	558.71	1,595.30	10.14				1,607.22	0.71
1/24/22 1:00 PM	120		73.40	558.81	1,595.19	10.24				1,607.21	0.71
1/24/22 1:30 PM	150		73.47	558.92	1,595.09	10.35				1,607.14	0.79
1/24/22 2:00 PM	180		73.52	558.99	1,595.02	10.42				1,606.97	0.96
1/24/22 2:30 PM	210		73.56	559.19	1,594.81	10.62				1,606.95	0.97
1/24/22 3:00 PM	240		73.59	559.13	1,594.87	10.57				1,606.89	1.04
1/24/22 4:00 PM	300		73.59	559.17	1,594.83	10.60				1,607.03	0.90
1/24/22 5:00 PM	360		73.61	559.25	1,594.76	10.68				1,606.90	1.03
1/24/22 6:00 PM	420		73.66	559.41	1,594.59	10.84				1,606.78	1.14
1/24/22 7:00 PM	480		73.66	559.46	1,594.54	10.89				1,606.74	1.19
1/24/22 8:00 PM	540		73.66	559.44	1,594.56	10.88				1,606.78	1.15
1/24/22 9:00 PM	600		73.70	559.47	1,594.53	10.90				1,606.88	1.05

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 3 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Ranch Well No. 4 - Aquifer Test (January 24, 2022)

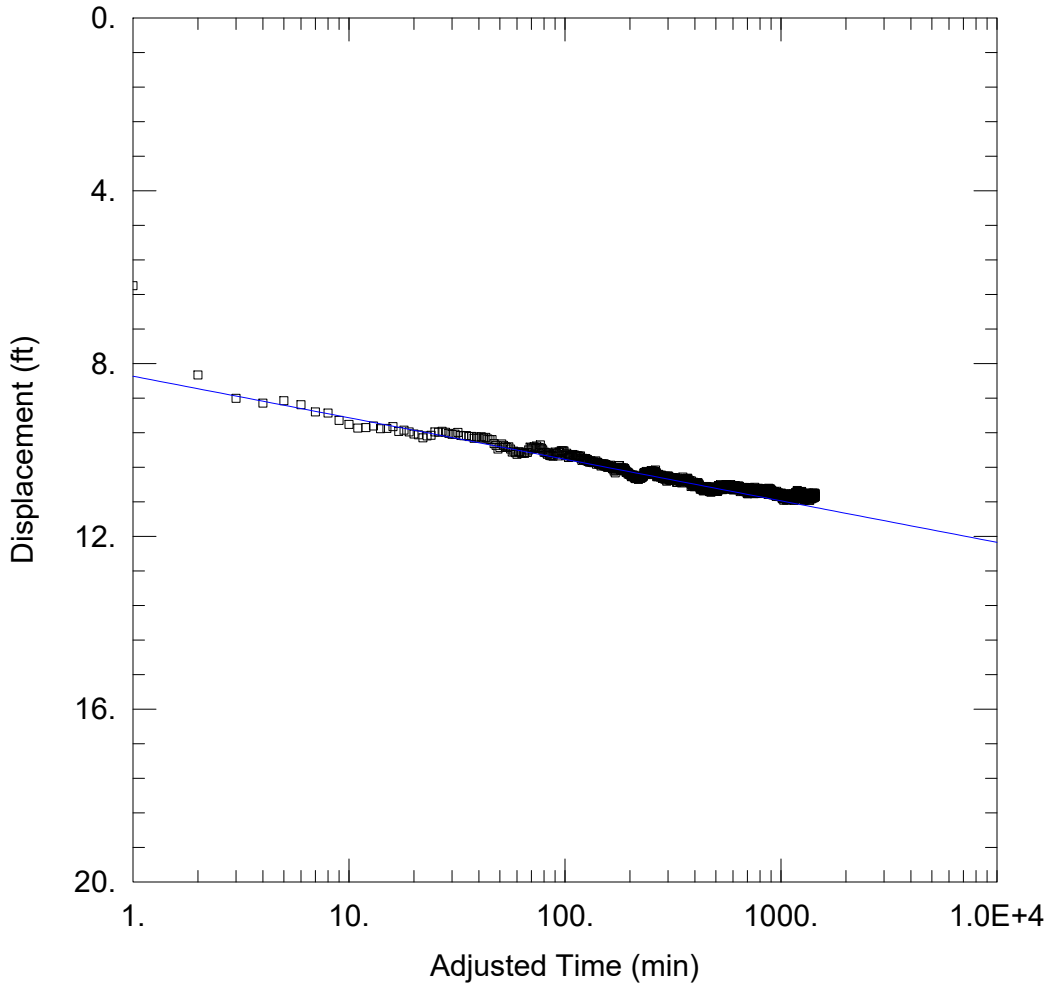
Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 4 Temperature (F)	PW Well No. 4 Water Level (ft bgs)	PW Well No. 4 Water Level (ft MSL)	PW Well No. 4 Drawdown (ft)	PW Well No. 4 Pump Rate (gpm)	PW Well No. 4 Specific Capacity (gpm/ft)	Comments	OW Well No. 5 Water Level (ft MSL)	OW Well No. 5 Drawdown (ft)
1/24/22 10:00 PM	660		73.71	559.46	1,594.55	10.89				1,606.93	1.00
1/24/22 11:00 PM	720		73.68	559.53	1,594.47	10.96				1,606.80	1.13
1/25/22 12:00 AM	780		73.66	559.52	1,594.49	10.95				1,606.86	1.07
1/25/22 1:00 AM	840		73.69	559.51	1,594.49	10.94				1,606.78	1.15
1/25/22 2:00 AM	900		73.72	559.55	1,594.46	10.98				1,606.76	1.16
1/25/22 3:00 AM	960		73.75	559.58	1,594.42	11.01				1,606.77	1.16
1/25/22 4:00 AM	1,020		73.75	559.66	1,594.34	11.09				1,606.78	1.14
1/25/22 5:00 AM	1,080		73.74	559.63	1,594.37	11.06				1,606.78	1.15
1/25/22 6:00 AM	1,140		73.73	559.64	1,594.36	11.07				1,606.68	1.24
1/25/22 7:00 AM	1,200		73.71	559.66	1,594.34	11.09				1,606.76	1.16
1/25/22 8:00 AM	1,260		73.69	559.61	1,594.40	11.04				1,606.73	1.19
1/25/22 9:00 AM	1,320		73.73	559.58	1,594.42	11.01				1,606.80	1.13
1/25/22 10:00 AM	1,380		73.70	559.62	1,594.38	11.05				1,606.69	1.24
1/25/22 11:00 AM	1,440		73.72	559.65	1,594.35	11.08				1,606.80	1.13
1/25/22 11:01 AM	1,441	0	73.72	559.65	1,594.35	11.08	10.5	0.95	Pump Stop	1,606.79	1.14
1/25/22 11:02 AM	1,442	1	73.72	552.85	1,601.15	4.28			Meter: 47,911.22 gallons	1,606.83	1.10
1/25/22 11:03 AM	1,443	2	73.74	549.67	1,604.33	1.11			Avg. Pump Rate: 10.8 gpm	1,606.78	1.15
1/25/22 11:04 AM	1,444	3	73.73	549.47	1,604.53	0.90				1,606.83	1.10
1/25/22 11:05 AM	1,445	4	73.71	549.42	1,604.58	0.86				1,606.87	1.06
1/25/22 11:06 AM	1,446	5	73.69	549.36	1,604.64	0.79				1,606.97	0.96
1/25/22 11:07 AM	1,447	6	73.69	549.30	1,604.70	0.73				1,606.98	0.95
1/25/22 11:08 AM	1,448	7	73.70	549.28	1,604.72	0.71				1,606.93	0.99
1/25/22 11:09 AM	1,449	8	73.72	549.29	1,604.71	0.72				1,607.00	0.92
1/25/22 11:10 AM	1,450	9	73.75	549.26	1,604.74	0.69				1,607.02	0.91
1/25/22 11:11 AM	1,451	10	73.78	549.28	1,604.72	0.71				1,607.09	0.83
1/25/22 11:12 AM	1,452	11	73.82	549.27	1,604.73	0.70				1,606.96	0.97
1/25/22 11:13 AM	1,453	12	73.87	549.30	1,604.70	0.73				1,607.08	0.85
1/25/22 11:14 AM	1,454	13	73.91	549.23	1,604.77	0.66				1,607.07	0.85
1/25/22 11:15 AM	1,455	14	73.96	549.23	1,604.77	0.66				1,607.04	0.88
1/25/22 11:16 AM	1,456	15	74.01	549.22	1,604.78	0.65				1,607.03	0.89
1/25/22 11:21 AM	1,461	20	74.13	549.18	1,604.82	0.61				1,607.19	0.74
1/25/22 11:26 AM	1,466	25	74.18	549.14	1,604.86	0.57				1,607.27	0.66
1/25/22 11:31 AM	1,471	30	74.19	549.14	1,604.87	0.57				1,607.27	0.65
1/25/22 11:46 AM	1,486	45	74.16	549.02	1,604.98	0.45				1,607.33	0.60
1/25/22 12:01 PM	1,501	60	73.99	549.01	1,604.99	0.44				1,607.35	0.57

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 3 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Ranch Well No. 4 - Aquifer Test (January 24, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 4 Temperature (F)	PW Well No. 4 Water Level (ft bgs)	PW Well No. 4 Water Level (ft MSL)	PW Well No. 4 Drawdown (ft)	PW Well No. 4 Pump Rate (gpm)	PW Well No. 4 Specific Capacity (gpm/ft)	Comments	OW Well No. 5 Water Level (ft MSL)	OW Well No. 5 Drawdown (ft)
1/25/22 12:16 PM	1,516	75	73.76	548.93	1,605.07	0.36				1,607.36	0.57
1/25/22 12:31 PM	1,531	90	73.59	548.93	1,605.07	0.37				1,607.44	0.49
1/25/22 12:46 PM	1,546	105	73.46	548.89	1,605.11	0.32				1,607.58	0.35
1/25/22 1:01 PM	1,561	120	73.33	548.91	1,605.09	0.34				1,607.54	0.38
1/25/22 1:31 PM	1,591	150	73.16	548.83	1,605.17	0.26				1,607.54	0.38
1/25/22 2:01 PM	1,621	180	73.04	548.82	1,605.18	0.25				1,607.57	0.35
1/25/22 2:31 PM	1,651	210	72.96	548.84	1,605.16	0.27				1,607.59	0.34
1/25/22 3:01 PM	1,681	240	72.90	548.79	1,605.21	0.22				1,607.58	0.34
1/25/22 4:01 PM	1,741	300	72.80	548.81	1,605.19	0.24				1,607.57	0.36
1/25/22 5:01 PM	1,801	360	72.73	548.75	1,605.25	0.18				1,607.64	0.28
1/25/22 6:01 PM	1,861	420	72.69	548.76	1,605.24	0.19				1,607.70	0.23
1/25/22 7:01 PM	1,921	480	72.64	548.77	1,605.23	0.20				1,607.72	0.20
1/25/22 8:01 PM	1,981	540	72.61	548.71	1,605.29	0.14				1,607.62	0.30
1/25/22 9:01 PM	2,041	600	72.58	548.64	1,605.36	0.07				1,607.66	0.27
1/25/22 10:01 PM	2,101	660	72.56	548.63	1,605.37	0.06				1,607.68	0.25
1/25/22 11:01 PM	2,161	720	72.54	548.64	1,605.36	0.07				1,607.85	0.07
1/26/22 12:01 AM	2,221	780	72.53	548.61	1,605.39	0.04				1,607.80	0.13
1/26/22 1:01 AM	2,281	840	72.52	548.60	1,605.41	0.03				1,607.84	0.09
1/26/22 2:01 AM	2,341	900	72.50	548.55	1,605.45	-0.02				1,607.88	0.04
1/26/22 3:01 AM	2,401	960	72.48	548.54	1,605.46	-0.03				1,607.83	0.10
1/26/22 4:01 AM	2,461	1020	72.47	548.53	1,605.47	-0.04				1,607.87	0.05
1/26/22 5:01 AM	2,521	1080	72.48	548.56	1,605.44	-0.01				1,607.76	0.17
1/26/22 6:01 AM	2,581	1140	72.47	548.56	1,605.44	-0.01				1,607.90	0.03
1/26/22 7:01 AM	2,641	1200	72.47	548.51	1,605.49	-0.06				1,607.89	0.04
1/26/22 8:01 AM	2,701	1260	72.45	548.49	1,605.51	-0.08				1,608.02	-0.09
1/26/22 9:01 AM	2,761	1320	72.44	548.52	1,605.48	-0.05				1,607.87	0.05
1/26/22 10:01 AM	2,821	1380	72.44	548.48	1,605.52	-0.09				1,607.97	-0.04
1/26/22 11:01 AM	2,881	1440	72.43	548.46	1,605.54	-0.11				1,607.97	-0.05
1/26/22 12:01 PM	2,941	1500	72.44	548.45	1,605.55	-0.12				1,607.89	0.04
1/26/22 12:17 PM	2,957	1516	72.43	548.45	1,605.55	-0.12				1,607.89	0.03

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 3 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)



WELL TEST ANALYSIS

Data Set: \...\PW 5.aqt
Date: 02/09/22 Time: 13:56:31

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 4
Test Date: 1-24-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

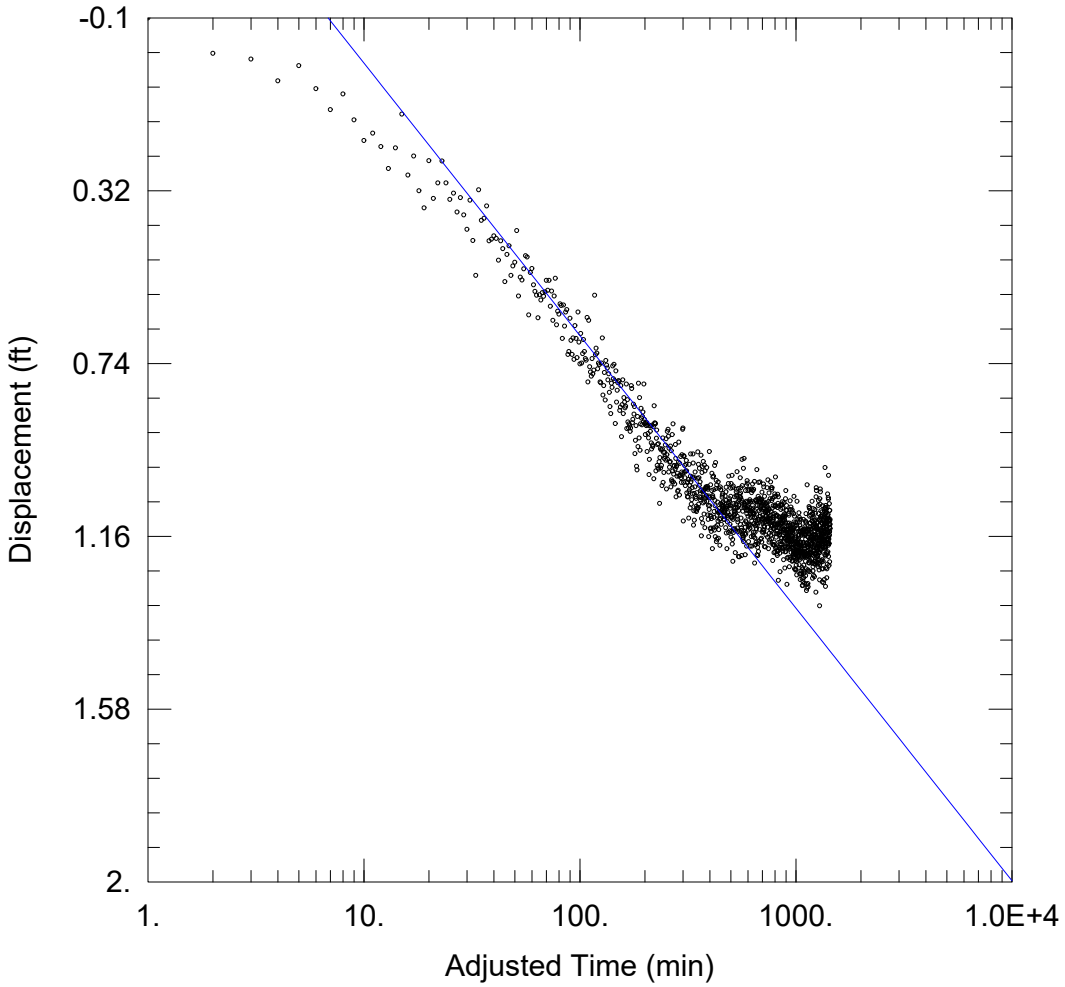
Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 4	0	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 385.2 ft^2/day



WELL TEST ANALYSIS

Data Set: \...\OW 5.aqt
Date: 03/02/22 Time: 09:44:22

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 4
Test Date: 1-24-22

AQUIFER DATA

Saturated Thickness: 1. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 4	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
◦ Well No. 5	380	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 559.1 ft^2/day S = 5.838E-5

