BOWEN COLLINS & ASSOCIATES

TECHNICAL MEMORANDUM

TO:	Trace Robinson, P.E. Public Works Director Riverton City
FROM:	Chris DeKorver, P.G.
DATE:	October 12, 2021
SUBJECT:	Green Well and Aquifer Initial Evaluation and Recommendations for Further Investigations
JOB NO.:	622-21-02

This Technical Memorandum provides an evaluation of Riverton City's (City) Green Well (Well) based on available information and discusses investigations that could be performed to further evaluate the life expectancy and sustainability of the Well and aquifer. The Well is currently not utilized in the City culinary distribution system, however, the City is interested in incorporating the well into the system following treatment of the water for TDS and hardness. The evaluation is based on information provided by the City, Zim Industries, Inc. (Zim), Jordan Valley Water Conservancy District (JVWCD), the Division of Drinking Water (DDW), and well logs filed with the Division of Water Rights (DWRi).

BACKGROUND

The Green Well was drilled in 2012 by the reverse mud-rotary method by Zim. The original drillers log for the drilling and construction is included in Attachment A. An as-built construction schematic for the Well is included in Attachment A as Figure A-1. The Well had been in operation between February 2014 and May 2015 before the City elected to obtain water from JVWCD and mothball the well. The City currently operates/exercises the well on a quarterly basis by pumping to waste. The well is currently 9 years old. The typical life expectancy for a well of this type is approximately 50 years, though many wells operate beyond that timeframe. The downhole condition of the well is unknown as it has not been inspected since the final well video was performed in 2012.

Construction

The Drillers Report obtained through DWRi showed that upon the completion of the well, the static water level was reported as "flowing" with 10 psi capped pressure. This equates to approximately 23 feet above ground level. During the 24-hour constant rate test performed in 2012, the Well produced a reported 3,000 gpm with 239.5 feet of drawdown. We reviewed the 24-hour constant rate test data obtained from Zim (Attachment B) and it appears that the drawdown was reported from the top of casing (TOC) and did not include the 23 feet of artesian head. The reported drawdown including the artesian head should have been approximately 262.5 feet, which equates to a specific capacity of 11.4 gpm/foot of drawdown.

In 2014, the well was equipped with a pump capable of approximately 2,000 gpm with the intake set at approximately 313 feet below top of casing (BTOC). Based on verbal communication provided by the City, the well continues to produce at least 2,000 gpm, though actual flow measurements have not been provided to BC&A. Historic pumping water levels provided by the City ranged between 149 feet and 214.6 feet BTOC (Attachment C). Figure C-1 in Attachment C illustrates the pumping water levels reported by the City between January 2014 and April 2021. The data reported shows that when the Well is pumped to the City distribution system (2014-2015), pumping water levels are between 149 to 177 feet BTOC. However, when pumped to waste (2015-2021), less head pressure is available allowing the well to pump at a higher rate and experience additional drawdown. Water levels were reported between 184 feet to 214.6 feet when pumped to waste. City personnel indicate that the Well continues to flow artesian though historic shut-in pressures or static water levels are not available. We understand that the Well currently flows artesian to waste and is not shut-in when not in use. Additionally, an actual drawdown relative to a static level is unknown and the current specific capacity of the Well is not able to be calculated.

Adjacent Wells

The Green Well, is located in Riverton adjacent to the Jordan River in the Salt Lake Valley. A search on the DWRi website showed that multiple wells have been drilled within a 3-mile radius of the Green Well. However, most of the wells are used for domestic purposes and are of small diameter and shallow depths. Nine (9) nearby wells were observed to be of adequate size or utilized for municipal purposes. The wells include the Steneoff Well, Collard Well, Gedge Well, Maynard Well, Hill Well, and the Garimandi Well for Riverton City and DW-4, DW-5 and DW-7 for JVWCD and are located on Figure 1. The wells are located southwest and northwest of the Green Well. The majority of the wells are completed shallower when compared to the Green Well. However, each well is useful as a point for monitoring if a pump test is completed at the Green Well. Well logs for each well are located in Attachment D.

Prior to the drilling of the Green Well, a test well was drilled approximately 50 feet to the north of the existing Green Well. The test well was completed with 6-inch casing and is perforated between 490 and 750 feet, similar to the Green Well. We are unaware if the well is in existence, though an abandonment log is not available through DWRi. We are also unaware if a transducer is installed in the test well and has recorded water level measurements during the operation of the Green Well. The test well (if it still exists) is an excellent monitoring point that may be utilized during testing and long-term operation of the Green Well for aquifer analysis and impacts.

Water Quality

The Green Well was drilled and completed for use in the Riverton City culinary distribution system and was analyzed for the full Safe Drinking Water Act suite upon completion in 2012. Based on available information through the DDW, the results indicate that the Well is suitable for culinary purposes. In April 2012, the Total Dissolved Solids (TDS) was reported above the Secondary Drinking Water Standard of 500 mg/L with a result of 583 mg/L. The secondary standard is for aesthetic purposes (e.g., taste), and if exceeded the City may receive complaints. The hardness was reported at 256 mg/L and does not have a drinking water standard. The value reported is considered "very hard". Figure E-1 in Attachment E displays available data for TDS and hardness between 2012 and 2021. The data illustrates that the TDS has remained very consistent with a slight decrease since 2012. The hardness has also been very consistent with a slight increase of approximately 8% between October 2013 and January 2021. Available water quality information is included in Attachment E.

The City desires to utilize the Well for use in the culinary distribution system, however, is interested in knowing the life expectancy of the Well and the sustainability of the producing aquifer prior to exploring potential treatment options. With elevated water quality parameters (TDS and hardness), treatment is necessary to meet or be an improvement to the water quality currently provided by JVWCD.

DATA GATHERING

On September 28, 2021, Riverton City and BC&A were onsite at the Green Well to shut the well in for a period of one (1) hour to assess a static water level (measured in pressure). Prior to shutting the well in, it was estimated that the artesian flow was between 50-100 gpm, though no actual flow measurement was obtained. Historic shut-in pressures have not been recorded, and historic static levels are unknown except for the date the Well was completed, April 2012. At the end of the one-hour period, a pressure was not observed on the existing pressure gauge. However, water was dripping from the air-vac installed on the discharge line suggesting that the water level was approximately 5 feet above ground level (~2psi). The installed pressure gauge at the Well head was reading zero psi (0) during the shut-in, however, the lowest increment of the gauge was 10 psi. Comparing the current static water level of 5 feet (~2psi) to the original water level of 23 feet (10 psi) in April 2012, the Well has experienced approximately 18 feet of decline. This pressure is likely not representative of the aquifer due to the limited time the Well experienced being shut-in. Additionally, the Well has been allowed to flow to waste since 2014 when it was equipped allowing the artesian pressure to bleed off. To gain a more accurate value, the Well should be shut-in for an extended amount of time, preferably during the winter months of non-use (October through April).