Aquifer Test

Well No. 6

Hideout Well No. 6 - Aquifer Test (January 28, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 6 Temperature (F)	PW Well No. 6 Water Level (ft bgs)	PW Well No. 6 Water Level (ft MSL)	PW Well No. 6 Drawdown (ft)	PW Well No. 6 Pump Rate (gpm)	PW Well No. 6 Specific Capacity (gpm/ft)	Comments	OW Well No. 5 Water Level (ft MSL)	OW Well No. 5 Drawdown (ft)
1/28/22 9:45 AM	0		70.71	549.03	1,608.98	0.00			Pump Start	1,607.77	0.00
1/28/22 9:46 AM	1		71.10	555.72	1,602.42	6.70	11.0	1.64	Meter: 48,286.55 gallons	1,607.73	0.04
1/28/22 9:47 AM	2		71.38	557.79	1,600.37	8.76				1,607.70	0.07
1/28/22 9:48 AM	3		71.57	558.33	1,599.76	9.31				1,607.63	0.14
1/28/22 9:49 AM	4		71.73	558.44	1,599.70	9.41				1,607.66	0.11
1/28/22 9:50 AM	5		71.85	558.39	1,599.70	9.36				1,607.61	0.16
1/28/22 9:51 AM	6		71.95	558.48	1,599.37	9.45				1,607.51	0.26
1/28/22 9:52 AM	7		72.05	558.65	1,599.19	9.62				1,607.46	0.32
1/28/22 9:53 AM	8		72.12	558.67	1,599.18	9.65				1,607.52	0.26
1/28/22 9:54 AM	9		72.19	558.84	1,599.16	9.82				1,607.50	0.27
1/28/22 9:55 AM	10		72.25	558.93	1,599.07	9.91				1,607.44	0.34
1/28/22 9:56 AM	11		72.31	559.02	1,598.98	9.99				1,607.41	0.36
1/28/22 9:57 AM	12		72.35	559.01	1,598.99	9.99				1,607.45	0.32
1/28/22 9:58 AM	13		72.39	558.97	1,599.03	9.95				1,607.42	0.36
1/28/22 9:59 AM	14		72.43	559.04	1,598.97	10.01				1,607.42	0.35
1/28/22 10:00 AM	15		72.46	559.03	1,598.99	10.00				1,607.42	0.36
1/28/22 10:05 AM	20		72.63	559.16	1,598.80	10.13				1,607.37	0.41
1/28/22 10:10 AM	25		72.75	559.11	1,598.89	10.08				1,607.27	0.50
1/28/22 10:15 AM	30		72.84	559.17	1,599.02	10.14				1,607.22	0.55
1/28/22 10:30 AM	45		72.96	559.29	1,598.89	10.26	11.0	1.07	pH: 7.6 / EC: 0.82	1,607.14	0.64
1/28/22 10:45 AM	60		73.11	559.63	1,598.42	10.60				1,606.97	0.80
1/28/22 11:00 AM	75		73.20	559.48	1,598.71	10.45				1,606.98	0.80
1/28/22 11:15 AM	90		73.31	559.57	1,598.39	10.55				1,606.90	0.88
1/28/22 11:30 AM	105		73.39	559.66	1,598.24	10.64				1,606.80	0.97
1/28/22 11:45 AM	120		73.45	559.77	1,598.06	10.74				1,606.79	0.98
1/28/22 12:15 PM	150		73.52	559.87	1,598.13	10.85				1,606.78	0.99
1/28/22 12:45 PM	180		73.57	559.94	1,598.06	10.92				1,606.72	1.06
1/28/22 1:15 PM	210		73.61	560.14	1,597.86	11.12				1,606.71	1.06
1/28/22 1:45 PM	240		73.64	560.09	1,598.09	11.07				1,606.65	1.13
1/28/22 2:45 PM	300		73.64	560.13	1,597.80	11.10				1,606.53	1.24
1/28/22 3:45 PM	360		73.66	560.20	1,597.80	11.18				1,606.49	1.29
1/28/22 4:45 PM	420		73.71	560.36	1,597.64	11.34				1,606.47	1.30
1/28/22 5:45 PM	480		73.71	560.42	1,597.75	11.39				1,606.45	1.33
1/28/22 6:45 PM	540		73.71	560.40	1,597.49	11.38				1,606.44	1.34
1/28/22 7:45 PM	600		73.75	560.43	1,597.58	11.40				1,606.41	1.37

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 3 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 6 - Aquifer Test (January 28, 2022)

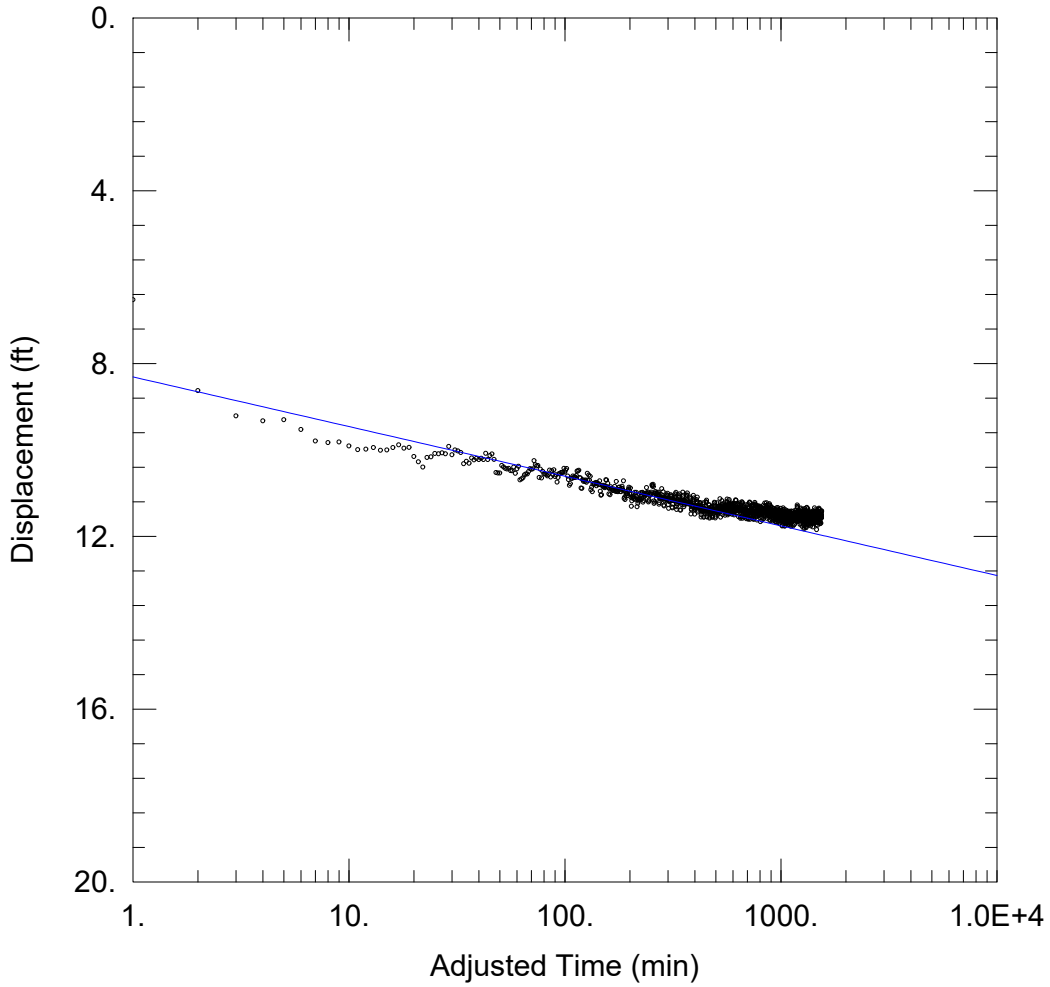
Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 6 Temperature (F)	PW Well No. 6 Water Level (ft bgs)	PW Well No. 6 Water Level (ft MSL)	PW Well No. 6 Drawdown (ft)	PW Well No. 6 Pump Rate (gpm)	PW Well No. 6 Specific Capacity (gpm/ft)	Comments	OW Well No. 5 Water Level (ft MSL)	OW Well No. 5 Drawdown (ft)
1/28/22 8:45 PM	660		73.76	560.41	1,597.68	11.39				1,606.39	1.39
1/28/22 9:45 PM	720		73.73	560.49	1,597.35	11.46				1,606.34	1.44
1/28/22 10:45 PM	780		73.71	560.47	1,597.53	11.45				1,606.31	1.46
1/28/22 11:45 PM	840		73.74	560.47	1,597.53	11.44				1,606.31	1.46
1/29/22 12:45 AM	900		73.77	560.50	1,597.65	11.48				1,606.24	1.54
1/29/22 1:45 AM	960		73.80	560.53	1,597.44	11.51				1,606.37	1.40
1/29/22 2:45 AM	1,020		73.80	560.62	1,597.38	11.59				1,606.36	1.42
1/29/22 3:45 AM	1,080		73.79	560.59	1,597.52	11.56				1,606.25	1.52
1/29/22 4:45 AM	1,140		73.78	560.60	1,597.38	11.57				1,606.33	1.45
1/29/22 5:45 AM	1,200		73.76	560.62	1,597.38	11.59				1,606.34	1.43
1/29/22 6:45 AM	1,260		73.74	560.56	1,597.44	11.54				1,606.26	1.52
1/29/22 7:45 AM	1,320		73.78	560.53	1,597.66	11.51				1,606.36	1.41
1/29/22 8:45 AM	1,380		73.75	560.58	1,597.38	11.55				1,606.26	1.52
1/29/22 9:45 AM	1,440		73.77	560.61	1,597.39	11.58				1,606.25	1.53
1/29/22 10:45 AM	1,500		73.76	560.56	1,597.64	11.53				1,606.16	1.61
1/29/22 11:30 AM	1,545	0	73.77	560.61	1,597.43	11.59	10.5	0.91	Pump Stop	1,606.27	1.51
1/29/22 11:31 AM	1,546	1	73.79	553.81	1,604.26	4.78			Meter: 64,579.16 gallons	1,606.25	1.53
1/29/22 11:32 AM	1,547	2	73.78	550.63	1,607.21	1.61			Avg. Pump Rate: 10.5 gpm	1,606.19	1.59
1/29/22 11:33 AM	1,548	3	73.76	550.43	1,607.53	1.40				1,606.18	1.59
1/29/22 11:34 AM	1,549	4	73.74	550.32	1,607.69	1.29				1,606.26	1.51
1/29/22 11:35 AM	1,550	5	73.74	550.26	1,607.74	1.23				1,606.25	1.52
1/29/22 11:36 AM	1,551	6	73.75	550.23	1,607.77	1.21				1,606.19	1.59
1/29/22 11:37 AM	1,552	7	73.77	550.25	1,607.75	1.22				1,606.24	1.53
1/29/22 11:38 AM	1,553	8	73.80	550.21	1,607.79	1.19				1,606.26	1.51
1/29/22 11:39 AM	1,554	9	73.83	550.23	1,607.77	1.21				1,606.28	1.50
1/29/22 11:40 AM	1,555	10	73.87	550.23	1,607.94	1.20				1,606.23	1.54
1/29/22 11:41 AM	1,556	11	73.92	550.25	1,607.78	1.23				1,606.20	1.57
1/29/22 11:42 AM	1,557	12	73.96	550.18	1,607.89	1.16				1,606.24	1.54
1/29/22 11:43 AM	1,558	13	74.01	550.19	1,607.92	1.16				1,606.23	1.55
1/29/22 11:44 AM	1,559	14	74.06	550.18	1,608.00	1.15				1,606.23	1.54
1/29/22 11:45 AM	1,560	15	74.09	550.13	1,607.76	1.10				1,606.23	1.55
1/29/22 11:50 AM	1,565	20	74.19	550.10	1,607.90	1.08				1,606.33	1.44
1/29/22 11:55 AM	1,570	25	74.24	550.12	1,608.07	1.09				1,606.50	1.28
1/29/22 12:00 PM	1,575	30	74.24	550.05	1,607.81	1.02				1,606.80	0.97
1/29/22 12:15 PM	1,590	45	74.21	550.04	1,607.86	1.01				1,607.01	0.76

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 3 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 6 - Aquifer Test (January 28, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 6 Temperature (F)	PW Well No. 6 Water Level (ft bgs)	PW Well No. 6 Water Level (ft MSL)	PW Well No. 6 Drawdown (ft)	PW Well No. 6 Pump Rate (gpm)	PW Well No. 6 Specific Capacity (gpm/ft)	Comments	OW Well No. 5 Water Level (ft MSL)	OW Well No. 5 Drawdown (ft)
1/29/22 12:30 PM	1,605	60	74.03	549.93	1,608.07	0.90				1,607.19	0.58
1/29/22 12:45 PM	1,620	75	73.80	549.92	1,608.08	0.90				1,607.29	0.48
1/29/22 1:00 PM	1,635	90	73.63	549.87	1,608.13	0.85				1,607.33	0.44
1/29/22 1:15 PM	1,650	105	73.51	549.87	1,608.13	0.85				1,607.36	0.41
1/29/22 1:30 PM	1,665	120	73.37	549.85	1,608.16	0.82				1,607.48	0.30
1/29/22 2:00 PM	1,695	150	73.20	549.81	1,608.33	0.78				1,607.45	0.32
1/29/22 2:30 PM	1,725	180	73.09	549.79	1,608.40	0.77				1,607.54	0.23
1/29/22 3:00 PM	1,755	210	73.01	549.77	1,608.41	0.74				1,607.56	0.21
1/29/22 3:30 PM	1,785	240	72.95	549.77	1,608.07	0.75				1,607.64	0.14
1/29/22 4:30 PM	1,845	300	72.85	549.76	1,608.24	0.73				1,607.67	0.11
1/29/22 5:30 PM	1,905	360	72.78	549.74	1,608.44	0.71				1,607.70	0.07
1/29/22 6:30 PM	1,965	420	72.74	549.72	1,608.43	0.70				1,607.68	0.10
1/29/22 7:30 PM	2,025	480	72.70	549.72	1,608.28	0.70				1,607.65	0.13
1/29/22 8:30 PM	2,085	540	72.66	549.66	1,608.34	0.64				1,607.69	0.09
1/29/22 9:30 PM	2,145	600	72.63	549.64	1,608.43	0.62				1,607.70	0.08
1/29/22 10:30 PM	2,205	660	72.60	549.58	1,608.34	0.56				1,607.78	0.00
1/29/22 11:30 PM	2,265	720	72.59	549.62	1,608.38	0.60				1,607.74	0.04
1/30/22 12:30 AM	2,325	780	72.57	549.55	1,608.46	0.52				1,607.75	0.02
1/30/22 1:30 AM	2,385	840	72.57	549.57	1,608.57	0.54				1,607.75	0.03
1/30/22 2:30 AM	2,445	900	72.55	549.50	1,608.50	0.47				1,607.91	-0.14
1/30/22 3:30 AM	2,505	960	72.53	549.50	1,608.50	0.47				1,607.86	-0.08
1/30/22 4:30 AM	2,565	1020	72.53	549.50	1,608.67	0.47				1,607.83	-0.06
1/30/22 5:30 AM	2,625	1080	72.52	549.48	1,608.33	0.45				1,607.86	-0.08
1/30/22 6:30 AM	2,685	1140	72.52	549.49	1,608.51	0.47				1,607.87	-0.10
1/30/22 7:30 AM	2,745	1200	72.52	549.47	1,608.69	0.44				1,607.89	-0.12
1/30/22 8:30 AM	2,805	1260	72.50	549.49	1,608.66	0.46				1,607.88	-0.11
1/30/22 9:30 AM	2,865	1320	72.50	549.47	1,608.53	0.44				1,607.93	-0.16
1/30/22 10:30 AM	2,925	1380	72.49	549.43	1,608.57	0.40				1,607.84	-0.06
1/30/22 11:30 AM	2,985	1440	72.48	549.41	1,608.74	0.39				1,607.80	-0.02
1/30/22 12:30 PM	3,045	1500	72.48	549.42	1,608.55	0.40				1,607.84	-0.07
1/30/22 12:45 PM	3,060	1515	72.48	549.41	1,608.43	0.38				1,607.82	-0.04

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 3 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)



WELL TEST ANALYSIS

Data Set: \...\PW 6.aqt
Date: 02/22/22 Time: 14:07:31

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 6
Test Date: 1-28-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

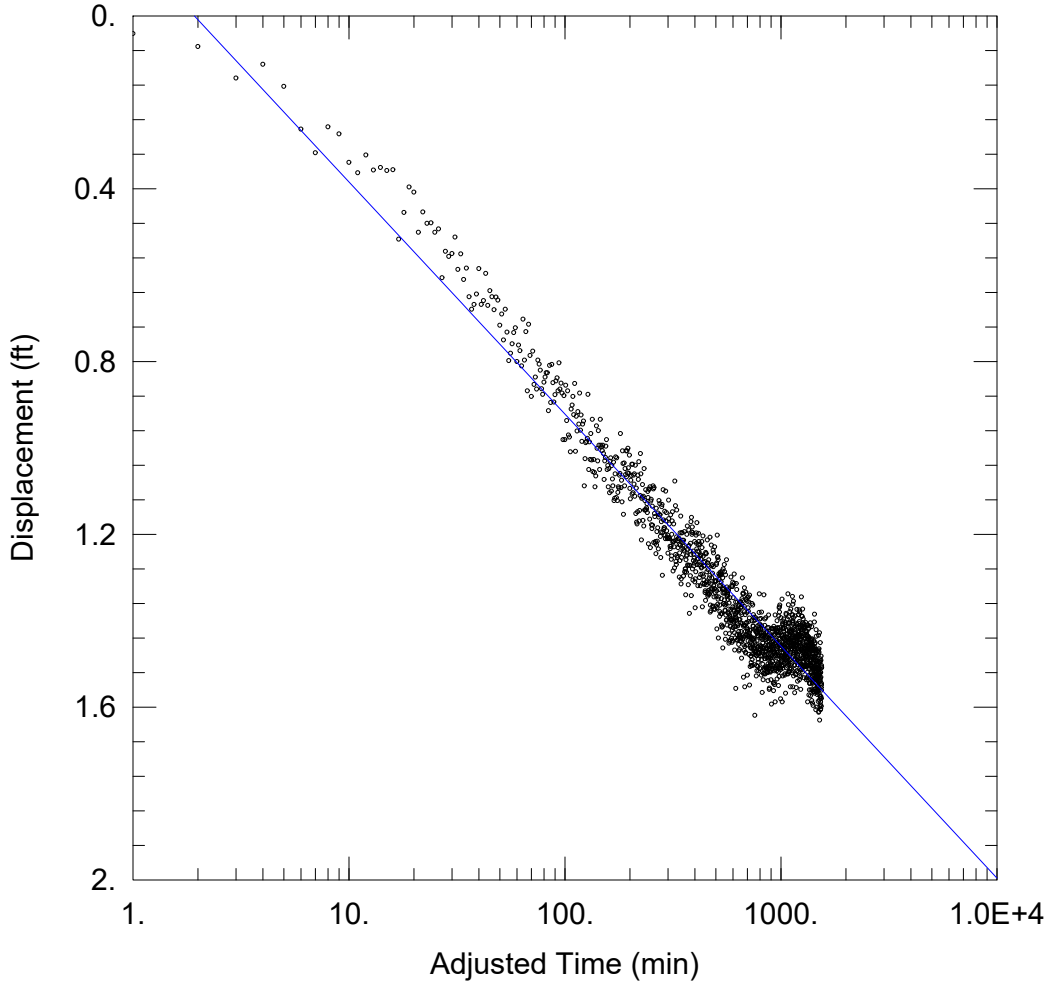
Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 6	0	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 322.3 ft^2/day