AQUIFER CONDITIONS

The screens of the Green Well are located in the principal aquifer of the Salt Lake Valley in the center of the valley adjacent to the Jordan River. The Green Well is located in the discharge area in the Salt Lake Valley as shown in Attachment F (Wallace & Lowe, 2009). Water levels in the Riverton area have seen approximately 20 feet of decline between 1975 and 2005 (Wallace & Lowe, 2009) as shown in Attachment F. This equates to approximately 0.7 feet of decline per year in the Riverton area.

Riverton City provided historic static and pumping water levels for each of their wells (Attachment G) between 2001 and 2021, where available. The Riverton Wells include the Hill Well, Maynard Well, Gedge Well, Garimandi Well and the Collard Well. The pumping rates were assumed to the be the equipped rate, though no data was provided on the pumping rate at the time of each water level measurement. In the five wells where the static water levels are provided, each well has seen an increase between approximately 4 feet to 13 feet in the static water level as seen in Attachment G. Additionally, water levels, static and pumping, and associated pumping rates from JVWCD have been provided from 2013 to 2021 from each of the three wells (Attachment G). The JVWCD Wells include DW-4, DW-5 and DW-7. The pumping water levels in each of the three wells has declined approximately 6-10 feet over the last eight years, however, the static water levels appear to have declined less (1 to 5 feet) over the same time period. In 2021, Well DW-4 shows some declines in the static water level of up to 35 feet and in the production rate of up to 50 gpm, and the cause is unknown.

FURTHER INVESTIGATIONS (OPTIONAL)

The Green Well continues to operate as a high yielding well for the City based on the maintenance pumping data recorded over the last 6 years after the transition to JVWCD water. With the Well

pumping to waste for short time periods of 2-4 hours (City records), long term data is not available to assess trends in the operation of the Well. Because the Well has not been fully pump tested or video investigated since it was completed in 2012, additional investigations are recommended to assess the current condition of the well casing and screen for life expectancy evaluations.

To understand the downhole conditions of the Well and assess long-term operations, BC&A recommends the scope of work below for further investigation. The steps below build upon each other. Following Step 2, subsequent steps do not be performed if the City is satisfied with the condition assessment determined at any remaining step in the process. The City could then skip to step 7 and reinstall the pump.

1. **Test Pumping.** Utilize the existing pump to perform a minimum 24-hour constant rate test to obtain pumping water levels and associated flow measurements. Monitor the test well adjacent to the Green Well. This testing could be performed by City personnel.
2. **Remove Existing Pump.** Remove the existing motor, column, and pump from the Well. This will allow for pump inspection and well casing and screen condition. Normally after 9 years of operation and no reported pump problems this would not be performed, however, it is the only way to confirm the downhole condition of the Well.
    - **Video Inspection.** The initial video following the removal of the pump will determine the plan moving forward. If the Well is dirty/clogged or broken, a plan to clean or repair would be prepared. Multiple videos will likely be necessary to visually inspect the interior of the well for any potential repairs that are necessary and to verify the work to close out the project.
3. **Clean the Well.** In the event the condition of the Well is good without major concerns, the Well may be brushed, and accumulated sediment bailed from the base of the Well. The Well may be brushed with a steel wire brush.
4. **Geophysical Logging, if necessary.** Performing geophysical logs of the Well would provide information on the casing integrity and estimated casing thickness if the City desires a full investigation. This item would occur following the brushing and bailing of the Well casing. We do not recommend this item as necessary based on the current age of the well (9 years) but have included it as an optional item to consider.
5. **Cleaning and Redevelopment with Chemicals.** A second video inspection will be performed following the brushing and bailing to assess any changes to the casings and liner (i.e., holes, splits, collapses, etc.). A non-aggressive chemical treatment may be necessary to improve the specific capacity and open up the slots in the screen by removing fine silts and clays. The treatment will likely include a clay dispersant (NW-220). The chemicals will need to be agitated upon installation and removed by either a downhole pump or airlift suction with a dual swab. A final video will be performed prior to the reinstallation of the City pump.
6. **Repairs, if necessary.** To patch holes or splits in the casing, swages may need to be installed. These would involve installing 4-foot long, 304 Stainless steel patches. For purposes of budgeting, a total of three (3) patches are included in the extended well investigation cost estimate, though we do not anticipate them being needed.
7. **Reinstall Pump and Test Pumping.** Reinstall the existing pump, column and motor in the well. Perform another 24-hour constant rate test to assess a current baseline of the Well. Record the pumping water levels and associated flow measurements. City personnel would perform this test.

A conceptual cost estimate for additional investigation and redevelopment of the Well is provided in Attachment H. The estimated investigation cost is $119,900. The estimated extended investigation/repair cost including swages/patches and Geophysical logging is $214,900.

SUMMARY FINDINGS

- The Green Well is a high capacity well for the City of Riverton. The Well has not been in operation for the last six years (2015-2021) due to elevated TDS and hardness compared to JVWCD water currently utilized by the City. The downhole condition of the Well has not been inspected for approximately nine years since the Well was equipped. The Well appears to produce the equipped 2,000 gpm, however, has only been exercised for short durations for operation and maintenance purposes for the last six years. The Well has experienced additional drawdown, though it appears that it is attributed to pumping to waste where the well is operating with less head and likely pumping more than 2,000 gpm (no flow measurements available). The Well may be experiencing some plugging, though further investigation is necessary to obtain additional information within the Well. At this time, it appears that the Green Well is in good working condition, however the downhole condition of the Well has not been verified.

- The Well was drilled and completed in 2012 and is approximately nine years old. Typical life expectancy is on the order of 50 years or more for a well constructed similar to the Green Well. The condition of the Well is unknown as it has not been visually inspected since it was completed. There are a number of items that may reduce the life expectancy of a well and a downhole video may provide additional information to deduce any visual problems.