WELL TEST ANALYSIS

Data Set: \...\OW 5.aqt
Date: 02/22/22 Time: 14:05:49

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 6
Test Date: 1-28-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 6	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
◦ Well No. 5	347	0

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Jacob
T = 689.5 ft^2/day
S = 1.719E-5

Aquifer Test

Well No. 8

Hideout Well No. 8 - Aquifer Test (February 10, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 8 Temperature (F)	PW Well No. 8 Water Level (ft bgs)	PW Well No. 8 Water Level (ft MSL)	PW Well No. 8 Drawdown (ft)	PW Well No. 8 Pump Rate (gpm)	PW Well No. 8 Specific Capacity (gpm/ft)	Comments	OW Well No. 7 Water Level (ft MSL)	OW Well No. 7 Drawdown (ft)
2/10/22 11:52 AM	0		71.66	568.15	1,621.85	0.00			Pump Start	1,615.25	0.00
2/10/22 11:53 AM	1		71.80	567.97	1,622.03	-0.18			Meter: 101,784.912 gallons	1,615.23	0.02
2/10/22 11:54 AM	2		71.85	574.53	1,615.47	6.38				1,615.33	-0.07
2/10/22 11:55 AM	3		71.86	576.70	1,613.30	8.55				1,615.29	-0.04
2/10/22 11:56 AM	4		71.98	578.06	1,611.94	9.91				1,615.30	-0.04
2/10/22 11:57 AM	5		72.02	578.89	1,611.12	10.74	13.0	1.21		1,615.22	0.03
2/10/22 11:58 AM	6		72.08	579.66	1,610.34	11.51				1,615.22	0.03
2/10/22 11:59 AM	7		72.17	580.11	1,609.89	11.96				1,615.24	0.01
2/10/22 12:00 PM	8		72.16	580.61	1,609.39	12.46				1,615.29	-0.04
2/10/22 12:01 PM	9		72.19	580.71	1,609.29	12.56				1,615.24	0.01
2/10/22 12:02 PM	10		72.18	580.84	1,609.16	12.69				1,615.25	0.01
2/10/22 12:03 PM	11		72.19	580.85	1,609.15	12.70				1,615.12	0.13
2/10/22 12:04 PM	12		72.23	580.75	1,609.26	12.60				1,615.19	0.06
2/10/22 12:05 PM	13		72.23	580.78	1,609.22	12.63				1,615.18	0.07
2/10/22 12:06 PM	14		72.22	580.84	1,609.17	12.69				1,615.16	0.09
2/10/22 12:07 PM	15		72.23	580.98	1,609.02	12.83				1,615.08	0.17
2/10/22 12:12 PM	20		72.23	581.85	1,608.16	13.70				1,614.98	0.28
2/10/22 12:17 PM	25		72.23	582.28	1,607.72	14.13				1,614.85	0.40
2/10/22 12:22 PM	30		72.27	582.44	1,607.56	14.30				1,614.60	0.65
2/10/22 12:37 PM	45		72.29	583.07	1,606.93	14.93				1,614.23	1.02
2/10/22 12:52 PM	60		72.29	583.40	1,606.60	15.25				1,613.97	1.28
2/10/22 1:07 PM	75		72.30	583.55	1,606.45	15.40				1,613.72	1.54
2/10/22 1:22 PM	90		72.40	583.68	1,606.32	15.53				1,613.47	1.78
2/10/22 1:37 PM	105		72.40	583.88	1,606.12	15.73				1,613.32	1.93
2/10/22 1:52 PM	120		72.39	584.02	1,605.98	15.88	13.0	0.82	pH: 7.6 / EC: 0.88	1,613.21	2.05
2/10/22 2:22 PM	150		72.40	584.31	1,605.69	16.16				1,612.88	2.37
2/10/22 2:52 PM	180		72.38	584.51	1,605.49	16.36				1,612.59	2.66
2/10/22 3:22 PM	210		72.39	584.59	1,605.41	16.44				1,612.38	2.87
2/10/22 3:52 PM	240		72.40	584.84	1,605.17	16.69				1,612.26	2.99
2/10/22 4:52 PM	300		72.41	585.07	1,604.93	16.92				1,611.93	3.32
2/10/22 5:52 PM	360		72.39	585.28	1,604.72	17.13				1,611.71	3.54
2/10/22 6:52 PM	420		72.40	585.65	1,604.35	17.50				1,611.49	3.76
2/10/22 7:52 PM	480		72.43	585.84	1,604.16	17.69				1,611.31	3.94
2/10/22 8:52 PM	540		72.45	585.83	1,604.17	17.68				1,611.19	4.06
2/10/22 9:52 PM	600		72.49	586.05	1,603.95	17.90				1,610.92	4.33

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 8 - Aquifer Test (February 10, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 8 Temperature (F)	PW Well No. 8 Water Level (ft bgs)	PW Well No. 8 Water Level (ft MSL)	PW Well No. 8 Drawdown (ft)	PW Well No. 8 Pump Rate (gpm)	PW Well No. 8 Specific Capacity (gpm/ft)	Comments	OW Well No. 7 Water Level (ft MSL)	OW Well No. 7 Drawdown (ft)
2/10/22 10:52 PM	660		72.44	586.26	1,603.74	18.11				1,610.90	4.35
2/10/22 11:52 PM	720		72.51	586.22	1,603.78	18.07				1,610.77	4.48
2/11/22 12:52 AM	780		72.47	586.36	1,603.65	18.21				1,610.56	4.69
2/11/22 1:52 AM	840		72.52	586.39	1,603.61	18.24				1,610.66	4.59
2/11/22 2:52 AM	900		72.49	586.51	1,603.49	18.36				1,610.44	4.81
2/11/22 3:52 AM	960		72.45	586.56	1,603.44	18.41				1,610.48	4.77
2/11/22 4:52 AM	1,020		72.50	586.71	1,603.29	18.56				1,610.35	4.90
2/11/22 5:52 AM	1,080		72.51	586.84	1,603.16	18.69				1,610.24	5.01
2/11/22 6:52 AM	1,140		72.51	586.91	1,603.09	18.76				1,610.23	5.02
2/11/22 7:52 AM	1,200		72.49	586.98	1,603.02	18.83				1,610.14	5.11
2/11/22 8:52 AM	1,260		72.48	586.88	1,603.12	18.74				1,610.14	5.11
2/11/22 9:52 AM	1,320		72.53	586.85	1,603.15	18.70				1,610.05	5.21
2/11/22 10:52 AM	1,380		72.51	586.99	1,603.02	18.84				1,609.91	5.34
2/11/22 11:52 AM	1,440		72.50	586.95	1,603.05	18.80				1,609.98	5.27
2/11/22 12:52 PM	1,500		72.46	586.99	1,603.02	18.84				1,609.93	5.32
2/11/22 1:11 PM	1,519	0	72.59	587.01	1,602.99	18.86	12.5	0.66	Pump Stop	1,609.90	5.36
2/11/22 1:12 PM	1,520	1	72.58	583.58	1,606.42	15.43			Meter: 121,070.878 gallons	1,609.82	5.43
2/11/22 1:13 PM	1,521	2	72.53	581.99	1,608.01	13.84			Avg. Pump Rate: 12.7 gpm	1,609.88	5.37
2/11/22 1:14 PM	1,522	3	72.53	578.59	1,611.41	10.44				1,609.93	5.32
2/11/22 1:15 PM	1,523	4	72.56	576.41	1,613.59	8.26				1,609.80	5.45
2/11/22 1:16 PM	1,524	5	72.64	575.40	1,614.61	7.25				1,609.84	5.41
2/11/22 1:17 PM	1,525	6	72.80	574.71	1,615.29	6.56				1,609.88	5.37
2/11/22 1:18 PM	1,526	7	72.96	574.20	1,615.80	6.05				1,609.89	5.36
2/11/22 1:19 PM	1,527	8	73.14	574.00	1,616.00	5.85				1,609.88	5.37
2/11/22 1:20 PM	1,528	9	73.28	573.73	1,616.27	5.58				1,609.89	5.36
2/11/22 1:21 PM	1,529	10	73.41	573.48	1,616.52	5.33				1,609.92	5.33
2/11/22 1:22 PM	1,530	11	73.48	573.20	1,616.80	5.05				1,609.90	5.35
2/11/22 1:23 PM	1,531	12	73.63	573.19	1,616.81	5.04				1,609.99	5.27
2/11/22 1:24 PM	1,532	13	73.69	572.94	1,617.06	4.79				1,610.03	5.23
2/11/22 1:25 PM	1,533	14	73.78	572.92	1,617.08	4.77				1,610.04	5.21
2/11/22 1:26 PM	1,534	15	73.89	572.88	1,617.12	4.74				1,610.00	5.25
2/11/22 1:31 PM	1,539	20	73.93	572.43	1,617.57	4.29				1,610.09	5.16
2/11/22 1:36 PM	1,544	25	73.81	572.25	1,617.75	4.10				1,610.31	4.94
2/11/22 1:41 PM	1,549	30	73.82	572.06	1,617.94	3.92				1,610.46	4.79
2/11/22 1:56 PM	1,564	45	73.50	571.74	1,618.26	3.60				1,610.73	4.52

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 8 - Aquifer Test (February 10, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 8 Temperature (F)	PW Well No. 8 Water Level (ft bgs)	PW Well No. 8 Water Level (ft MSL)	PW Well No. 8 Drawdown (ft)	PW Well No. 8 Pump Rate (gpm)	PW Well No. 8 Specific Capacity (gpm/ft)	Comments	OW Well No. 7 Water Level (ft MSL)	OW Well No. 7 Drawdown (ft)
2/11/22 2:11 PM	1,579	60	73.19	571.36	1,618.64	3.21				1,611.03	4.22
2/11/22 2:26 PM	1,594	75	72.97	571.18	1,618.83	3.03				1,611.23	4.02
2/11/22 2:41 PM	1,609	90	72.87	570.96	1,619.04	2.81				1,611.43	3.82
2/11/22 2:56 PM	1,624	105	72.79	570.83	1,619.17	2.68				1,611.57	3.68
2/11/22 3:11 PM	1,639	120	72.71	570.82	1,619.18	2.67				1,611.69	3.56
2/11/22 3:41 PM	1,669	150	72.63	570.61	1,619.39	2.47				1,611.82	3.43
2/11/22 4:11 PM	1,699	180	72.53	570.45	1,619.55	2.30				1,611.99	3.26
2/11/22 4:41 PM	1,729	210	72.49	570.18	1,619.82	2.03				1,612.22	3.03
2/11/22 5:11 PM	1,759	240	72.47	570.04	1,619.96	1.90				1,612.37	2.88
2/11/22 6:11 PM	1,819	300	72.39	569.92	1,620.08	1.77				1,612.57	2.69
2/11/22 7:11 PM	1,879	360	72.35	569.72	1,620.28	1.57				1,612.66	2.60
2/11/22 8:11 PM	1,939	420	72.39	569.69	1,620.32	1.54				1,612.88	2.37
2/11/22 9:11 PM	1,999	480	72.34	569.64	1,620.36	1.49				1,613.00	2.25
2/11/22 10:11 PM	2,059	540	72.32	569.47	1,620.53	1.32				1,613.06	2.19
2/11/22 11:11 PM	2,119	600	72.34	569.37	1,620.63	1.22				1,613.12	2.13
2/12/22 12:11 AM	2,179	660	72.35	569.25	1,620.75	1.10				1,613.17	2.08
2/12/22 1:11 AM	2,239	720	72.34	569.20	1,620.81	1.05				1,613.39	1.86
2/12/22 2:11 AM	2,299	780	72.33	569.17	1,620.83	1.02				1,613.36	1.89
2/12/22 3:11 AM	2,359	840	72.39	569.13	1,620.87	0.98				1,613.44	1.81
2/12/22 4:11 AM	2,419	900	72.34	568.88	1,621.12	0.73				1,613.50	1.75
2/12/22 5:11 AM	2,479	960	72.36	568.92	1,621.08	0.77				1,613.46	1.79
2/12/22 6:11 AM	2,539	1020	72.34	568.78	1,621.22	0.63				1,613.57	1.68
2/12/22 7:11 AM	2,599	1080	72.40	568.72	1,621.28	0.57				1,613.61	1.65
2/12/22 8:11 AM	2,659	1140	72.33	568.77	1,621.23	0.62				1,613.66	1.59
2/12/22 9:11 AM	2,719	1200	72.40	568.72	1,621.29	0.57				1,613.63	1.63
2/12/22 10:11 AM	2,779	1260	72.37	568.69	1,621.31	0.54				1,613.63	1.63
2/12/22 11:11 AM	2,839	1320	72.38	568.74	1,621.27	0.59				1,613.67	1.58
2/12/22 12:11 PM	2,899	1380	72.39	568.60	1,621.40	0.46				1,613.76	1.49
2/12/22 1:11 PM	2,959	1440	72.37	568.57	1,621.43	0.43				1,613.76	1.49
2/12/22 2:11 PM	3,019	1500	72.39	568.56	1,621.44	0.41				1,613.73	1.53
2/12/22 3:11 PM	3,079	1560	72.34	568.52	1,621.48	0.37				1,613.74	1.51
2/12/22 4:11 PM	3,139	1620	72.39	568.56	1,621.44	0.41				1,613.62	1.63
2/12/22 5:11 PM	3,199	1680	72.30	568.59	1,621.41	0.44				1,613.78	1.47

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 8 - Aquifer Test (February 10, 2022)

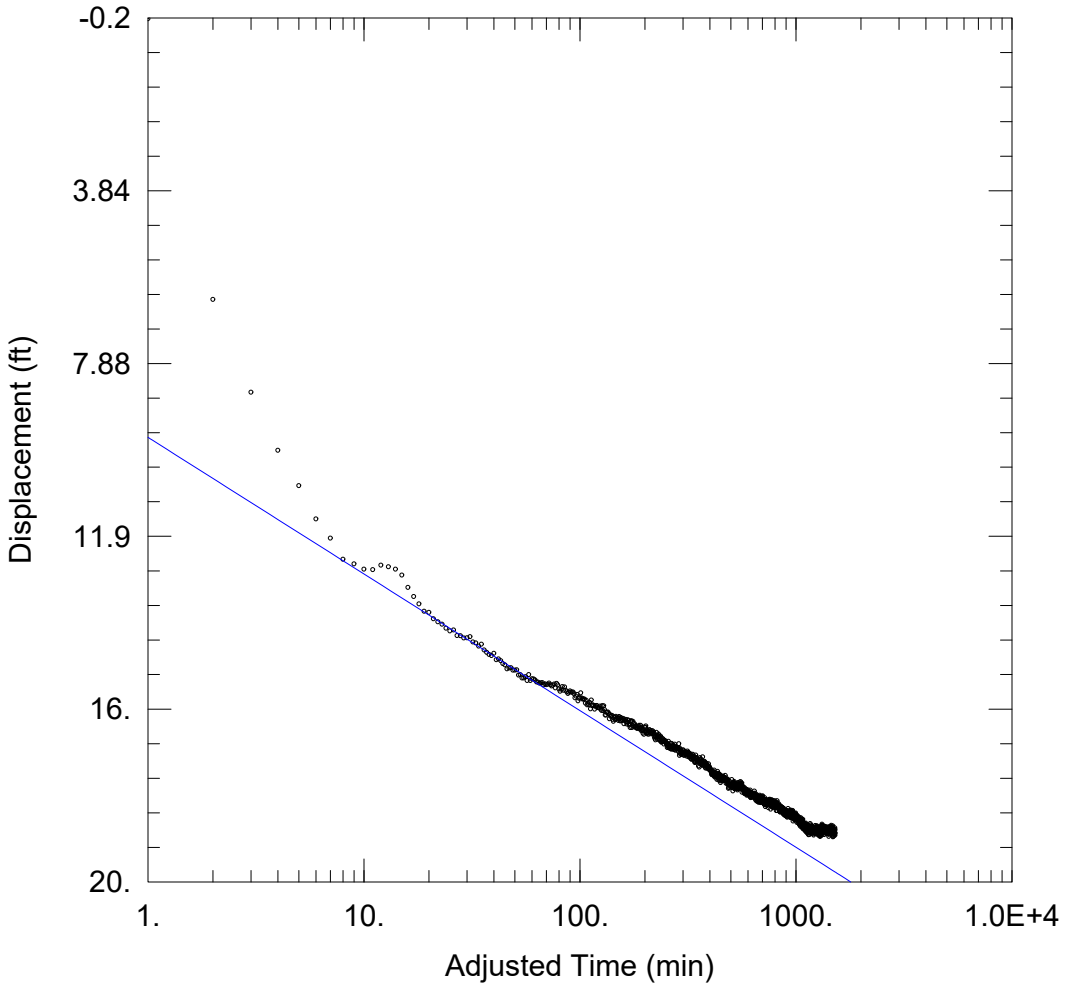
Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 8 Temperature (F)	PW Well No. 8 Water Level (ft bgs)	PW Well No. 8 Water Level (ft MSL)	PW Well No. 8 Drawdown (ft)	PW Well No. 8 Pump Rate (gpm)	PW Well No. 8 Specific Capacity (gpm/ft)	Comments	OW Well No. 7 Water Level (ft MSL)	OW Well No. 7 Drawdown (ft)
2/12/22 6:11 PM	3,259	1740	72.34	568.53	1,621.47	0.38				1,613.67	1.58
2/12/22 7:11 PM	3,319	1800	72.35	568.41	1,621.59	0.26				1,613.66	1.60
2/12/22 8:11 PM	3,379	1860	72.32	568.50	1,621.50	0.36				1,613.68	1.57
2/12/22 9:11 PM	3,439	1920	72.40	568.52	1,621.48	0.37				1,613.74	1.51
2/12/22 10:11 PM	3,499	1980	72.34	568.53	1,621.47	0.38				1,613.67	1.58
2/12/22 11:11 PM	3,559	2040	72.38	568.51	1,621.49	0.36				1,613.64	1.61
2/13/22 12:11 AM	3,619	2100	72.36	568.42	1,621.58	0.27				1,613.74	1.51
2/13/22 1:11 AM	3,679	2160	72.39	568.41	1,621.59	0.26				1,613.67	1.58
2/13/22 2:11 AM	3,739	2220	72.43	568.48	1,621.52	0.33				1,613.59	1.66
2/13/22 3:11 AM	3,799	2280	72.41	568.43	1,621.57	0.28				1,613.66	1.59
2/13/22 4:11 AM	3,859	2340	72.37	568.42	1,621.58	0.27				1,613.58	1.67
2/13/22 5:11 AM	3,919	2400	72.39	568.44	1,621.56	0.29				1,613.61	1.65
2/13/22 6:11 AM	3,979	2460	72.40	568.34	1,621.66	0.19				1,613.60	1.65
2/13/22 7:11 AM	4,039	2520	72.38	568.33	1,621.67	0.18				1,613.58	1.67
2/13/22 8:11 AM	4,099	2580	72.39	568.27	1,621.73	0.12				1,613.52	1.73
2/13/22 9:11 AM	4,159	2640	72.37	568.37	1,621.63	0.22				1,613.58	1.67
2/13/22 10:11 AM	4,219	2700	72.40	568.41	1,621.59	0.26				1,613.49	1.76
2/13/22 11:11 AM	4,279	2760	72.41	568.38	1,621.62	0.24				1,613.59	1.66
2/13/22 12:11 PM	4,339	2820	72.41	568.35	1,621.65	0.21				1,613.53	1.73
2/13/22 1:11 PM	4,399	2880	72.41	568.40	1,621.60	0.25				1,613.50	1.76
2/13/22 2:11 PM	4,459	2940	72.42	568.51	1,621.49	0.36				1,613.36	1.89
2/13/22 3:11 PM	4,519	3000	72.36	568.44	1,621.56	0.29				1,613.41	1.85
2/13/22 4:11 PM	4,579	3060	72.46	568.32	1,621.68	0.18				1,613.41	1.84
2/13/22 5:11 PM	4,639	3120	72.41	568.38	1,621.62	0.23				1,613.44	1.82
2/13/22 6:11 PM	4,699	3180	72.39	568.46	1,621.54	0.31				1,613.41	1.85
2/13/22 7:11 PM	4,759	3240	72.37	568.39	1,621.61	0.24				1,613.32	1.93
2/13/22 8:11 PM	4,819	3300	72.39	568.46	1,621.55	0.31				1,613.37	1.88
2/13/22 9:11 PM	4,879	3360	72.36	568.43	1,621.57	0.28				1,613.23	2.02
2/13/22 10:11 PM	4,939	3420	72.39	568.42	1,621.58	0.27				1,613.23	2.02
2/13/22 11:11 PM	4,999	3480	72.42	568.46	1,621.54	0.32				1,613.25	2.01