- Very little if any static water level measurements are available for the Green Well. Upon the completion of the Well in 2012, the driller noted that the Well was experiencing a 10-psi shut-in pressure or approximately 23 feet of artesian head. In September 2021, the Green Well was shut-in for approximately 1 hour. A pressure reading was not measurable; however, water was observed dripping from the air-vac, or approximately 5 feet above ground level. This observation indicates approximately 18 feet of static water level decline from the 2012 measurement. However, this pressure observation is likely not representative of the aquifer potential due to the limited time the Well experienced being shut-in. Additionally, the Well has been allowed to flow to waste since 2014 when it was equipped allowing the artesian pressure to bleed off. This practice of allowing artesian pressure to flow to waste on a regular basis is not allowed per State of Utah Division of Water Rights (DWRi).

- The efficiency of the Green Well, as measured by its specific capacity (SC) was initially calculated at 11.4 gpm/ft in 2012. A current specific capacity is unknown due to unavailable static water levels. However, the Well continues to operate with a pumping water level between 184 to 215 feet bgs when pumped to waste, with the last two years between 200 and 210 feet bgs.

- We understand that the well flows artesian to waste constantly and was estimated between 50 to 100 gpm. Typical standard practice is to shut in the well when not in use. Keeping the well open when not in use is not allowed by DWRi as the well is constantly bleeding pressure and flowing water from the aquifer.

- Historic water quality results show the Green Well below all drinking water standards with the exception of TDS which has been reported between 548 to 583 mg/L (slightly above the secondary standard of 500 mg/L). The hardness level does not have a drinking water standard and has been reported and classified as "very hard". These two parameters are the limiting factors for the Well to be used in the City culinary system.

- There are very few wells within a 3-mile radius of the Green Well of any similar diameter and specifically depth. Riverton has 5 wells and JVWCD has 3 wells. Additionally, DWRi shows a 6-inch test well adjacent to the Green Well and completed to a similar depth. The original static water levels and associated drawdown are available on Well Drillers Reports. The Riverton Wells have shown approximately 4 to 13 feet of static water level increase over the last 20 years. The JVWCD wells show approximately 1 to 5 feet of decline in the static water levels over the last 8 years. Based on the available information on the Riverton City Wells, it appears that the principal aquifer in the Riverton area is sustainable. The principal aquifer in the area of Riverton appears to be in good condition with increases in the static water levels occurring over the last 20 years based on the available data. This appears that the principal aquifer is sustainable.

- At this time there is evidence the well efficiency and/or pumping water level has slightly declined based on Riverton's own data. However, the data is not well documented since there is no initial static water level.

- A recommended scope of investigation has been provided in this memo in the "Further Investigation" section to obtain additional information on the condition of the well in its current state.

- The conceptual cost for the investigation and retesting is $119,900. If it is assessed that geophysical logs and repair patches are required, the conceptual cost is $214,900.

RECOMMENDATIONS

Based on the lack of available information, BC&A recommends the following for the Green Well, and surrounding City wells:

- It appears that the Green Well is in good working condition. However, at a minimum, we recommend that the City perform Step 1 (a 24-hour constant rate test on the Green Well) to obtain current flow and pumping water level measurements. This information will be compared to the initial pump test and used to assess if the Well has had any decline in specific capacity since it was installed, which may suggest issues within the Well. Nearby wells should be monitored during the pump test for drawdown.

- If warranted following the pump test, and removal of the motor, column and pump, a downhole video investigation is recommended to assess the visual condition of the Well. A video is recommended each time the pump is pulled from the Well.

- BC&A recommends proceeding with the cleaning and retesting of the well as outlined in the scope provided in this memo following the downhole video investigation. This will provide a new baseline set of data for the well for future comparisons.

- Based on the available information on the Riverton City Wells, it appears that the principal aquifer in the Riverton area is sustainable. However, we recommend that the City continue monitoring each City well monthly for static and/or pumping water levels. We recommend recording the associated flow rate during pumping to assess any changes that may have occurred in each well and the aquifer.

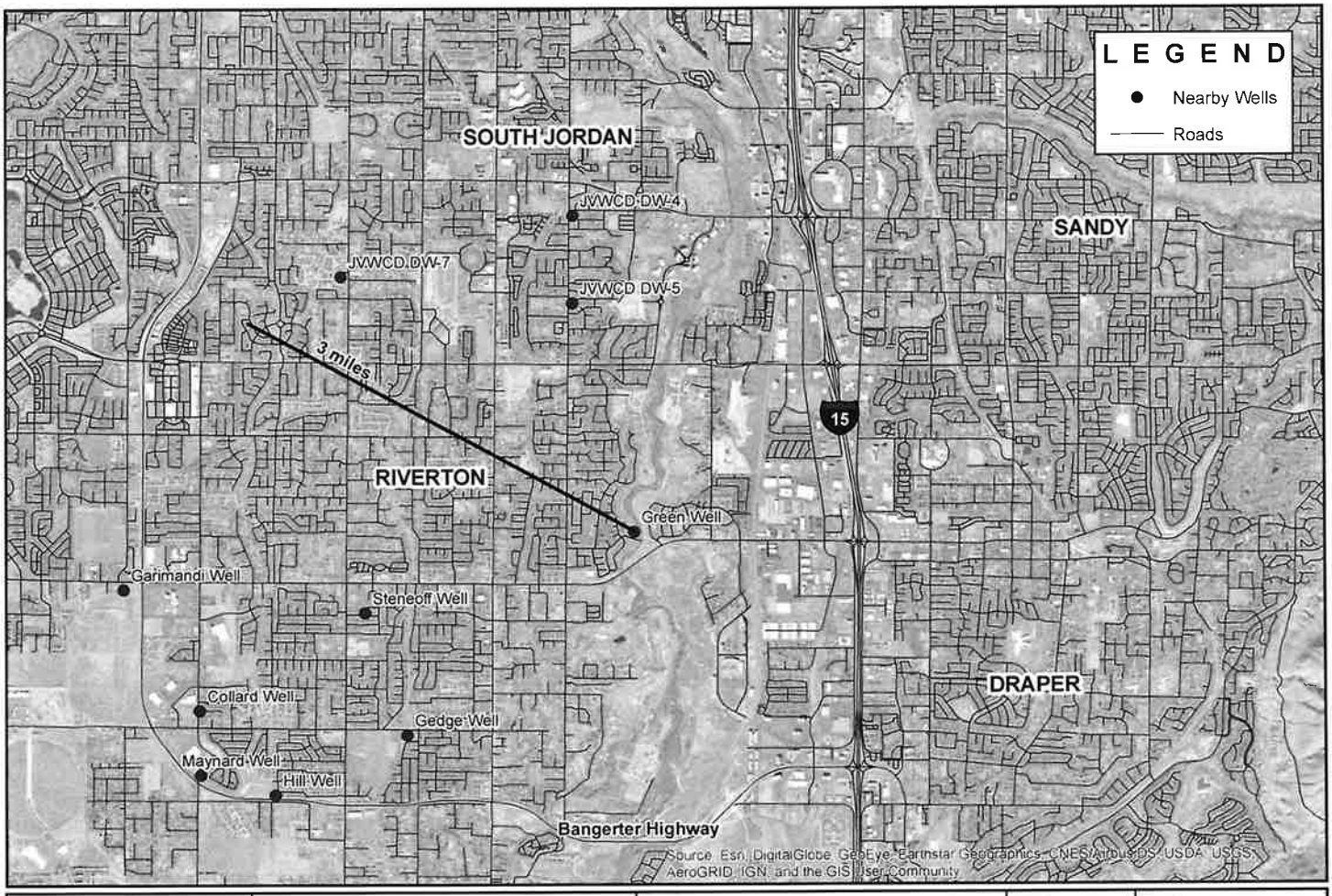
- We recommend the installation of a new pressure gauge at the well head that can manually measure the shut-in pressure when the well is not in operation. The pressure gauge shall have a maximum pressure reading of 50 psi. Our understanding is a transducer is currently installed in the Well. The manual check shall be used in conjunction with the readings associated with the currently installed pressure transducer.

- We recommend shutting in the well when not utilized in the City distribution system . The well head may require modification for this to occur (seals, transducer ports, etc.). We do not recommend allowing the well to flow to waste when not in operation.

- For the Green Well, BC&A recommends collecting static water level data (pressures and/or water levels) daily for a minimum of two months, then transition to weekly when not in operation.

- We concur with Riverton's plans to install a VFD to operate the Green Well. Currently, the Well is equipped with a soft start always and does not allow the well to be pumped at a lower rate.

FIGURES



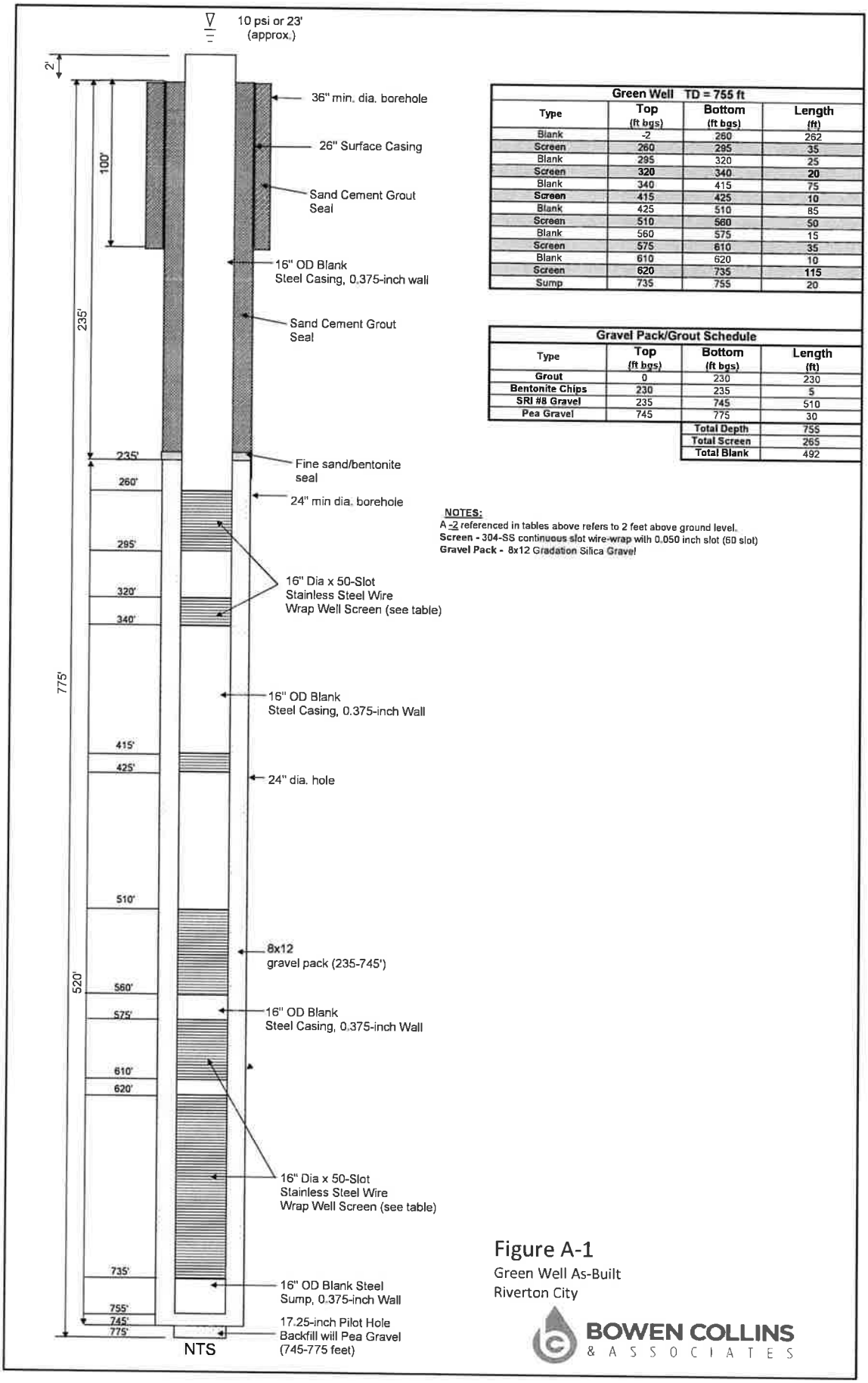
BOWEN COLLINS	RIVERTON CITY GREEN WELL EVALUATION	LOCATION AND NEARBY WELLS MAP	NORTH	SCALE: 0 2,000 4,000 Feet FIGURE NO. 1

P:\Riverton\65-21-02_Green Well Study\2 0 Design Phase\2 9 GIS\Riverton City Wells2.mxd cdekanver 10/11/2021