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 8 - Aquifer Test (February 10, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 8 Temperature (F)	PW Well No. 8 Water Level (ft bgs)	PW Well No. 8 Water Level (ft MSL)	PW Well No. 8 Drawdown (ft)	PW Well No. 8 Pump Rate (gpm)	PW Well No. 8 Specific Capacity (gpm/ft)	Comments	OW Well No. 7 Water Level (ft MSL)	OW Well No. 7 Drawdown (ft)
2/14/22 12:11 AM	5,059	3540	72.41	568.41	1,621.60	0.26				1,613.18	2.08
2/14/22 1:11 AM	5,119	3600	72.45	568.45	1,621.56	0.30				1,613.21	2.05
2/14/22 2:11 AM	5,179	3660	72.38	568.45	1,621.55	0.31				1,613.21	2.04
2/14/22 3:11 AM	5,239	3720	72.39	568.40	1,621.60	0.25				1,613.17	2.08
2/14/22 4:11 AM	5,299	3780	72.40	568.38	1,621.62	0.23				1,613.22	2.04
2/14/22 5:11 AM	5,359	3840	72.43	568.39	1,621.61	0.25				1,613.24	2.01
2/14/22 6:11 AM	5,419	3900	72.40	568.41	1,621.59	0.26				1,613.13	2.12
2/14/22 7:11 AM	5,479	3960	72.38	568.35	1,621.65	0.21				1,613.14	2.12
2/14/22 8:11 AM	5,539	4020	72.42	568.32	1,621.68	0.18				1,613.15	2.10
2/14/22 9:11 AM	5,599	4080	72.42	568.31	1,621.70	0.16				1,613.18	2.07
2/14/22 9:25 AM	5,613	4094	72.37	568.25	1,621.75	0.11				1,613.12	2.13

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 640 ft EC=Electrical conductivity (mS/cm)



WELL TEST ANALYSIS

Data Set: \...\PW 8.aqt
Date: 02/23/22 Time: 12:36:56

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 8
Test Date: 2-10-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

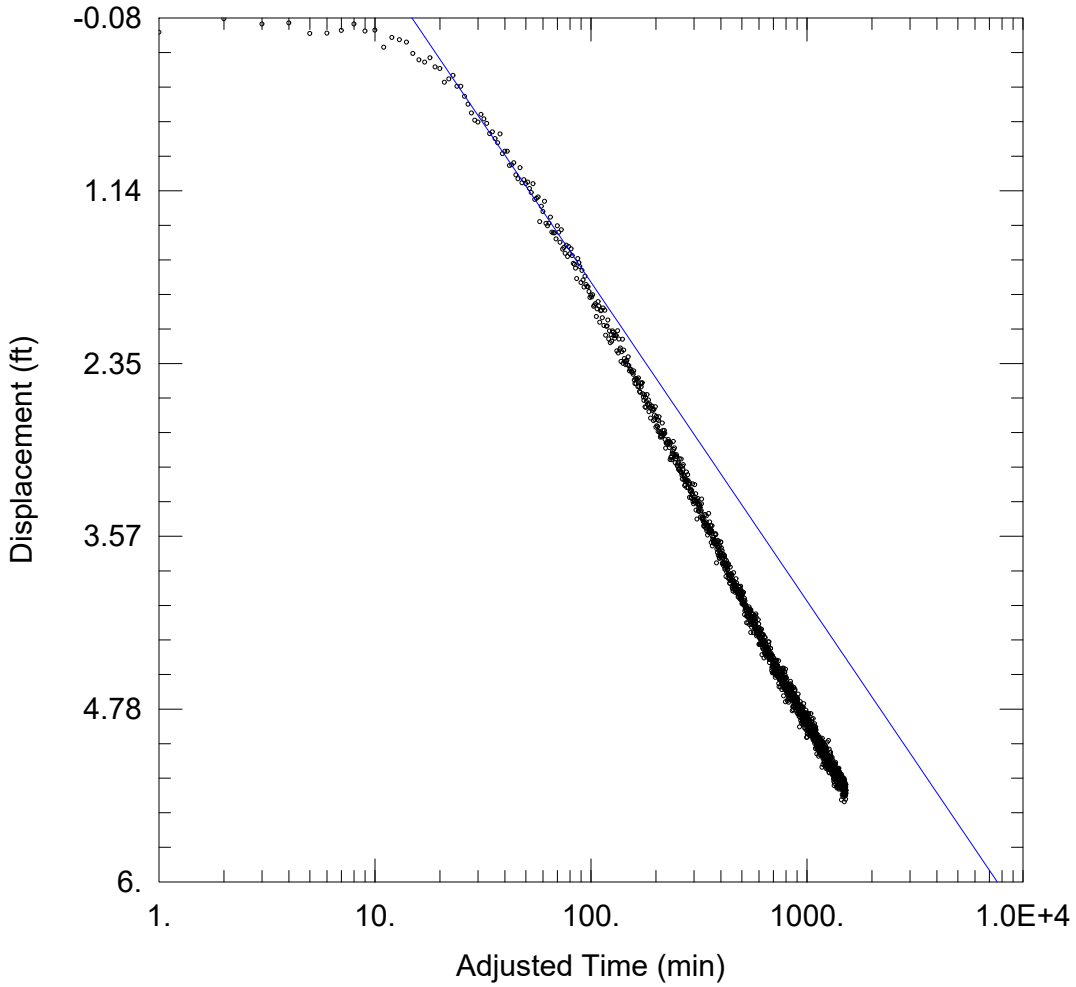
Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 8	0	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 140.2 ft^2/day



WELL TEST ANALYSIS

Data Set: \...\OW 7.aqt
Date: 02/24/22 Time: 13:08:10

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 8
Test Date: 2-10-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 8	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
◦ Well No. 7	457	0

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Jacob
T = 199.7 ft^2/day
S = 2.401E-5

Aquifer Test

Well No. 9

Hideout Well No. 9 - Aquifer Test (February 15, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 9 Temperature (F)	PW Well No. 9 Water Level (ft bgs)	PW Well No. 9 Water Level (ft MSL)	PW Well No. 9 Drawdown (ft)	PW Well No. 9 Pump Rate (gpm)	PW Well No. 9 Specific Capacity (gpm/ft)	Comments	OW Well No. 7 Water Level (ft MSL)	OW Well No. 7 Drawdown (ft)
2/15/22 11:05 AM	0		70.71	568.27	1,621.73	0.00			Pump Start	1,619.58	0.00
2/15/22 11:06 AM	1		71.07	584.78	1,605.22	16.51			Meter: 121,238.328 gallons	1,619.60	-0.02
2/15/22 11:07 AM	2		71.35	597.54	1,592.46	29.27	13.0	0.44		1,619.66	-0.08
2/15/22 11:08 AM	3		71.57	607.65	1,582.35	39.38				1,619.65	-0.07
2/15/22 11:09 AM	4		71.68	616.28	1,573.72	48.01				1,619.60	-0.02
2/15/22 11:10 AM	5		71.90	624.21	1,565.79	55.94				1,619.56	0.02
2/15/22 11:11 AM	6		71.92	631.21	1,558.79	62.94				1,619.58	0.00
2/15/22 11:12 AM	7		72.01	638.15	1,551.85	69.88				1,619.61	-0.03
2/15/22 11:13 AM	8		72.12	644.46	1,545.54	76.19				1,619.55	0.03
2/15/22 11:14 AM	9		72.19	650.50	1,539.50	82.23				1,619.57	0.01
2/15/22 11:15 AM	10		72.28	656.41	1,533.59	88.14				1,619.53	0.05
2/15/22 11:16 AM	11		72.36	659.11	1,530.89	90.85				1,619.45	0.13
2/15/22 11:17 AM	12		72.42	659.09	1,530.91	90.82				1,619.39	0.19
2/15/22 11:18 AM	13		72.45	659.11	1,530.90	90.84				1,619.46	0.12
2/15/22 11:19 AM	14		72.49	659.10	1,530.90	90.83				1,619.45	0.13
2/15/22 11:20 AM	15		72.55	659.05	1,530.95	90.78				1,619.39	0.19
2/15/22 11:25 AM	20		72.62	659.02	1,530.98	90.75				1,619.29	0.29
2/15/22 11:30 AM	25		72.70	659.03	1,530.97	90.76				1,619.20	0.38
2/15/22 11:35 AM	30		72.72	659.12	1,530.88	90.85				1,619.14	0.44
2/15/22 11:50 AM	45		72.86	651.21	1,538.79	82.94	9.0	0.11		1,618.85	0.73
2/15/22 12:05 PM	60		72.79	648.95	1,541.05	80.68				1,618.70	0.88
2/15/22 12:20 PM	75		72.80	648.95	1,541.05	80.68				1,618.56	1.03
2/15/22 12:35 PM	90		72.81	655.04	1,534.96	86.77	7.0	0.08		1,618.46	1.12
2/15/22 12:50 PM	105		72.84	627.25	1,562.75	58.98				1,618.50	1.08
2/15/22 1:05 PM	120		72.84	627.19	1,562.82	58.92	7.0	0.12	pH: 7.65 / EC: 0.85	1,618.38	1.20
2/15/22 1:35 PM	150		72.80	627.07	1,562.93	58.80				1,618.28	1.30
2/15/22 2:05 PM	180		72.82	628.17	1,561.83	59.90				1,618.28	1.30
2/15/22 2:35 PM	210		72.82	630.34	1,559.66	62.07				1,618.18	1.40
2/15/22 3:05 PM	240		72.78	628.19	1,561.81	59.92				1,618.14	1.44
2/15/22 4:05 PM	300		72.77	627.96	1,562.04	59.69				1,617.93	1.65
2/15/22 5:05 PM	360		72.77	630.67	1,559.33	62.40				1,617.83	1.75
2/15/22 6:05 PM	420		72.77	636.34	1,553.66	68.08				1,617.65	1.93
2/15/22 7:05 PM	480		72.76	636.21	1,553.79	67.94				1,617.63	1.95
2/15/22 8:05 PM	540		72.75	642.19	1,547.81	73.92				1,617.56	2.02
2/15/22 9:05 PM	600		72.77	640.55	1,549.46	72.28				1,617.49	2.09

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 660 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 9 - Aquifer Test (February 15, 2022)

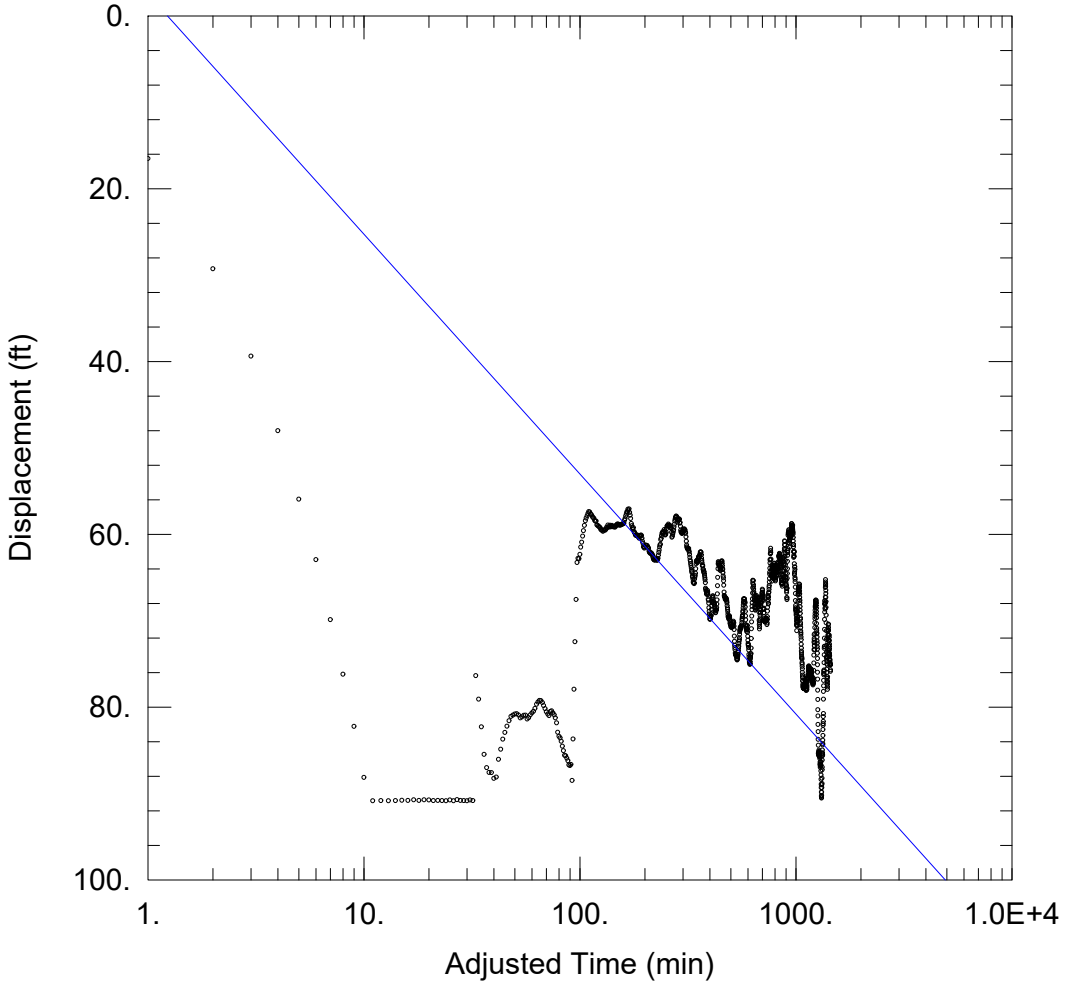
Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 9 Temperature (F)	PW Well No. 9 Water Level (ft bgs)	PW Well No. 9 Water Level (ft MSL)	PW Well No. 9 Drawdown (ft)	PW Well No. 9 Pump Rate (gpm)	PW Well No. 9 Specific Capacity (gpm/ft)	Comments	OW Well No. 7 Water Level (ft MSL)	OW Well No. 7 Drawdown (ft)
2/15/22 10:05 PM	660		72.74	635.98	1,554.02	67.71				1,617.30	2.28
2/15/22 11:05 PM	720		72.71	638.25	1,551.75	69.98				1,617.05	2.53
2/16/22 12:05 AM	780		72.71	631.84	1,558.16	63.57				1,617.02	2.56
2/16/22 1:05 AM	840		72.77	630.48	1,559.52	62.21				1,616.86	2.72
2/16/22 2:05 AM	900		72.77	633.63	1,556.37	65.36				1,616.78	2.80
2/16/22 3:05 AM	960		72.75	627.20	1,562.80	58.93				1,616.71	2.87
2/16/22 4:05 AM	1,020		72.75	637.78	1,552.23	69.51				1,616.61	2.97
2/16/22 5:05 AM	1,080		72.76	645.86	1,544.14	77.59				1,616.59	2.99
2/16/22 6:05 AM	1,140		72.73	644.54	1,545.46	76.27				1,616.58	3.00
2/16/22 7:05 AM	1,200		72.73	645.61	1,544.39	77.34				1,616.64	2.94
2/16/22 8:05 AM	1,260		72.74	643.37	1,546.63	75.10				1,616.53	3.05
2/16/22 9:05 AM	1,320		72.82	657.27	1,532.73	89.00				1,616.55	3.03
2/16/22 10:05 AM	1,380		72.69	636.75	1,553.25	68.48				1,616.51	3.07
2/16/22 11:05 AM	1,440		72.71	643.23	1,546.78	74.96				1,616.37	3.21
2/16/22 11:12 AM	1,447	0	72.74	644.12	1,545.88	75.85	9.5	0.13	Pump Stop	1,616.37	3.21
2/16/22 11:13 AM	1,448	1	72.71	628.37	1,561.64	60.10			Meter: 133,900.002 gallons	1,616.47	3.11
2/16/22 11:14 AM	1,449	2	72.80	615.46	1,574.54	47.19			Avg. Pump Rate: 9 gpm	1,616.34	3.24
2/16/22 11:15 AM	1,450	3	72.88	605.21	1,584.79	36.94				1,616.39	3.19
2/16/22 11:16 AM	1,451	4	73.10	596.93	1,593.07	28.66				1,616.28	3.30
2/16/22 11:17 AM	1,452	5	73.23	590.55	1,599.45	22.28				1,616.37	3.21
2/16/22 11:18 AM	1,453	6	73.39	585.85	1,604.15	17.59				1,616.36	3.22
2/16/22 11:19 AM	1,454	7	73.52	582.25	1,607.75	13.98				1,616.42	3.16
2/16/22 11:20 AM	1,455	8	73.64	579.59	1,610.41	11.33				1,616.43	3.15
2/16/22 11:21 AM	1,456	9	73.75	577.88	1,612.12	9.61				1,616.38	3.20
2/16/22 11:22 AM	1,457	10	73.86	576.58	1,613.42	8.31				1,616.45	3.13
2/16/22 11:23 AM	1,458	11	73.89	575.94	1,614.06	7.67				1,616.42	3.16
2/16/22 11:24 AM	1,459	12	74.00	575.38	1,614.62	7.12				1,616.44	3.14
2/16/22 11:25 AM	1,460	13	73.97	575.08	1,614.92	6.81				1,616.47	3.11
2/16/22 11:26 AM	1,461	14	74.06	574.90	1,615.10	6.63				1,616.47	3.11
2/16/22 11:27 AM	1,462	15	74.08	574.71	1,615.29	6.44				1,616.43	3.15
2/16/22 11:32 AM	1,467	20	74.10	574.29	1,615.71	6.02				1,616.63	2.95
2/16/22 11:37 AM	1,472	25	73.89	574.15	1,615.85	5.88				1,616.77	2.81
2/16/22 11:42 AM	1,477	30	73.63	574.02	1,615.98	5.75				1,616.77	2.82
2/16/22 11:57 AM	1,492	45	73.12	573.67	1,616.33	5.40				1,617.03	2.55
2/16/22 12:12 PM	1,507	60	72.89	573.39	1,616.61	5.12				1,617.14	2.44

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 660 ft EC=Electrical conductivity (mS/cm)

Hideout Well No. 9 - Aquifer Test (February 15, 2022)

Date and Time	Time Since Pump Start (min)	Time Since Pump Stop (min)	PW Well No. 9 Temperature (F)	PW Well No. 9 Water Level (ft bgs)	PW Well No. 9 Water Level (ft MSL)	PW Well No. 9 Drawdown (ft)	PW Well No. 9 Pump Rate (gpm)	PW Well No. 9 Specific Capacity (gpm/ft)	Comments	OW Well No. 7 Water Level (ft MSL)	OW Well No. 7 Drawdown (ft)
2/16/22 12:27 PM	1,522	75	72.75	573.38	1,616.62	5.11				1,617.31	2.27
2/16/22 12:42 PM	1,537	90	72.73	573.26	1,616.74	4.99				1,617.27	2.31
2/16/22 12:57 PM	1,552	105	72.71	573.06	1,616.94	4.79				1,617.37	2.21
2/16/22 1:12 PM	1,567	120	72.65	573.10	1,616.90	4.83				1,617.46	2.12
2/16/22 1:42 PM	1,597	150	72.68	572.87	1,617.13	4.61				1,617.63	1.95
2/16/22 2:12 PM	1,627	180	72.62	572.86	1,617.14	4.59				1,617.65	1.93
2/16/22 2:42 PM	1,657	210	72.59	572.61	1,617.39	4.34				1,617.73	1.85
2/16/22 3:12 PM	1,687	240	72.56	572.66	1,617.35	4.39				1,617.81	1.77
2/16/22 4:12 PM	1,747	300	72.55	572.40	1,617.61	4.13				1,617.99	1.59
2/16/22 5:12 PM	1,807	360	72.55	572.32	1,617.68	4.05				1,618.10	1.48
2/16/22 6:12 PM	1,867	420	72.57	572.26	1,617.75	3.99				1,618.13	1.45
2/16/22 7:12 PM	1,927	480	72.61	572.04	1,617.96	3.77				1,618.20	1.38
2/16/22 8:12 PM	1,987	540	72.61	572.03	1,617.97	3.76				1,618.26	1.32
2/16/22 9:12 PM	2,047	600	72.61	572.00	1,618.00	3.73				1,618.31	1.27
2/16/22 10:12 PM	2,107	660	72.57	571.97	1,618.04	3.70				1,618.35	1.23
2/16/22 11:12 PM	2,167	720	72.58	571.98	1,618.02	3.71				1,618.35	1.23
2/17/22 12:12 AM	2,227	780	72.58	571.88	1,618.12	3.61				1,618.31	1.27
2/17/22 1:12 AM	2,287	840	72.61	571.92	1,618.08	3.65				1,618.38	1.20
2/17/22 2:12 AM	2,347	900	72.56	571.87	1,618.14	3.60				1,618.43	1.15
2/17/22 3:12 AM	2,407	960	72.52	571.83	1,618.17	3.56				1,618.39	1.19
2/17/22 4:12 AM	2,467	1020	72.53	571.64	1,618.36	3.37				1,618.50	1.08
2/17/22 5:12 AM	2,527	1080	72.55	571.68	1,618.32	3.41				1,618.54	1.04
2/17/22 6:12 AM	2,587	1140	72.60	571.58	1,618.42	3.31				1,618.55	1.03
2/17/22 7:12 AM	2,647	1200	72.57	571.60	1,618.40	3.33				1,618.70	0.88
2/17/22 8:12 AM	2,707	1260	72.56	571.50	1,618.50	3.23				1,618.63	0.95
2/17/22 9:12 AM	2,767	1320	72.57	571.57	1,618.43	3.31				1,618.67	0.91
2/17/22 10:12 AM	2,827	1380	72.60	571.46	1,618.54	3.19				1,618.66	0.92
2/17/22 11:12 AM	2,887	1440	72.60	571.45	1,618.55	3.18				1,618.58	1.00
2/17/22 11:16 AM	2,891	1444	72.56	571.39	1,618.62	3.12				1,618.76	0.82

Note: bgs = below ground surface Column Pipe Diameter = 1 1/4 inches Horsepower = 5 HP
MSL = Mean Sea Level Pump Setting = 660 ft EC=Electrical conductivity (mS/cm)



WELL TEST ANALYSIS

Data Set: \...\PW 9.aqt
Date: 02/24/22 Time: 16:09:28

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 9
Test Date: 2-15-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

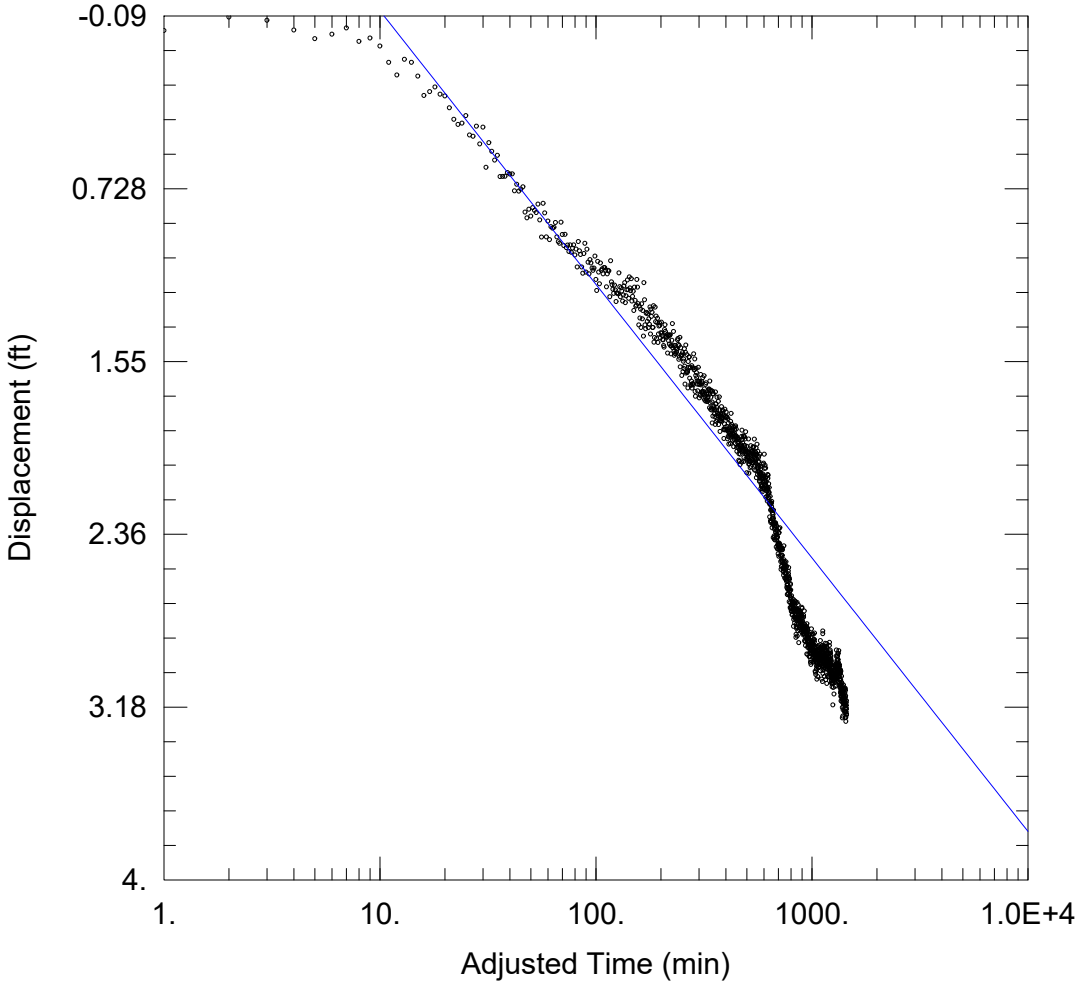
Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 9	0	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 11.43 ft^2/day



WELL TEST ANALYSIS

Data Set: \...\OW 7.aqt
Date: 02/24/22 Time: 16:05:13

PROJECT INFORMATION

Company: Wet Rock Groundwater Services
Location: Kerr County
Test Well: Well No. 9
Test Date: 2-15-22

AQUIFER DATA

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
Well No. 9	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
◦ Well No. 7	368	0

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Jacob

T = 245.1 ft^2/day
S = 3.46E-5

Appendix E

Well Efficiency Calculation

Well Efficiency

Well No. 1

Wet Rock Groundwater Services, L.L.C.
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734 • Ph: 512-773-3226
www.wetrockgs.com

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 = 13 gpm / 23.3 ft. = 0.56 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, = 1.1 X 10^{-4}
r = radius of well, in ft.

Theoretical Specific Capacity: $\frac{1{,}936.6}{264 \log \frac{(0.3)*(1936.6)*(1)}{(0.1875)2\ (0.00011)}}$ **= 0.90**

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.56 / 0.90 = **62%**

Well Efficiency

Well No. 2

Wet Rock Groundwater Services, L.L.C.
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734 • Ph: 512-773-3226
www.wetrockgs.com

Well Efficiency Calculations
Well No. 2

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 = 12.5 gpm / 41.3 ft. = 0.3 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, = 4.9 X 10^{-5}
r = radius of well, in ft.

Theoretical Specific Capacity: $\frac{574.6}{264 \log \frac{(0.3)*(574.6)*(1)}{(0.1875)2\ (0.000049)}}$ **= 0.27**

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.3 / 0.27 **= 111%**

Well Efficiency

Well No. 4

Wet Rock Groundwater Services, L.L.C.
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734 • Ph: 512-773-3226
www.wetrockgs.com

Well Efficiency Calculations
Well No. 4

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 = 10.5 gpm / 11.1 ft. = 0.95 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, = 5.8 X 10^{-5}
r = radius of well, in ft.

Theoretical Specific Capacity: $\frac{2{,}882.0}{264 \log \frac{(0.3)*(2882)*(1)}{(0.1875)2\ (0.000058)}}$ **= 1.27**

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.95 / 1.27 = **75%**

Well Efficiency

Well No. 6

Wet Rock Groundwater Services, L.L.C.
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734 • Ph: 512-773-3226
www.wetrockgs.com

Well Efficiency Calculations
Well No. 6

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 = 10.5 gpm / 11.6 ft. = 0.91 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, = 1.7 X 10^{-5}
r = radius of well, in ft.

Theoretical Specific Capacity: $\frac{2{,}410.9}{264 \log \frac{(0.3)*(2410.9)*(1)}{(0.1875)2\ (0.000017)}}$ **= 1.01**

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.91 / 1.01 = **90%**

Well Efficiency

Well No. 8

Wet Rock Groundwater Services, L.L.C.
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734 • Ph: 512-773-3226
www.wetrockgs.com

Well Efficiency Calculations
Well No. 8

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 = 12.5 gpm / 18.9 ft. = 0.66 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, = 2.4 X 10^{-5}
r = radius of well, in ft.

Theoretical Specific Capacity: $\frac{1{,}049.1}{264 \log \frac{(0.3)*(1049.1)*(1)}{(0.1875)2\ (0.000024)}}$ **= 0.46**

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.66 / 0.46 = **143%**

Well Efficiency

Well No. 9

Wet Rock Groundwater Services, L.L.C.
Groundwater Specialists
TBPG Firm No: 50038
317 Ranch Road 620 South, Suite 203
Austin, Texas 78734 • Ph: 512-773-3226
www.wetrockgs.com

Well Efficiency Calculations
Well No. 9

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 = 9.5 gpm / 75.9 ft. = 0.13 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, = 3.5 X 10^{-5}
r = radius of well, in ft.

Theoretical Specific Capacity: $\frac{85.5}{264 \log \frac{(0.3)*(85.51)*(1)}{(0.1875)2\ (0.000035)}}$ **= 0.04**

Efficiency = Actual Specific Capacity / Theoretical Specific Capacity = 0.13 / 0.04 = **325%**

Appendix F

Water Quality Report

Water Quality

Well No. 1

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #1** **Matrix: Drinking Water** **Date/Time Taken: 02/07/2022 1716**	**PCS Sample #: 666307** **Page 1 of 2** **Date/Time Received: 02/08/2022 08:06** **Report Date: 02/17/2022** **Approved by:** Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH	!, I	7.1	S.U.	N/A	02/11/2022 15:11	SM 4500-H+ B	JHA
Chloride_IC		19	mg/L	2	02/08/2022 14:21	EPA 300.0	JAS
Conductivity, Specific		695	µmhos/cm at 25° C	1	02/11/2022 12:29	SM 2510B	PML
Nitrate-N_IC		<0.2	mg/L	0.2	02/08/2022 14:21	EPA 300.0	JAS
Sulfate_IC		78	mg/L	2	02/08/2022 14:21	EPA 300.0	JAS
Total Dissolved Solids		404	mg/L	10	02/08/2022 12:45	SM 2540C	JHA
Total Hardness as CaCO3		330	mg/L	5	02/11/2022 16:30	SM 2340C	PML
Fluoride_IC		1.95	mg/L	0.20	02/08/2022 14:21	EPA 300.0	JAS

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
pH	N/A	N/A	N/A			N/A		
Chloride_IC	<1	10	95	96	96	102	98	85 - 115
Conductivity, Specific	N/A	N/A	N/A			N/A		
Nitrate-N_IC	1	20	70	98	98	130	104	85 - 115
Sulfate_IC	1	10	91	98	97	101	99	85 - 115
Total Dissolved Solids	<1	10	N/A	N/A	N/A	N/A		
Total Hardness as CaCO3	<1	10	70	106	106	120	100	85 - 115
Fluoride_IC	1	10	89	93	93	105	94	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

! Not NELAP Certifiable Parameter
I Informational purposes only - pH outside hold time

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #1** **Matrix: Drinking Water** **Date/Time Taken: 02/07/2022 1716**	**PCS Sample #: 666307 Page 2 of 2** **Date/Time Received: 02/08/2022 08:06** **Report Date: 02/17/2022**

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Iron/ICP (Total)	0.200	mg/L	0.010	02/16/2022 14:25	EPA 200.7 / 6010 B	DJL
Manganese/ICP (Total)	0.012	mg/L	0.010	02/16/2022 14:25	EPA 200.7 / 6010 B	DJL

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
Iron/ICP (Total)	<1	20	75	94	94	125	100	85 - 115
Manganese/ICP (Total)	<1	20	75	96	96	125	100	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 666307

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION	REPORT INFORMATION		
Name: TEXAN Water	Attention:	Phone:	Fax:

SAMPLE INFORMATION

Project Information: Hideout

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis: See Attached

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Container Number	Preservative	PCS Sample Number
well #1	Start: 2/7 End: 2/7	Start: 5:15pm End: 5:16pm		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	666307 ☐S ☐B ☒N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) ***EXPEDITE:*** (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ______ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up **Container Type:** P = Plastic, G = Glass, O = Other Carrier ID:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Andrew Martinez	8:05		[signature]	2/8/22	0806
	8:06				

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

ReportName: rptManageClientProjects_Tests

Drop Down

Liquid: Yes SampleID: 665980 txtEditProjectID

txtEditProjectID

	Abbr	Parameter	Method	Reporting Limit
2079	Cl_IC	Chloride_IC	EPA 300.0	1
254	SPCOND	Conductivity, Specific	SM 2510B	1
2078	F_IC	Fluoride_IC	EPA 300.0	0.10
258	Fe/ICP	Iron/ICP (Total)	EPA 200.7 / 6010 B	0.010
230	Mn/ICP	Manganese/ICP (Total)	EPA 200.7 / 6010 B	0.010
1761	NO3N_IC	Nitrate-N_IC	EPA 300.0	0.1
101	PH	pH	SM 4500-H+ B	N/A
2081	SO4_IC	Sulfate_IC	EPA 300.0	1
256	TDS	Total Dissolved Solids	SM 2540C	10
271	THard	Total Hardness as CaCO3	SM 2340C	5