ATTACHMENTS

ATTACHMENT A

Green Well As-Built and Well Drillers Report



Green Well TD = 755 ft			
Type	Top (ft bgs)	Bottom (ft bgs)	Length (ft)
Blank	-2	260	262
Screen	260	295	35
Blank	295	320	25
Screen	320	340	20
Blank	340	415	75
Screen	415	425	10
Blank	425	510	85
Screen	510	560	50
Blank	560	575	15
Screen	575	610	35
Blank	610	620	10
Screen	620	735	115
Sump	735	755	20

Gravel Pack/Grout Schedule			
Type	Top (ft bgs)	Bottom (ft bgs)	Length (ft)
Grout	0	230	230
Bentonite Chips	230	235	5
SRI #8 Gravel	235	745	510
Pea Gravel	745	775	30
		Total Depth	755
		Total Screen	265
		Total Blank	492

NOTES:
A -2 referenced in tables above refers to 2 feet above ground level.
Screen - 304-SS continuous slot wire-wrap with 0.050 inch slot (50 slot)
Gravel Pack - 8x12 Gradation Silica Gravel

Figure A-1
Green Well As-Built
Riverton City

BOWEN COLLINS & ASSOCIATES

WELL DRILLER'S REPORT
State of Utah
Division of Water Rights AMENDED WELL LOG

For additional space, use "Additional Well Data Form" and attach

Well Identification

Change Application: a37834 (59-1141) WIN: 435648

Owner *Note any changes*

Riverton City Corporation
12830 South 1700 West
Riverton, Utah 84065

Contact Person/Engineer: Clint Dilley 801-955-5605

Well Location *Note any changes*

N 1885 E 2481 from the SW corner of section 26, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Drillers Activity Start Date: 2-25-12 Completion Date: 4-11-12

Check all that apply: [X] New [ ] Repair [ ] Deepen [ ] Clean [ ] Replace [ ] Public Nature of Use: WATER Supply

If a replacement well, provide location of new well. _____ feet north/south and _____ feet east/west of the existing well.

DEPTH (feet) FROM	TO	BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0'	100'	36"	Bucket Rig	Heavy mud
100'	775'	24	reverse circulation	Gel / Bar 10.5 wt

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
0	10				X									
10	30					X		X						
30	100				X		X							
100	105				X		X	X						
105	110							X	X	X		Big Rock		
110	125								X			Big Gravel		
125	130				X		X							
130	160				X		X	X						
160	180				X									
180	190				X									

RECEIVED
MAY 17 2012 JH
WATER RIGHTS
SALT LAKE

RECEIVED
MAY 18 2012 JH
WATER RIGHTS
SALT LAKE

Static Water Level

Date_____ Water Level_____ feet Flowing? [✓] Yes [ ] No

Method of Water Level Measurement Valve If Flowing, Capped Pressure 10 PSI

Point to Which Water Level Measurement was Referenced_____ Elevation_____

Height of Water Level reference point above ground surface_____ feet Temperature_____ degrees [ ] C [ ] F

✓

[redacted] **Well Log** [redacted]

AMENDED WELL LOG

Construction Information

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	DEPTH (feet) FROM	TO	☐SCREEN ☐PERFORATIONS ☐OPEN BOTTOM: SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
+2	260	~~HSLA~~ mild steel	3.75	16" OD	260	295	0.050	15"	
295	320	~~HSLA~~ mild steel	3.75	16" OD	320	340	.050	15"	
340	415	~~HSLA~~ mild steel	3.75	16" OD	415	425	.050	15"	
425	510	~~HSLA~~ mild steel	3.75	16" O.D	510	560	.050	15"	
560	575	~~HSLA~~ mild steel	3.75	16" OD	575	610	.050	15"	

Well Head Configuration: _____ Access Port Provided? ☑Yes ☐No

Casing Joint Type: Butt weld Perforator Used: _____

Was a Surface Seal Installed? ☑Yes ☐No Depth of Surface Seal: 235' feet Drive Shoe? ☐Yes ☐No

Surface Seal Material Placement Method: Trimmie Pipe

Was a temporary surface casing used? ☑Yes ☐No If yes, depth of casing: _____ feet diameter: _____ inches

DEPTH (feet) FROM	TO	SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION: SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
775'	745'	3½ yds 3/8 fine Gravel	3½ yds	
745'	235'	8x12 Silica	58½ TON	
235'	+0'	15 SX Sand Slurry	24 yds	

Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One: GPM	CFS	DRAWDOWN (ft)	TIME PUMPED (hrs & min)
4-17-12	Turbon		3000		239.5	24 HR
4-~~15~~ 14-12	"		3076		245	

Pump (Permanent)

Pump Description: _____ Horsepower: _____ Pump Intake Depth: _____ feet

Approximate Maximum Pumping Rate: _____ Well Disinfected upon Completion? ☐Yes ☐No

Comments

Description of construction activity, additional materials used, problems encountered, extraordinary Circumstances, abandonment procedures. *Use additional well data form for more space.*

Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation Print or Type) License No. 697

Signature Richard Green Robert J Zimmerer (Licensed Well Driller) V-P/ Secretary Date 4-20-12

WELL DRILLER'S REPORT ADDTIONAL DATA FORM
State of Utah
Division of Water Rights

Well Identification

Change Application: a37834 (59-1141)

AMENDED WELL LOG

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Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
190	225				X		X	X						
225	255				X		X							
255	265				X									
265	340				X			X				Clay small Gravel		
340	470				X		X	X				small Gravel & Clay Gravel		
470	680				X		X	X						
680	775				X		X	X						

ATTACHMENT B

Original 24-Hour Constant Rate Test (Zim)

#1 13175

PUMP TEST DATA

TYPE OF PUMP TEST (I.E. STEP; CONSTRANT RATE; OR RECOVERY):

S.W.L.: Flow'g

ENGINE RATE (R.P.M.):

TEST RATE (G.P.M.): 3 00

SPECIFIC CAPACITY: 12.00

TEST DATE:

TEST OPERATOR:

WELL LOCATION:

OWNER OR JOB NAME:

JOB NUMBER: 11159

TIME	MIN.	P.W.L.	SAND
7:30	0 Flowing	91	Tr
7:31	1	171	
7:32	2	171.4	
7:33	3	172.9	
7:34	4	174.3	
7:35	5	175.7	
7:36	6	176.—	
7:37	7	177.10	
7:38	8	178.10	
7:39	9	180.30	.1
7:40	10	180.—	
7:45	12	183.—	
7:50	14	185.—	
7:55	16	191.6	
8:00	18	192.6	.1
8:05	20	193.1	
8:10	25	194.—	
8:15	30	1—	
8:20	35	200.01	
8:25	40	200.21	
8:40	50	202.5	.1
8:55	60 (1 HR)	203	
9:10	70	206.—	
9:25	80	208.—	

TIME	MIN.	P.W.L.
9:55	100 90	209.5
10:20	120 (2 HRS)	209.9
10:—	150	212.9
11:20	180 (3 HRS) 180	214.9
12:25	210	216.6
12:25	240 (4 HRS)	217.9
1:2—	300 (5 HRS)	219.5
3:25	360 (6 HRS)	220.—
4:25	420 (7 HRS)	220
5:25	480 (8 HRS)	220.50
6:25	540 (9 HRS)	221.3
7:25	600 (10 HRS)	221.5
8:2—	660 (11 HRS)	222.—
9:2—	720 (12 HRS)	221
10:25	780 (13 HRS)	220
11:25	840 (14 HRS)	231
12:25	900 (15 HRS)	[illegible]
1:2—	960 (16 HRS)	[illegible]
2:25	1020 (17 HRS)	[illegible]
3:25	1080 (18 HRS)	[illegible]
4:25	1140 (19 HRS)	[illegible]
5:25	1200 (20 HRS)	[illegible]
6:25	1260 (21 HRS)	[illegible]
7:25	1320 (22 HRS)	234.3

TIME	MIN.	P.W.L.
	1440 (24 HRS)	
.1	1500 (25 HRS)	
	1560 (26HRS)	
	1620 (27 HRS)	
.1	1680 (28 HRS)	
	1740 (29 HRS)	
	1800 (30 HRS)	
	1860 (31 HRS)	
.1	1920 (32 HRS)	
	1980 (33 HRS)	
	2040 (34 HRS)	
	2100 (35 HRS)	
	2160 (36 HRS)	
	2220 (37 HRS)	
.2	2280 (38 HRS)	
	2340 (39 HRS)	
	2400 (40 HRS)	
	2460 (41 HRS)	
	2520 (42 HRS)	
	2580 (43 HRS)	
	2640 (44 HRS)	
.1	2700 (45 HRS)	
	2760 (46 HRS)	
	2820 (47 HRS)	

E-mail: zim@ziminduslries.com • www.ziminduslries.com

PUMP TEST DATA

TYPE OF PUMP TEST (I.E. STEP; CONSTRANT RATE; OR RECOVERY): Recovery

S.W.L.: Flowing

TEST DATE: Apr 17 2012

ENGINE RATE (R.P.M.): 1475

TEST OPERATOR: Moe / Ricardo

TEST RATE (G.P.M.): 3000

WELL LOCATION: [illegible] Ballum

SPECIFIC CAPACITY: 12.76

OWNER OR JOB NAME: [illegible]

JOB NUMBER: 11139

TIME	MIN.	P.W.L.	SAND
8:03	0	65.0	
8:04	1	56.4	
8:05	2	51.2	
8:06	3	48.4	
8:07	4	45.9	
8:08	5	44.0	
8:09	6	42.7	
8:10	7	41.1	
8:11	8	40.0	
8:12	9	39.0	
8:13	10	39.0	
8:15	12	36.4	
8:17	14	35.0	
8:19	16	33.7	
8:21	18	32.8	
8:23	20	31.7	
8:28	25	29.8	
8:33	30	29.0	
8:38	35	26.5	
8:48	40	25.6	
9:00 ~~8:56~~	50	21.6	
9:10	60 (1 HR)	22.0	
9:20	70	19.8	
9:30	80	[illegible]	

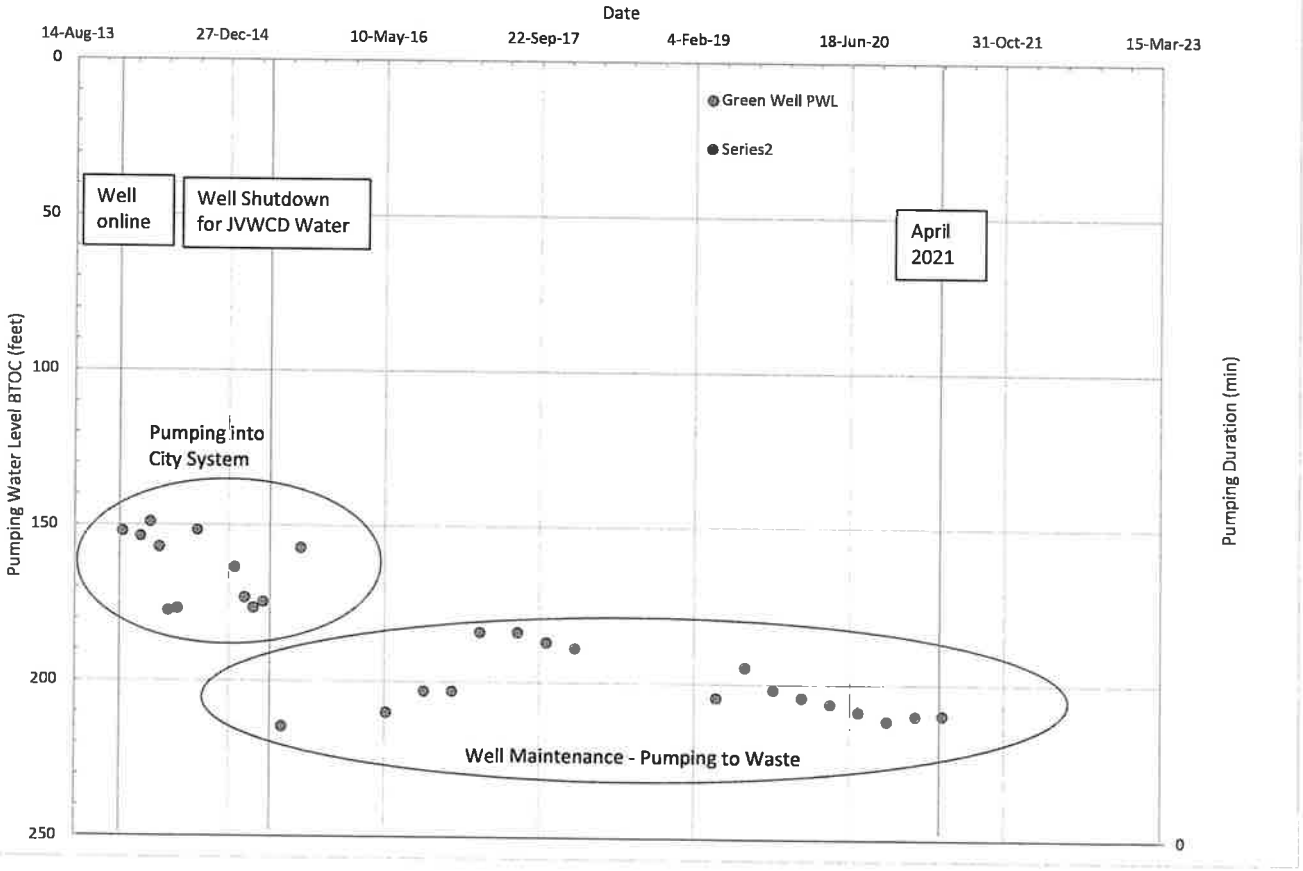
TIME	MIN.	P.W.L.
9:50	100	15.2
10:10	120 (2 HRS)	13.8
10:40	150	11.1
11:10	180 (3 HRS)	9.5
11:40	210	8
12:10	240 (4 HRS)	6.5
1:10	300 (5 HRS)	4.0
2:10	360 (6 HRS)	2.1
3:10	420 (7 HRS)	0
	480 (8 HRS)	
	540 (9 HRS)	
	600 (10 HRS)	
	660 (11 HRS)	
	720 (12 HRS)	
	780 (13 HRS)	
	840 (14 HRS)	
	900 (15 HRS)	
	960 (16 HRS)	
	1020 (17 HRS)	
	1080 (18 HRS)	
	1140 (19 HRS)	
	1200 (20 HRS)	
	1260 (21 HRS)	
	1320 (22 HRS)	