Count 10

Pollution Control Services
Sample Log-In Checklist

PCS Sample No(s) 666307 **COC No.** 666307

Client/Company Name: Texan Hw **Checklist Completed by:** GWF

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: ____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ___
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ___ Broken ___
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ___
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ___ Broken ___
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ___
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ___
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ___
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ___
All Samples Received before Hold Time Expiration? Yes ✓ No ___
Sufficient Sample Volumes for Analysis Requested? Yes ___ No ___
Zero Headspace in VOA Vial? Yes ___ No ___

Sample Preservation:
* ***Cooling:*** **Not Required** _____ or **Required** ✓
If cooling required, record temperature of submitted samples Observed/Corrected 4 / 2 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ____ Yes ✓ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: ____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____ ** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: ____ If Present, Meets Requirements? Yes____ No____
Sample Preservations Checked by: ____ Date ____ Time ____
pH paper used to check sample preservation (PCS log #): ____ (HEM pH checked at analysis).
Samples Preserved/Adjusted by Lab:

Lab #	Parameters Preserved	Preservative Used	Log #
____	Metals	HNO_3	01611706
____	____	____	____
____	____	____	____

Adjusted by Tech/Analyst: GWF Date: 2/1/19 Time: 0800

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: ____ Contacted by: ____
Notified Date: ____ Time: ____
Method of Contact: At Drop Off: ____ Phone ___ Left Voice Mail ___ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed : ____ (Lab Director)
Regarding / Comments: ____
Actions taken to correct problems/discrepancies: ____
Receiving qualifier needed (*requires client notification above*) Temp. ___ Holding Time ___ Initails: ____
Receiving qualifier entered into LIMS at login Initial/Date: ____
Revision Comments: ____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #1** **Matrix: Drinking Water** **Date/Time Taken: 02/07/2022 1711**	**PCS Sample #: 666308 Page 1 of 1** **Date/Time Received: 02/08/2022 08:01** **Report Date: 02/09/2022** **Approved by:** Chuck Wallgren, President

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
E. coli. (Enumeration-MPN)	0	CFU/100ml	1	02/08/2022 08:40	9223 IDEXX Quanti-Tray	JHA
Total Coliform (Enumeration)	2	CFU/100ml	1	02/08/2022 08:40	9223 IDEXX Quanti-Tray	JHA

Sample passed / failed criteria for bacteriological test.
Sample of satisfactory bacteriological quality should be free from Coliform organisms.
Coliform Organisms
- X Not Found
- ___ Found
  - ___ Total
  - ___ Fecal (E.Coli)
  - ___ Repeat Samples Required / Recommended (Circle One)
- ___ Unsuitable - See Below
- ___ Other reason: _____

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 666308

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION
Name: Texan Water

REPORT INFORMATION
Attention: | Phone: | Fax:

SAMPLE INFORMATION

Project Information: Hideout
Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis: Bac-T

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Container Number	Preservative	Requested Analysis	PCS Sample Number
Well #1	Start: 2/07 End: 2/07	Start: 5:10pm End: 5:11pm		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	Bac-T	666308 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐		☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) *EXPEDITE*: (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ________ *Rush Charges Authorized by:*

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up **Container Type:** P = Plastic, G = Glass, O = Other Carrier ID:

Relinquished By:	Andrew Martinez	Date:	2/8	Time:	8:01	Received By:	[signature]	Date:	2/8/22	Time:	0801
Relinquished By:		Date:		Time:		Received By:		Date:		Time:	

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

Pollution Control Services

Sample Log-In Checklist

666308 666308

PCS Sample No(s) 666308 **COC No.** _____

Client/Company Name: Texas H2O **Checklist Completed by:** [illegible]

Sample Delivery to Lab Via:

Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____

PCS Field Services: Collection/Pick Up____ Other: _____

Sample Kit/Coolers

Sample Kit/Cooler? Yes ✓ No____ Sample Kit/Cooler: Intact? Yes ✓ No___

Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ___ Broken ___

Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ___

Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ___ Broken ___

COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ___

Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____

Has COC been properly Signed when Received/Relinquished? Yes ✓ No ___

Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ___

All Samples Received before Hold Time Expiration? Yes ✓ No ___

Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ___

Zero Headspace in VOA Vial? Yes ___ No ___

Sample Preservation:

* *Cooling:* **Not Required** _____ or **Required** ✓

If cooling required, record temperature of submitted samples Observed/Corrected 4 / 2 °C

Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ____ Yes ✓ No

Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: _____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____** ____H_2SO_4 ____HNO_3 ____H_3PO_4

Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH

Other Preservation:_____ If Present, Meets Requirements? Yes____ No____

Sample Preservations Checked by:_____ Date _____ Time _____

pH paper used to check sample preservation (PCS log #): _____ (HEM pH checked at analysis).

Samples Preserved/Adjusted by Lab:	Lab #	Parameters Preserved	Preservative Used	Log #

Adjusted by Tech/Analyst:_____ Date :_____Time:_____

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments

Person Notified: _____ Contacted by:_____

Notified Date: _____Time: _____

Method of Contact: At Drop Off:____ Phone ___ Left Voice Mail ____ E-Mail ____ Fax ____

Unable to Contact____ Authorized Laboratory to Proceed :_____(Lab Director)

Regarding / Comments:_____

_____

_____

Actions taken to correct problems/discrepancies:_____

_____

_____

Receiving qualifier needed (*requires client notification above*) Temp. ___ Holding Time ___ Initails: _____

Receiving qualifier entered into LIMS at login Initial/Date: _____

Revision Comments: _____

_____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

Water Quality

Well No. 2

POLLUTION CONTROL SERVICES

REVISED [1]

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #2** **Matrix: Drinking Water** **Date/Time Taken: 02/02/2022 1416**	**PCS Sample #: 665980 Page 1 of 2** **Date/Time Received: 02/03/2022 08:09** **Report Date: 03/01/2022** **Approved by:** Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH	!, I	7.7	S.U.	N/A	02/11/2022 13:31	SM 4500-H+ B	JHA
Chloride_IC		18	mg/L	2	02/03/2022 13:24	EPA 300.0	JAS
Conductivity, Specific		694	µmhos/cm at 25° C	1	02/06/2022 11:37	SM 2510B	PML
Nitrate-N_IC		<0.2	mg/L	0.2	02/03/2022 13:24	EPA 300.0	JAS
Sulfate_IC		74	mg/L	2	02/03/2022 13:24	EPA 300.0	JAS
Total Dissolved Solids		290	mg/L	10	02/03/2022 14:40	SM 2540C	JHA
Total Hardness as CaCO3		340	mg/L	5	02/06/2022 10:30	SM 2340C	PML
Fluoride_IC		1.80	mg/L	0.20	02/03/2022 13:24	EPA 300.0	JAS

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
pH	N/A	N/A	N/A			N/A		
Chloride_IC	<1	10	95	96	96	102	101	85 - 115
Conductivity, Specific	N/A	N/A	N/A			N/A		
Nitrate-N_IC	<1	20	70	99	99	130	104	85 - 115
Sulfate_IC	1	10	91	97	96	101	106	85 - 115
Total Dissolved Solids	<1	10	N/A	N/A	N/A	N/A		
Total Hardness as CaCO3	<1	10	70	102	102	120	100	85 - 115
Fluoride_IC	1	10	89	91	92	105	95	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

! Not NELAP Certifiable Parameter
I Informational purposes only - pH outside hold time

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

1 - See Sample LogIn Checklist Comments for Revision Information

Web Site: www.pcslab.net **Toll Free 800-880-4616** **1532 Universal City Blvd, Suite 100** **210-340-0343** **FAX # 210-658-7903**
eMail: chuck@pcslab.net **Universal City, TX 78148-3318**

POLLUTION CONTROL SERVICES

REVISED [1]

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #2** **Matrix: Drinking Water** **Date/Time Taken: 02/02/2022 1416**	**PCS Sample #: 665980 Page 2 of 2** **Date/Time Received: 02/03/2022 08:09** **Report Date: 03/01/2022**

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Iron/ICP (Total)	2.70	mg/L	0.010	02/09/2022 12:42	EPA 200.7 / 6010 B	DJL
Manganese/ICP (Total)	0.073	mg/L	0.010	02/09/2022 12:42	EPA 200.7 / 6010 B	DJL

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
Iron/ICP (Total)	<1	20	75	94	94	125	100	85 - 115
Manganese/ICP (Total)	<1	20	75	96	96	125	105	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

1 - See Sample LogIn Checklist Comments for Revision Information

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 665980

Stamp 1st sample and COC as same number

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

CUSTOMER INFORMATION

Name: Texan water

REPORT INFORMATION

Attention: CHRIS | Phone: | Fax:

SAMPLE INFORMATION

Project Information: Hideout

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Matrix: DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste

Requested Analysis: See Attached

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix	Container Type	Container Number	Preservative	PCS Sample Number
Well #2	Start: 2/2 End:	Start: 2:16 End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	665980 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) *EXPEDITE*: (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ________ *Rush Charges Authorized by:*

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up **Container Type:** P = Plastic, G = Glass, O = Other Carrier ID:

Relinquished By:	Andrew	Date:	2/3	Time:	8:09	Received By:	[signature]	Date: 2/3/22	Time: 0809
Relinquished By:		Date:		Time:		Received By:		Date:	Time:

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

ReportName: rptManageClientProjects_Tests

Drop Down

Liquid: Yes SampleID: 665356 txtEditProjectID

txtEditProjectID

	Abbr	Parameter	Method	Reporting Limit
2079	Cl_IC	Chloride_IC	EPA 300.0	1
254	SPCOND	Conductivity, Specific	SM 2510B	1
2078	F_IC	Fluoride_IC	EPA 300.0	0.10
258	Fe/ICP	Iron/ICP (Total)	EPA 200.7 / 6010 B	0.010
230	Mn/ICP	Manganese/ICP (Total)	EPA 200.7 / 6010 B	0.010
1761	NO3N_IC	Nitrate-N_IC	EPA 300.0	0.1
101	PH	pH	SM 4500-H+ B	N/A
2081	SO4_IC	Sulfate_IC	EPA 300.0	1
256	TDS	Total Dissolved Solids	SM 2540C	10
271	THard	Total Hardness as CaCO3	SM 2340C	5

Count 10

Pollution Control Services
Sample Log-In Checklist

PCS Sample No(s) 665980 **COC No.** 665980

Client/Company Name: Texas Rio **Checklist Completed by:** BMP

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: ____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ____
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ____ Broken ____
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ____
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ____ Broken ____
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ____
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ____
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ____
All Samples Received before Hold Time Expiration? Yes ✓ No ____
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ____
Zero Headspace in VOA Vial? Yes ____ No ____

Sample Preservation:
* ***Cooling:*** **Not Required** ____ or **Required** ✓
If cooling required, record temperature of submitted samples Observed/Corrected 3 / 1 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ____ Yes ✓ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: ____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: ____ If Present, Meets Requirements? Yes____ No____
Sample Preservations Checked by: ____ Date ____ Time ____
pH paper used to check sample preservation (PCS log #): ____ (HEM pH checked at analysis).
Samples Preserved/Adjusted by Lab:

Lab #	Parameters Preserved	Preservative Used	Log #
____	Metals	HNO_3	016/1206
____	____	____	____
____	____	____	____

Adjusted by Tech/Analyst: BMP Date: 2/3/22 Time: 0858

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: ____ Contacted by: ____
Notified Date: ____ Time: ____
Method of Contact: At Drop Off: ____ Phone ____ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed: ____ (Lab Director)
Regarding / Comments: ____

Actions taken to correct problems/discrepancies: ____

Receiving qualifier needed (*requires client notification above*) Temp. ____ Holding Time ____ Initails: ____
Receiving qualifier entered into LIMS at login Initial/Date: ____
Revision Comments: Rev. 7 - PCS# 665980 - corrected TDS results - template error - corrected 3/11/22 - a

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory*

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #2** **Matrix: Drinking Water** **Date/Time Taken: 02/02/2022 1416**	**PCS Sample #: 665982 Page 1 of 1** **Date/Time Received: 02/03/2022 08:09** **Report Date: 02/04/2022** **Approved by:** Chuck Wallgren **Chuck Wallgren, President**

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
E. coli. (Enumeration-MPN)	0	CFU/100ml	1	02/03/2022 09:40	9223 IDEXX Quanti-Tray	JHA
Total Coliform (Enumeration)	9	CFU/100ml	1	02/03/2022 09:40	9223 IDEXX Quanti-Tray	JHA

Sample passed / failed criteria for bacteriological test.
Sample of satisfactory bacteriological quality should be free from Coliform organisms.
Coliform Organisms ___ Not Found
__✓ Found
___✓ Total
___ Fecal (E.Coli)
___ Repeat Samples Required / Recommended (Circle One)
___ Unsuitable - See Below
___ Other reason: _____

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 665982

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION

Name: TEXAN Water

REPORT INFORMATION

Attention: ?? CHRIS | Phone: | Fax:

SAMPLE INFORMATION

Project Information: Hideout

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Container Number	Preservative	Requested Analysis	PCS Sample Number
Well #2	Start: 2/17 End: 2/17	Start: 2:16pm End: 2:16pm		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	Bact	665982 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) | ***EXPEDITE:*** (See Surcharge Schedule) ☐ <8 Hrs. ☐ <16 Hrs. ☐ <24 Hrs. ☐ 5 days ☐ Other: ______ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up | **Container Type:** P = Plastic, G = Glass, O = Other | Carrier ID:

Relinquished By:	Andrew	Date:	2/13	Time:	8:09	Received By:	[signature]	Date: 2/3/21	Time: 0809
Relinquished By:		Date:		Time:		Received By:		Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

Pollution Control Services

Sample Log-In Checklist

PCS Sample No(s) 665982 **COC No.** 665982

Client/Company Name: Texan Ho **Checklist Completed by:** OMF

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: ____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ____
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ____ Broken ____
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ____
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ____ Broken ____
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ____
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ____
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ____
All Samples Received before Hold Time Expiration? Yes ✓ No ____
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ____
Zero Headspace in VOA Vial? Yes ____ No ____

Sample Preservation:
* *Cooling:* **Not Required** ✓ or **Required** ____
If cooling required, record temperature of submitted samples Observed/Corrected 3 / 1 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ____ Yes ✓ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: ____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: ____ If Present, Meets Requirements? Yes____ No____
Sample Preservations Checked by: ____ Date ____ Time ____
pH paper used to check sample preservation (PCS log #): ____ (HEM pH checked at analysis).
Samples Preserved/Adjusted by Lab:

Lab #	Parameters Preserved	Preservative Used	Log #

Adjusted by Tech/Analyst: ____ Date : ____ Time: ____

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: ____ Contacted by: ____
Notified Date: ____ Time: ____
Method of Contact: At Drop Off: ____ Phone ____ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed : ____ (Lab Director)
Regarding / Comments: ____
Actions taken to correct problems/discrepancies: ____
Receiving qualifier needed (*requires client notification above*) Temp. ____ Holding Time ____ Initails: ____
Receiving qualifier entered into LIMS at login Initial/Date: ____
Revision Comments: ____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

Water Quality

Well No. 4

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Hideout Well #4** **Matrix: Drinking Water** **Date/Time Taken: 01/25/2022 1100**	**PCS Sample #: 664924 Page 1 of 2** **Date/Time Received: 01/25/2022 14:06** **Report Date: 02/11/2022** **Approved by:** Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH	!, I	7.7	S.U.	N/A	02/10/2022 15:56	SM 4500-H+ B	JHA
Chloride_IC		28	mg/L	2	01/26/2022 09:28	EPA 300.0	JAS
Conductivity, Specific		648	µmhos/cm at 25° C	1	01/27/2022 09:25	SM 2510B	PML
Nitrate-N_IC		0.4	mg/L	0.2	01/26/2022 09:28	EPA 300.0	JAS
Sulfate_IC		33	mg/L	2	01/26/2022 09:28	EPA 300.0	JAS
Total Dissolved Solids		280	mg/L	10	01/26/2022 08:00	SM 2540C	JHA
Total Hardness as CaCO3		310	mg/L	5	01/27/2022 13:50	SM 2340C	PML
Fluoride_IC		0.96	mg/L	0.20	01/26/2022 09:28	EPA 300.0	JAS

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
pH	N/A	N/A	N/A			N/A		
Chloride_IC	<1	10	95	97	97	102	101	85 - 115
Conductivity, Specific	N/A	N/A	N/A			N/A		
Nitrate-N_IC	2	20	70	100	101	130	103	85 - 115
Sulfate_IC	<1	10	91	97	97	101	105	85 - 115
Total Dissolved Solids	<1	10	N/A	N/A	N/A	N/A		
Total Hardness as CaCO3	<1	10	70	102	102	120	105	85 - 115
Fluoride_IC	<1	10	89	95	96	105	96	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

! Not NELAP Certifiable Parameter
I Informational purposes only - pH outside hold time

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Hideout Well #4** **Matrix: Drinking Water** **Date/Time Taken: 01/25/2022 1100**	**PCS Sample #: 664924 Page 2 of 2** **Date/Time Received: 01/25/2022 14:06** **Report Date: 02/11/2022**

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Iron/ICP (Total)	0.041	mg/L	0.010	01/27/2022 14:03	EPA 200.7 / 6010 B	DJL
Manganese/ICP (Total)	<0.010	mg/L	0.010	01/27/2022 14:03	EPA 200.7 / 6010 B	DJL

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
Iron/ICP (Total)	<1	20	75	94	94	125	100	85 - 115
Manganese/ICP (Total)	<1	20	75	92	92	125	100	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number
664924
Stamp 1st sample and COC as same number

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

CUSTOMER INFORMATION	REPORT INFORMATION		
Name: Texan Water	Attention: Chris Knox	Phone:	Fax:

SAMPLE INFORMATION

Project Information:

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis: Fecal tab

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Number	Preservative	PCS Sample Number
Hideout Well #4	Start: 1/25/22 End:	Start: 11:00 End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	664924 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) *EXPEDITE*: (See Surcharge Schedule) ☐ <8 Hrs. ☐ <16 Hrs. ☐ <24 Hrs. ☐ 5 days ☐ Other: ______ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up **Container Type:** P = Plastic, G = Glass, O = Other ______ Carrier ID: ______

Relinquished By:	Daniel Russell	Date:	1/25/22	Time:	1406	Received By:	[signature]	Date: 1/25/22	Time: 1406
Relinquished By:		Date:		Time:		Received By:		Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

Receiving

From: Daniel Russell <drussell@texanwater.com>
Sent: Tuesday, January 25, 2022 2:04 PM
To: Receiving
Subject: Fwd: Hideout Ranch - chemical analysis

Sent via the Samsung Galaxy S20 FE 5G, an AT&T 5G smartphone
Get Outlook for Android

From: Chris Knox <cknox@texanwater.com>
Sent: Monday, January 24, 2022 7:34:02 PM
To: Austin Noah <anoah@texanwater.com>; Daniel Russell <drussell@texanwater.com>
Subject: FW: Hideout Ranch - chemical analysis

Below is the list of constituents we're testing for at Hideout Ranch. Take 2 bac't samples and one half gallon jug. Submit them to the lab on three different chains of custody.

Chris Knox
Project Manager

TEXAN WATER

Office: 512-823-0000
Cell: 512-993-5646

From: S Watson <s.watson@wetrockgs.com>
Sent: Tuesday, January 18, 2022 7:59 AM
To: Chris Knox <cknox@texanwater.com>
Subject: RE: Hideout Ranch - chemical analysis

a. Chloride
b. Conductivity
c. Fluoride
d. Iron
e. Nitrate (as nitrogen)
f. Manganese
g. pH
h. Sulfate
i. Total hardness
j. Total Dissolved Solids; and
k. 1 sample Presence/absence of total coliform bacteria

Thanks Chris

Pollution Control Services

Sample Log-In Checklist

PCS Sample No(s) 664924 **COC No.** 664924

Client/Company Name: Texas H2O **Checklist Completed by:** GLM

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: ____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ____
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ____ Broken ____
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ____
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ____ Broken ____
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ____
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ____
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ____
All Samples Received before Hold Time Expiration? Yes ✓ No ____
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ____
Zero Headspace in VOA Vial? Yes ____ No ____

Sample Preservation:
* *Cooling:* **Not Required** ____ or **Required** ✓
If cooling required, record temperature of submitted samples Observed/Corrected 4 / 2 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ✓ Yes ____ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: ____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: ____ If Present, Meets Requirements? Yes ____ No ____
Sample Preservations Checked by: ____ Date ____ Time ____
pH paper used to check sample preservation (PCS log #): ____ (HEM pH checked at analysis).
Samples Preserved/Adjusted by Lab:

Lab #	Parameters Preserved	Preservative Used	Log #
____	Metals	HNO_3	0160608
____	____	____	____
____	____	____	____

Adjusted by Tech/Analyst: GLM Date: 1/20/19 Time: 1447

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: ____ Contacted by: ____
Notified Date: ____ Time: ____
Method of Contact: At Drop Off: ____ Phone ____ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed: ____ (Lab Director)
Regarding / Comments: ____
Actions taken to correct problems/discrepancies: ____
Receiving qualifier needed (*requires client notification above*) Temp. ____ Holding Time ____ Initails: ____
Receiving qualifier entered into LIMS at login Initial/Date: ____
Revision Comments: ____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #4** **Matrix: Drinking Water** **Date/Time Taken: 01/25/2022 1100**	**PCS Sample #: 664926 Page 1 of 1** **Date/Time Received: 01/25/2022 14:01** **Report Date: 01/26/2022** **Approved by:** Chuck Wallgren, President

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
E. coli. (Enumeration-MPN) 18	0	CFU/100ml	1	01/25/2022 15:40	9223 IDEXX Quanti-Tray	JHA
Total Coliform (Enumeration) 18	8	CFU/100ml	1	01/25/2022 15:40	9223 IDEXX Quanti-Tray	JHA

Sample passed / failed criteria for bacteriological test.
Sample of satisfactory bacteriological quality should be free from Coliform organisms.
Coliform Organisms
- ___ Not Found
- X Found
  - Y Total
  - ___ Fecal (E.Coli)
  - ___ Repeat Samples Required / Recommended (Circle One)
- ___ Unsuitable - See Below
- ___ Other reason: _____

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 664926

Stamp 1st sample and COC as same number

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

CUSTOMER INFORMATION	**REPORT INFORMATION**
Name: Texan Water	Attention: Chris Knox
	Phone:
	Fax:

SAMPLE INFORMATION

Project Information:

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis: TCEQ

Instructions/Comments: Glenda - JHA 1-26-22 0954

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Container Number	Preservative	Requested Analysis: TCEQ	PCS Sample Number
Hideout Well #4	Start: 1/25/22 End:	Start: 11:00 End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		664926 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) ***EXPEDITE:*** (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ____ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up **Container Type:** P = Plastic, G = Glass, O = Other Carrier ID:

Relinquished By:	Daniel Russell	Date:	11/25/22	Time:	14:00	Received By:	[signature]	Date: 11/25/22	Time: 1400
Relinquished By:		Date:		Time:		Received By:		Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

Pollution Control Services
Sample Log-In Checklist

PCS Sample No(s) 664926 **COC No.** 664926

Client/Company Name: Texan Hwy **Checklist Completed by:** Colin

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: ____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ____
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ____ Broken ____
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ____
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ____ Broken ____
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ____
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ____
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ____
All Samples Received before Hold Time Expiration? Yes ✓ No ____
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ____
Zero Headspace in VOA Vial? Yes ____ No ____

Sample Preservation:
* *Cooling:* **Not Required** ✓ **or Required** ____
If cooling required, record temperature of submitted samples Observed/Corrected 4 / 2 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ✓ Yes ____ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: ____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: ____ If Present, Meets Requirements? Yes ____ No ____
Sample Preservations Checked by: ____ Date ____ Time ____
pH paper used to check sample preservation (PCS log #): ____ (HEM pH checked at analysis).

Samples Preserved/Adjusted by Lab:	Lab #	Parameters Preserved	Preservative Used	Log #

Adjusted by Tech/Analyst: ____ Date: ____ Time: ____

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: ____ Contacted by: ____
Notified Date: ____ Time: ____
Method of Contact: At Drop Off: ____ Phone ____ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed: ____ (Lab Director)
Regarding / Comments: ____

Actions taken to correct problems/discrepancies: ____

Receiving qualifier needed (*requires client notification above*) Temp. ____ Holding Time ____ Initails: ____
Receiving qualifier entered into LIMS at login Initial/Date: ____
Revision Comments: ____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

Water Quality

Well No. 6

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #6** **Matrix: Drinking Water** **Date/Time Taken: 01/27/2022 1541**	**PCS Sample #: 665356 Page 1 of 2** **Date/Time Received: 01/28/2022 08:39** **Report Date: 02/11/2022** **Approved by:** Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH	!, I	7.6	S.U.	N/A	02/11/2022 13:25	SM 4500-H+ B	JHA
Chloride_IC		18	mg/L	2	01/28/2022 16:07	EPA 300.0	JAS
Conductivity, Specific		675	µmhos/cm at 25° C	1	02/02/2022 15:24	SM 2510B	PML
Nitrate-N_IC		<0.2	mg/L	0.2	01/28/2022 16:07	EPA 300.0	JAS
Sulfate_IC		64	mg/L	2	01/28/2022 16:07	EPA 300.0	JAS
Total Dissolved Solids		404	mg/L	10	01/28/2022 13:25	SM 2540C	JHA
Total Hardness as CaCO3		330	mg/L	5	02/06/2022 10:30	SM 2340C	PML
Fluoride_IC		1.53	mg/L	0.20	01/28/2022 16:07	EPA 300.0	JAS

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
pH	N/A	N/A	N/A			N/A		
Chloride_IC	<1	10	95	98	98	102	98	85 - 115
Conductivity, Specific	N/A	N/A	N/A			N/A		
Nitrate-N_IC	<1	20	70	100	100	130	102	85 - 115
Sulfate_IC	1	10	91	94	93	101	101	85 - 115
Total Dissolved Solids	<1	10	N/A	N/A	N/A	N/A		
Total Hardness as CaCO3	4	10	70	108	104	120	100	85 - 115
Fluoride_IC	2	10	89	91	93	105	95	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

! Not NELAP Certifiable Parameter
I Informational purposes only - pH outside hold time

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #6** **Matrix: Drinking Water** **Date/Time Taken: 01/27/2022 1541**	**PCS Sample #: 665356 Page 2 of 2** **Date/Time Received: 01/28/2022 08:39** **Report Date: 02/11/2022**

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Iron/ICP (Total)	0.077	mg/L	0.010	02/01/2022 13:52	EPA 200.7 / 6010 B	DJL
Manganese/ICP (Total)	0.016	mg/L	0.010	02/01/2022 13:52	EPA 200.7 / 6010 B	DJL

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
Iron/ICP (Total)	<1	20	75	96	96	125	105	85 - 115
Manganese/ICP (Total)	2	20	75	95	97	125	100	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 665356

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION

Name: TEXAN Water

REPORT INFORMATION

Attention: CHRIS | Phone: 512-993-5646 | Fax:

SAMPLE INFORMATION

Project Information: Hideout #6

Collected By:

Report "Soils" ☐ As Is ☐ Dry Wt.

Matrix: DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix	Container Type	Container Number	Preservative	Requested Analysis	Instructions/Comments: PCS Sample Number
Well#6	Start: 1/27/22 End: 1/27/22	Start: 3:40 End: 3:41		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	See Attached	665356 ☐S ☐B ☒N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) | ***EXPEDITE:*** (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ______ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up | **Container Type:** P = Plastic, G = Glass, O = Other ______ Carrier ID: ______

Relinquished By:	Andrew Martinez	Date:	1/28	Time:	8:30	Received By:	[signature]	Date: 1/28/22	Time: 0839
Relinquished By:		Date:		Time:		Received By:		Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

ReportName: rptManageClientProjects_Tests

Drop Down

Liquid: Yes SampleID: 664924 txtEditProjectID

txtEditProjectID

	Abbr	Parameter	Method	Reporting Limit
2079	Cl_IC	Chloride_IC	EPA 300.0	1
254	SPCOND	Conductivity, Specific	SM 2510B	1
2078	F_IC	Fluoride_IC	EPA 300.0	0.10
258	Fe/ICP	Iron/ICP (Total)	EPA 200.7 / 6010 B	0.010
230	Mn/ICP	Manganese/ICP (Total)	EPA 200.7 / 6010 B	0.010
1761	NO3N_IC	Nitrate-N_IC	EPA 300.0	0.1
101	PH	pH	SM 4500-H+ B	N/A
2081	SO4_IC	Sulfate_IC	EPA 300.0	1
256	TDS	Total Dissolved Solids	SM 2540C	10
271	THard	Total Hardness as CaCO3	SM 2340C	5

Count 10

Pollution Control Services
Sample Log-In Checklist

665356

PCS Sample No(s) 665356 **COC No.** _____

Client/Company Name: Tetra Tech **Checklist Completed by:** [signature]

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: _____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ___
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ___ Broken ___
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ___
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ___ Broken ___
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ___
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ___
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ___
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ___
All Samples Received before Hold Time Expiration? Yes ✓ No ___
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ___
Zero Headspace in VOA Vial? Yes ___ No ___

Sample Preservation:
* ***Cooling:*** **Not Required** _____ or **Required** ✓
If cooling required, record temperature of submitted samples Observed/Corrected 3 / 1 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ✓ Yes ____ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: _____

Acid Preserved Sample - If present, is pH <2? **Yes** ✓ No ___ ** ✓ H_2SO_4 ___ HNO_3 ___ H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ___ No ___ ___ NaOH 1/28/19 GC
Other Preservation: _____ If Present, Meets Requirements? Yes ____ No ____
Sample Preservations Checked by: _____ Date _____ Time _____
pH paper used to check sample preservation (PCS log #): _____ (HEM pH checked at analysis).

Samples Preserved/Adjusted by Lab: Lab #	Parameters Preserved	Preservative Used	Log #
_____	metals	HNO_3	0161706
_____	_____	_____	_____
_____	_____	_____	_____

Adjusted by Tech/Analyst: GC Date: 1/28/19 Time: 0938

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: _____ Contacted by: _____
Notified Date: _____ Time: _____
Method of Contact: At Drop Off: ____ Phone ___ Left Voice Mail ___ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed : _____ (Lab Director)
Regarding / Comments: _____

Actions taken to correct problems/discrepancies: _____

Receiving qualifier needed (*requires client notification above*) Temp. ___ Holding Time ___ Initails: _____
Receiving qualifier entered into LIMS at login Initial/Date: _____
Revision Comments: _____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #6** **Matrix: Drinking Water** **Date/Time Taken: 01/27/2022 1536**	**PCS Sample #: 665349 Page 1 of 1** **Date/Time Received: 01/28/2022 08:35** **Report Date: 01/31/2022** **Approved by:** Chuck Wallgren, President

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
E. coli. (Enumeration-MPN)	0	CFU/100ml	1	01/28/2022 09:30	9223 IDEXX Quanti-Tray	JHA
Total Coliform (Enumeration)	5	CFU/100ml	1	01/28/2022 09:30	9223 IDEXX Quanti-Tray	JHA

Sample passed / failed criteria for bacteriological test.
Sample of satisfactory bacteriological quality should be free from Coliform organisms.
Coliform Organisms
___ Not Found
X Found
___ Total
___ Fecal (E.Coli)
___ Repeat Samples Required / Recommended (Circle One)
___ Unsuitable - See Below
___ Other reason: _____

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 665349

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION	REPORT INFORMATION		
Name: TEXAN WATER	Attention: CHRIS	Phone: 512-993-5646	Fax:

SAMPLE INFORMATION

Project Information: – Hideout #6

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis: Bact

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Container Number	Preservative	Requested Analysis	PCS Sample Number
well #6	Start: 1/27 End: 1/27	Start: 3:35 End: 3:36		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	Bact	665349 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) | ***EXPEDITE:*** (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ______ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up | **Container Type:** P = Plastic, G = Glass, O = Other ______ Carrier ID: ______

Relinquished By: Andrew	Date: 1/28	Time: 8:35	Received By: [signature]	Date: 1/28/22	Time: 0835
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

Pollution Control Services
Sample Log-In Checklist

PCS Sample No(s) 665349 **COC No.** 665349

Client/Company Name: Texan Htn **Checklist Completed by:**

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: ____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ____
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ____ Broken ____
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ____
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ____ Broken ____
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ____
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ____
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ____
All Samples Received before Hold Time Expiration? Yes ✓ No ____
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ____
Zero Headspace in VOA Vial? Yes ____ No ____

Sample Preservation:
* ***Cooling:*** **Not Required** ✓ or **Required** ____
If cooling required, record temperature of submitted samples Observed/Corrected 4 / 2 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ____ Yes ✓ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: ____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: ____ If Present, Meets Requirements? Yes____ No____
Sample Preservations Checked by: ____ Date ____ Time ____
pH paper used to check sample preservation (PCS log #): ____ (HEM pH checked at analysis).

Samples Preserved/Adjusted by Lab:	Lab #	Parameters Preserved	Preservative Used	Log #

Adjusted by Tech/Analyst: ____ Date : ____ Time: ____

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: ____ Contacted by: ____
Notified Date: ____ Time: ____
Method of Contact: At Drop Off: ____ Phone ____ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed : ____ (Lab Director)
Regarding / Comments: ____

Actions taken to correct problems/discrepancies: ____

Receiving qualifier needed (*requires client notification above*) Temp. ____ Holding Time ____ Initails: ____
Receiving qualifier entered into LIMS at login Initial/Date: ____
Revision Comments: ____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

Water Quality

Well No. 8

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #8** **Matrix: Drinking Water** **Date/Time Taken: 02/14/2022 10:45**	**PCS Sample #: 667319 Page 1 of 2** **Date/Time Received: 02/15/2022 08:04** **Report Date: 02/24/2022** **Approved by:** Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH	!, I	7.4	S.U.	N/A	02/16/2022 15:06	SM 4500-H+ B	JHA
Chloride_IC		18	mg/L	2	02/15/2022 11:37	EPA 300.0	JAS
Conductivity, Specific		679	µmhos/cm at 25° C	1	02/15/2022 08:40	SM 2510B	PML
Nitrate-N_IC		<0.2	mg/L	0.2	02/15/2022 11:37	EPA 300.0	JAS
Sulfate_IC		103	mg/L	2	02/15/2022 11:37	EPA 300.0	JAS
Total Dissolved Solids		478	mg/L	10	02/16/2022 08:35	SM 2540C	JHA
Total Hardness as CaCO3		360	mg/L	5	02/21/2022 15:30	SM 2340C	EMV
Fluoride_IC		2.34	mg/L	0.20	02/15/2022 11:37	EPA 300.0	JAS

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
pH	N/A	N/A	N/A			N/A		
Chloride_IC	1	10	95	96	97	102	104	85 - 115
Conductivity, Specific	N/A	N/A	N/A			N/A		
Nitrate-N_IC	1	20	70	98	98	130	103	85 - 115
Sulfate_IC	1	10	91	94	94	101	102	85 - 115
Total Dissolved Solids	<1	10	N/A	N/A	N/A	N/A		
Total Hardness as CaCO3	<1	10	70	100	100	120	100	85 - 115
Fluoride_IC	1	10	89	91	92	105	94	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

! Not NELAP Certifiable Parameter
I Informational purposes only - pH outside hold time

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #8** **Matrix: Drinking Water** **Date/Time Taken: 02/14/2022 10:45**	**PCS Sample #: 667319 Page 2 of 2** **Date/Time Received: 02/15/2022 08:04** **Report Date: 02/24/2022**

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Iron/ICP (Total)	0.700	mg/L	0.010	02/23/2022 12:24	EPA 200.7 / 6010 B	DJL
Manganese/ICP (Total)	0.029	mg/L	0.010	02/23/2022 12:24	EPA 200.7 / 6010 B	DJL

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
Iron/ICP (Total)	6	20	75	94	100	125	105	85 - 115
Manganese/ICP (Total)	2	20	75	94	96	125	100	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 667319

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION

Name: Texan Water

REPORT INFORMATION

Attention: CHRIS | Phone: | Fax:

SAMPLE INFORMATION

Project Information: Hideout

Collected By:

Report "Soils" ☐ As Is ☐ Dry Wt.