TIME	MIN.	P.W.L.
	1440 (24 HRS)	
	1500 (25 HRS)	
	1560 (26HRS)	
	1620 (27 HRS)	
	1680 (28 HRS)	
	1740 (29 HRS)	
	1800 (30 HRS)	
	1860 (31 HRS)	
	1920 (32 HRS)	
	1980 (33 HRS)	
	2040 (34 HRS)	
	2100 (35 HRS)	
	2160 (36 HRS)	
	2220 (37 HRS)	
	2280 (38 HRS)	
	2340 (39 HRS)	
	2400 (40 HRS)	
	2460 (41 HRS)	
	2520 (42 HRS)	
	2580 (43 HRS)	
	2640 (44 HRS)	
	2700 (45 HRS)	
	2760 (46 HRS)	
	[illegible]	

ATTACHMENT C

Available Green Well Water Levels

Figure C-1 - Green Well Pumping Water Levels
2014 - 2021 Reported Below Top of Casing



WELL LEVEL'S

GREEN **BOWL DEPTH:** 313

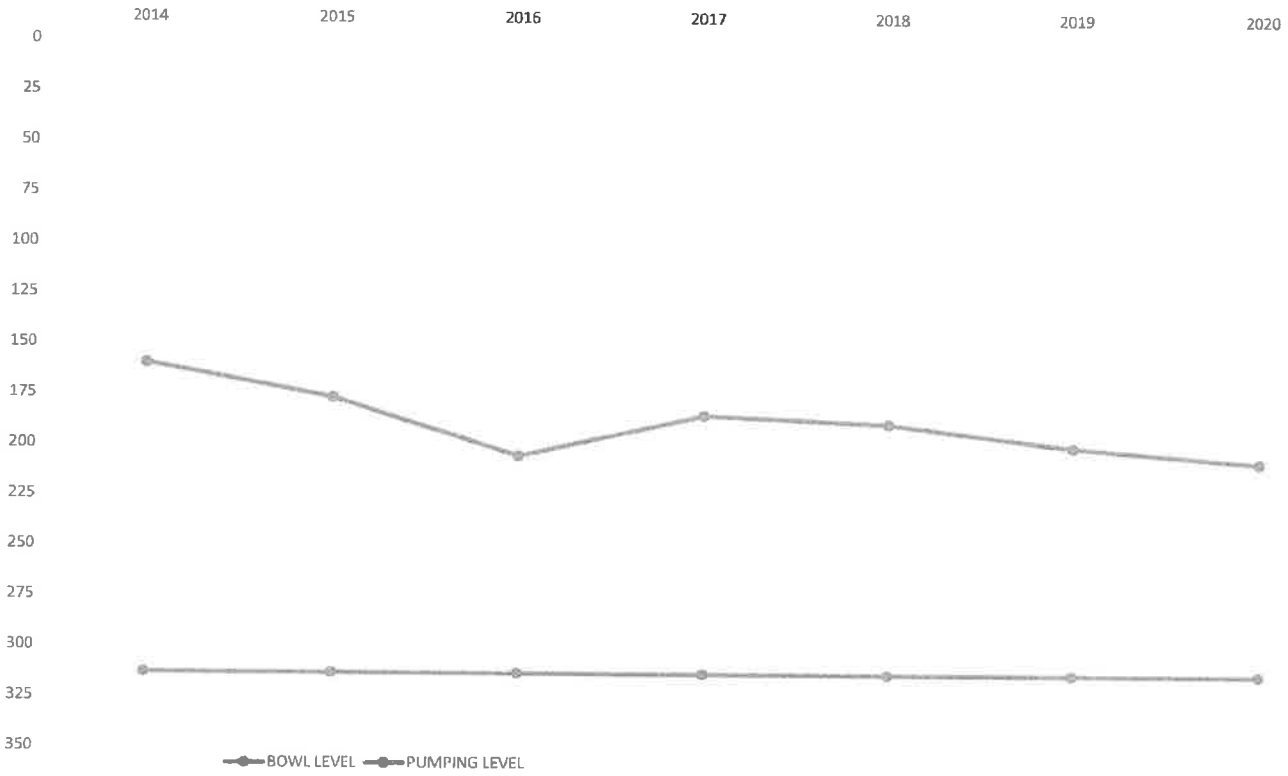
PUMPING LEVEL IN FEET

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	AVG.	RANGE
2014	152		153.6	149	157	177.5	176.8		151.6				159.6	28.5
2015	163.5	173.2	176.5	174.6		214.6			157.2				176.6	57.4
2016					210				203			203	205.3	7
2017			184				193.9			187.1			185.0	3.2
2018	188.9												188.9	0
2019				204.5			194.6			201.8			200.3	9.9
2020	204.2			206.2			208.8			211.6			207.7	7.4
2021	210			209.8										
2022														
2023														
2024														
2021														
2022														
2023														