Requested Analysis: See Hideout Attached

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Number	Preservative	PCS Sample Number
Well #8 Per Chris Big Jug	Start: 2/14 End: 2/14	Start: 10:45AM End: 10:46 AM		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	667319 ☐S ☐B ☒N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) | ***EXPEDITE:*** (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☒ 5 days ☐ Other: ________ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up | **Container Type:** P = Plastic, G = Glass, O = Other | Carrier ID:

Relinquished By:	Andrew Martinez	Date:	2/15	Time:	8:04	Received By:	[signature]	Date: 2/15/22	Time: 0804
Relinquished By:		Date:		Time:		Received By:		Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

ReportName: rptManageClientProjects_Tests

Drop Down

Liquid: Yes SampleID: 666307 txtEditProjectID

txtEditProjectID

	Abbr	Parameter	Method	Reporting Limit
2079	Cl_IC	Chloride_IC	EPA 300.0	1
254	SPCOND	Conductivity, Specific	SM 2510B	1
2078	F_IC	Fluoride_IC	EPA 300.0	0.10
258	Fe/ICP	Iron/ICP (Total)	EPA 200.7 / 6010 B	0.010
230	Mn/ICP	Manganese/ICP (Total)	EPA 200.7 / 6010 B	0.010
1761	NO3N_IC	Nitrate-N_IC	EPA 300.0	0.1
101	PH	pH	SM 4500-H+ B	N/A
2081	SO4_IC	Sulfate_IC	EPA 300.0	1
256	TDS	Total Dissolved Solids	SM 2540C	10
271	THard	Total Hardness as CaCO3	SM 2340C	5

Count 10

Pollution Control Services

Sample Log-In Checklist

PCS Sample No(s) 667319 **COC No.** 667319

Client/Company Name: Texas H2O **Checklist Completed by:** [illegible]

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: ____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ____
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ____ Broken ____
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ____
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ____ Broken ____
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ____
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ____
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ____
All Samples Received before Hold Time Expiration? Yes ✓ No ____
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ____
Zero Headspace in VOA Vial? Yes ____ No ____

Sample Preservation:
* ***Cooling:*** **Not Required** ____ or **Required** ✓
If cooling required, record temperature of submitted samples Observed/Corrected 4 / 2 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ____ Yes ✓ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: ____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: ____ If Present, Meets Requirements? Yes ____ No ____
Sample Preservations Checked by: ____ Date ____ Time ____
pH paper used to check sample preservation (PCS log #): ____ (HEM pH checked at analysis).

Samples Preserved/Adjusted by Lab: Lab #	Parameters Preserved	Preservative Used	Log #
____	Metals	HNO_3	0161706
____	____	____	____
____	____	____	____

Adjusted by Tech/Analyst: [illegible] Date: 2/15/22 Time: 910

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: [illegible] Contacted by: Chris
Notified Date: 2/21/22 Time: 1030
Method of Contact: At Drop Off: ____ Phone ____ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed: ____ (Lab Director)
Regarding / Comments: Chris called to ask us to change from Well 9 to Well 8 2/21/22 6m

Actions taken to correct problems/discrepancies: ____

Receiving qualifier needed (*requires client notification above*) Temp. ____ Holding Time ____ Initails: ____
Receiving qualifier entered into LIMS at login Initial/Date: ____
Revision Comments: ____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

POLLUTION CONTROL SERVICES

REVISED [1]

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #8** **Matrix: Drinking Water** **Date/Time Taken: 02/14/2022 10:41**	**PCS Sample #: 667321 Page 1 of 1** **Date/Time Received: 02/15/2022 08:04** **Report Date: 02/21/2022** **Approved by:** Chuck Wallgren, President

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
E. coli. (Enumeration-MPN) 18	0	CFU/100ml	1	02/15/2022 08:45	9223 IDEXX Quanti-Tray	JHA
Total Coliform (Enumeration) 18	31	CFU/100ml	1	02/15/2022 08:45	9223 IDEXX Quanti-Tray	JHA

Sample passed / failed criteria for bacteriological test.
Sample of satisfactory bacteriological quality should be free from Coliform organisms.
Coliform Organisms
- X Not Found
- X Found
- X Total
- ___ Fecal (E.Coli)
- ___ Repeat Samples Required / Recommended (Circle One)
- ___ Unsuitable - See Below
- ___ Other reason: _____

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

1 - See Sample LogIn Checklist Comments for Revision Information

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 6 6 7 3 2 1

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION

Name: Texan Water

REPORT INFORMATION

Attention: CHRIS | Phone: | Fax:

SAMPLE INFORMATION

Project Information: Hideout

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis: Bact

Instructions/Comments: Glenda - THM 2-16-22 0855

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Number	Preservative	Requested Analysis	PCS Sample Number
Well #8 2/14/22 2/2	Start: 2/14 End: 2/14	Start: 10:40AM End: 10:40AM		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______	Bact	6 6 7 3 2 1 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ______		☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) | *EXPEDITE:* (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ______ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up | **Container Type:** P = Plastic, G = Glass, O = Other | Carrier ID:

Relinquished By:	Andrew Martinez	Date:	[illegible]	Time:	8:02	Received By:	[signature]	Date: 2/15/22	Time: 0804
Relinquished By:		Date:	2/15	Time:		Received By:		Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

Pollution Control Services
Sample Log-In Checklist

PCS Sample No(s) 667321 **COC No.** 667321

Client/Company Name: Texas H2O **Checklist Completed by:** GM

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: ____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ____
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ____ Broken ____
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ____
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ____ Broken ____
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ____
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ____
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ____
All Samples Received before Hold Time Expiration? Yes ✓ No ____
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ____
Zero Headspace in VOA Vial? Yes ____ No ____

Sample Preservation:
* ***Cooling:*** **Not Required** ____ or **Required** ✓
If cooling required, record temperature of submitted samples Observed/Corrected 4 / 2 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ✓ Yes ____ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: ____ 2/15/22 GM

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____ ** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: ____ If Present, Meets Requirements? Yes____ No____
Sample Preservations Checked by: ____ Date ____ Time ____
pH paper used to check sample preservation (PCS log #): ____ (HEM pH checked at analysis).

Samples Preserved/Adjusted by Lab:	Lab #	Parameters Preserved	Preservative Used	Log #

Adjusted by Tech/Analyst: ____ Date : ____ Time: ____

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: GM Contacted by: Chris
Notified Date: 2/21/22 Time: 1030
Method of Contact: At Drop Off: ____ Phone ____ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed : ____ (Lab Director)
Regarding / Comments: Chris called us to change well 9 to Well 8. 2/21/22 GM

Actions taken to correct problems/discrepancies: ____

Receiving qualifier needed (*requires client notification above*) Temp. ____ Holding Time ____ Initails: ____
Receiving qualifier entered into LIMS at login Initial/Date: ____
Revision Comments: Rev. 1 - PCS# 667321 - corrected client well # ID per client instructions - Well # 8 - Not 9 as they put on paperwork 2/21/22 - GM

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

Water Quality

Well No. 9

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #9** **Matrix: Drinking Water** **Date/Time Taken: 02/21/2022 1130**	**PCS Sample #: 668136 Page 1 of 2** **Date/Time Received: 02/21/2022 15:46** **Report Date: 03/03/2022** Approved by: Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH	!, I	7.1	S.U.	N/A	02/22/2022 09:28	SM 4500-H+ B	JHA
Chloride_IC		19	mg/L	2	02/22/2022 08:10	EPA 300.0	JAS
Conductivity, Specific		672	µmhos/cm at 25° C	1	03/01/2022 15:25	SM 2510B	PML
Nitrate-N_IC		<0.2	mg/L	0.2	02/22/2022 08:10	EPA 300.0	JAS
Sulfate_IC		66	mg/L	2	02/22/2022 08:10	EPA 300.0	JAS
Total Dissolved Solids		320	mg/L	10	02/22/2022 08:30	SM 2540C	JHA
Total Hardness as CaCO3		340	mg/L	5	03/02/2022 09:00	SM 2340C	PML
Fluoride_IC		1.58	mg/L	0.20	02/22/2022 08:10	EPA 300.0	JAS

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
pH	N/A	N/A	N/A			N/A		
Chloride_IC	<1	10	95	97	97	102	98	85 - 115
Conductivity, Specific	N/A	N/A	N/A			N/A		
Nitrate-N_IC	<1	20	70	101	101	130	103	85 - 115
Sulfate_IC	<1	10	91	97	97	101	101	85 - 115
Total Dissolved Solids	<1	10	N/A	N/A	N/A	N/A		
Total Hardness as CaCO3	<1	10	70	103	103	120	105	85 - 115
Fluoride_IC	1	10	89	96	95	105	94	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

! Not NELAP Certifiable Parameter
I Informational purposes only - pH outside hold time

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #9** **Matrix: Drinking Water** **Date/Time Taken: 02/21/2022 1130**	**PCS Sample #: 668136 Page 2 of 2** **Date/Time Received: 02/21/2022 15:46** **Report Date: 03/03/2022**

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
Iron/ICP (Total)	0.020	mg/L	0.010	02/25/2022 11:11	EPA 200.7 / 6010 B	DJL
Manganese/ICP (Total)	<0.010	mg/L	0.010	02/25/2022 11:11	EPA 200.7 / 6010 B	DJL

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit
Iron/ICP (Total)	8	20	75	102	94	125	100	85 - 115
Manganese/ICP (Total)	<1	20	75	96	96	125	100	85 - 115

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 668136

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION	REPORT INFORMATION		
Name: Texan Water	Attention: Austin Noah	Phone:	Fax:

SAMPLE INFORMATION

Project Information:

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis: See Att

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Container Number	Preservative	PCS Sample Number
Hideout Well #9	Start: 2/21 End:	Start: 11:30 End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	668136 ☐S ☐B ☒N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐	☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) | *EXPEDITE:* (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ______ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up | **Container Type:** P = Plastic, G = Glass, O = Other | Carrier ID:

Relinquished By:	Daniel Russell	Date:	2/21	Time:	15:46	Received By:	[signature]	Date: 2/21/22	Time: 1546
Relinquished By:		Date:		Time:		Received By:		Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

ReportName: rptManageClientProjects_Tests

Drop Down

Liquid: Yes SampleID: 667319 txtEditProjectID txtEditProjectID

	Abbr	Parameter	Method	Reporting Limit
2079	Cl_IC	Chloride_IC	EPA 300.0	1
254	SPCOND	Conductivity, Specific	SM 2510B	1
2078	F_IC	Fluoride_IC	EPA 300.0	0.10
258	Fe/ICP	Iron/ICP (Total)	EPA 200.7 / 6010 B	0.010
230	Mn/ICP	Manganese/ICP (Total)	EPA 200.7 / 6010 B	0.010
1761	NO3N_IC	Nitrate-N_IC	EPA 300.0	0.1
101	PH	pH	SM 4500-H+ B	N/A
2081	SO4_IC	Sulfate_IC	EPA 300.0	1
256	TDS	Total Dissolved Solids	SM 2540C	10
271	THard	Total Hardness as CaCO3	SM 2340C	5

Count 10

Pollution Control Services

Sample Log-In Checklist

668136

PCS Sample No(s) 668136 **COC No.** _____

Client/Company Name: Texan H2O **Checklist Completed by:** [signature]

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up ____ Other: _____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No ____ Sample Kit/Cooler: Intact? Yes ✓ No ___
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ___ Broken ___
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ___
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ___ Broken ___
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ___
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ____
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ___
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ___
All Samples Received before Hold Time Expiration? Yes ✓ No ___
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ___
Zero Headspace in VOA Vial? Yes ___ No ___

Sample Preservation:
* ***Cooling:*** **Not Required** _____ **or Required** ✓
If cooling required, record temperature of submitted samples Observed/Corrected 6 / 4 °C
Is Ice Present in Sample Kit/Cooler? ____ Yes ____ No Samples received same day as collected? ✓ Yes ____ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: _____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____ ** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation: _____ If Present, Meets Requirements? Yes ____ No ____
Sample Preservations Checked by: _____ Date _____ Time _____
pH paper used to check sample preservation (PCS log #): _____ (HEM pH checked at analysis).
Samples Preserved/Adjusted by Lab:

Lab #	Parameters Preserved	Preservative Used	Log #
_____	Metals	HNO3	01611706
_____	_____	_____	_____
_____	_____	_____	_____

Adjusted by Tech/Analyst: [signature] Date: 2/21/22 Time: 1551

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: _____ Contacted by: _____
Notified Date: _____ Time: _____
Method of Contact: At Drop Off: ____ Phone ___ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact ____ Authorized Laboratory to Proceed : _____ (Lab Director)
Regarding / Comments: _____
_____
_____
Actions taken to correct problems/discrepancies: _____
_____
_____
Receiving qualifier needed (*requires client notification above*) Temp. ___ Holding Time ___ Initails: _____
Receiving qualifier entered into LIMS at login Initial/Date: _____
Revision Comments: _____
_____
_____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
Brice Bormann **Texan Water** **161 Industrial Loop** **Fredericksburg, TX 78624**	**Project Name: Hideout** **Sample ID: Well #9B** **Matrix: Drinking Water** **Date/Time Taken: 02/21/2022 1130**	**PCS Sample #: 668138 Page 1 of 1** **Date/Time Received: 02/21/2022 15:44** **Report Date: 02/22/2022** **Approved by:** Chuck Wallgren, President

Test Description	Result	Units	RL	Analysis Date/Time	Method	Analyst
E. coli. (Enumeration-MPN) 18	0	CFU/100ml	1	02/21/2022 16:05	9223 IDEXX Quanti-Tray	JHA
Total Coliform (Enumeration) 18	0	CFU/100ml	1	02/21/2022 16:05	9223 IDEXX Quanti-Tray	JHA

Sample passed / failed criteria for bacteriological test.
Sample of satisfactory bacteriological quality should be free from Coliform organisms.
Coliform Organisms
___√___ Not Found
_____ Found
_____ Total
_____ Fecal (E.Coli)
_____ Repeat Samples Required / Recommended (Circle One)
_____ Unsuitable - See Below
_____ Other reason: _____

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are abailable on request.

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits

Web Site: www.pcslab.net
eMail: chuck@pcslab.net
Toll Free 800-880-4616
1532 Universal City Blvd, Suite 100
Universal City, TX 78148-3318
210-340-0343
FAX # 210-658-7903

POLLUTION CONTROL SERVICES

Chain of Custody Number: 668138

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

Stamp 1st sample and COC as same number

CUSTOMER INFORMATION	REPORT INFORMATION		
Name: Texan Water	Attention: Austin Noah	Phone:	Fax:

SAMPLE INFORMATION

Project Information:

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By:

Requested Analysis: TCE

Instructions/Comments:

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Container Type	Container Number	Preservative	TCE	PCS Sample Number
Hideout Well #98	Start: 2/21 End:	Start: 11:30 End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____	X	668138 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐ DW ☐ NPW ☐ WW ☐ Soil ☐ Sludge ☐ LW ☐ Other	☐P ☐G ☐O		☐ H_2SO_4 ☐ HNO_3 ☐ H_3PO_4 ☐ NaOH ☐ ICE ☐ ____		☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☐ Routine (6-10 days) *EXPEDITE*: (See Surcharge Schedule) ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: ______ ***Rush Charges Authorized by:***

Sample Archive/Disposal: ☐ Laboratory Standard ☐ Hold for client pick up **Container Type:** P = Plastic, G = Glass, O = Other Carrier ID:

Relinquished By:	Daniel Russell	Date:	2:21	Time:	15:46	Received By:	[signature]	Date: 2/21/22	Time: 1546
Relinquished By:		Date:		Time:		Received By:		Date:	Time:

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

Login at www.pcslab.net

Pollution Control Services

Sample Log-In Checklist

668138

PCS Sample No(s) 668138 **COC No.** _____

Client/Company Name: Texan Hw **Checklist Completed by:** GMP

Sample Delivery to Lab Via:
Client Drop Off ✓ Commercial Carrier: Bus ____ UPS ____ Lone Star ____ FedEx ____ USPS ____
PCS Field Services: Collection/Pick Up____ Other: _____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ✓ No____ Sample Kit/Cooler: Intact? Yes ✓ No___
Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ___ Broken ___
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ___
Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ___ Broken ___
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ___
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ___
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ___
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ___
All Samples Received before Hold Time Expiration? Yes ✓ No ___
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ___
Zero Headspace in VOA Vial? Yes ___ No ___

Sample Preservation:
* ***Cooling:*** **Not Required** _____ or **Required** ✓
If cooling required, record temperature of submitted samples Observed/Corrected 6 / 4 °C
Is Ice Present in Sample Kit/Cooler? ✓ Yes ____ No Samples received same day as collected? ✓ Yes ____ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: _____

Acid Preserved Sample - If present, is pH <2? **Yes** ____ **No** ____** ____H_2SO_4 ____HNO_3 ____H_3PO_4
Base Preserved Sample - If present, is pH >12? Yes ____ No ____ ____NaOH
Other Preservation:_____ If Present, Meets Requirements? Yes____ No____
Sample Preservations Checked by:_____ Date _____ Time _____
pH paper used to check sample preservation (PCS log #): _____ (HEM pH checked at analysis).

Samples Preserved/Adjusted by Lab:	Lab #	Parameters Preserved	Preservative Used	Log #

Adjusted by Tech/Analyst:_____ Date :_____Time:_____

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: _____ Contacted by:_____
Notified Date: _____Time: _____
Method of Contact: At Drop Off:____ Phone ___ Left Voice Mail ____ E-Mail ____ Fax ____
Unable to Contact____ Authorized Laboratory to Proceed :_____(Lab Director)
Regarding / Comments:_____

Actions taken to correct problems/discrepancies:_____

Receiving qualifier needed (*requires client notification above*) Temp. ___ Holding Time ___ Initails: _____
Receiving qualifier entered into LIMS at login Initial/Date: _____
Revision Comments: _____

** Samples submitted for Metals Analysis (except Hex Cr) or Drinking Water for Coliform Bacteria Only are not required to be iced. Samples collected prior day to receipt at the laboratory must meet method specific thermal cooling requirements, "or will be flagged accordingly". Samples delivered the same day as collected may not meet thermal criteria, but shall be considered acceptable if evidence that the chilling process has begun, such as arrival on ice (EPA 815-F-08-006, June 2008). ** Water samples for metals analysis that are not acid preserved prior to shipment may be acceptably preserved by the laboratory on receipt – however, the sample digestion procedure must be delayed for at least 24 hours after preservation by the laboratory.*