	NO DATA WAS CCOLLECTED AT THAT TIME
	HIGHEST LEVEL TAKEN DURING THAT YEAR
	LOWEST LEVEL TAKEN DURING THAT YEAR
	CHANGED OVER TO JVWC 5/2015
	May 2015 PUMPING LEVELS WERE TAKEN AFTER WELL RAN TO FLUSH ONLY no head pressure for FOR 2 HRS

WELL LEVEL'S

GREEN WELL



May 2015 PUMPING LEVELS WERE TAKEN AFTER WELL RAN FOR 2 HRS TO FLUSH ONLY no head pressure
Artesian well flows to surface so there is no static level

ATTACHMENT D

Well Logs
(JVWCD and Riverton City)

WELL DRILLER'S REPORT
State of Utah
Division of Water Rights

DW-4 JVWCD

For additional space, use "Additional Well Data Form" and attach DW-4

Well Identification

Change Application: a29595 (59-5786) WIN: 428114

Owner *Note any changes*

Jordan Valley Water Conservancy District
P.O. Box 70
West Jordan UT 84084-0070

DUPLICATE

Contact Person/Engineer: Bowen Collins

Well Location *Note any changes*

~~N 2741 E 100 from the SW corner of section 14, Township 3S, Range 1W, SL B&M~~
N 75 E 143 from the W4 corner of Section 14, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Drillers Activity Start Date: 3-14-07 Completion Date: 3-22-07

Check all that apply: ☒ New ☐ Repair ☐ Deepen ☐ Clean ☐ Replace ☐ Public Nature of Use: public supply

If a replacement well, provide location of new well. _____ feet north/south and _____ feet east/west of the existing well.

DEPTH (feet) FROM	TO	BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0	100	34	Augur	water
100	440	22	Reverse Rotary	water

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
0	10				✓									
10	20					✓								
20	30				✓			✓						
30	40						✓							
40	60				✓			✓						
60	70							✓						
70	90					✓								
90	115				✓			✓						
115	140				✓			✓						
140	185							✓						

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DEC 10 2009
WATER RIGHTS
SALT LAKE

Static Water Level

Date 5-2-07 Water Level 33.6 feet Flowing? ☐ Yes ☒ No
Method of Water Level Measurement Sounder If Flowing, Capped Pressure _____ PSI
Point to Which Water Level Measurement was Referenced GL Elevation 4390
Height of Water Level reference point above ground surface _____ feet Temperature _____ degrees ☐ C ☐ F

[redacted] **Well Log** [redacted]

Construction Information

DEPTH (feet) FROM	TO	CASING AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	DEPTH (feet) FROM	TO	☑SCREEN ☐PERFORATIONS ☐OPEN BOTTOM SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
0	100	A53 Gr B steel	.312	26	208	218	.060	12	Fiber wrap
plus 3	208	FRP Fiberglass	.375	12	277	282	"	"	"
218	277	"	"	"	287	292	"	"	"
282	287	"	"	"	296	321	"	"	"
292	296	"	"	"	347	352	"	"	"

Well Head Configuration: 2.9 ft Stick up — Access Port Provided? ☑Yes ☐No

Casing Joint Type: Threaded — Perforator Used: no

Was a Surface Seal Installed? ☑Yes ☐No — Depth of Surface Seal: 170 feet — Drive Shoe? ☐Yes ☑No

Surface Seal Material Placement Method: pumped with trimie

Was a temporary surface casing used? ☐Yes ☑No If yes, depth of casing: _____ feet diameter: _____ inches

DEPTH (feet) FROM	TO	SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION: SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	100	Cement grout	13 yds	15sk slurry
0	170	Bentonite	19 yds	3/8 chips
170	440	Filter pack	27 yds	8X12

Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One GPM	CFS	DRAWDOWN (ft)	TIME PUMPED (hrs & min)
5-2-07	Constant Rate	800	✓		160	24hrs

Pump (Permanent)

Pump Description: _____ Horsepower: _____ Pump Intake Depth: _____ feet

Approximate Maximum Pumping Rate: _____ Well Disinfected upon Completion? ☐Yes ☐No

Comments Description of construction activity, additional materials used, problems encountered, extraordinary Circumstances, abandonment procedures. *Use additional well data form for more space.*

Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature Albert J Zimm (Licensed Well Driller) Date 11-2-09

WELL DRILLER'S REPORT ADDTIONAL DATA FORM
State of Utah
Division of Water Rights

Well Identification

Change Application: a29595 (59-5786)

DUPLICATE

Owner *Note any changes*

Jordan Valley Water Conservancy District
P.O. Box 70
West Jordan UT 84084-0070

Contact Person/Engineer: Bowen Collins

Well Location *Note any changes*

~~N 2741 E 100 from the SW corner of section 14, Township 3S, Range 1W, SL B&M~~
N 75 E 143 from the W4 corner of Section 14, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
185	220				✓			✓						
220	285				✓		✓✓							
285	330						✓✓							
330	370				✓		✓							
370	380					✓								
380	400					✓								Fine SAND
400	410				✓		✓							
410	415						✓							
415	440				✓		✓							

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DEC 10 2009
WATER RIGHTS
SALT LAKE

[redacted] **Well Log** [redacted]

Construction Information (con't)

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	DEPTH (feet) FROM	TO	☑SCREEN ☐PERFORATIONS ☐OPEN BOTTOM: SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
321	347	FRP Fiberglass	.375	12	375	380	.060	12	Fiberwrap
352	375	"	"	"	403	408	"	"	"
380	403	"	"	"					
408	428	"	"	"					

DEPTH (feet) FROM	TO	SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION: SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)

Comments (con't)

Well Driller Statement This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature Robert J Zimmer (Licensed Well Driller) Date 1-12-09

Kelly Hermelle Utah.gov

WELL DRILLER'S REPORT
State of Utah
Division of Water Rights

DW-5 JVWCD

For additional space, use "Additional Well Data Form" and attach

DW-5

Well Identification

Change Application: a29595 (59-5786) WIN: 428115

DUPLICATE

Owner *Note any changes*

Jordan Valley Water Conservancy District
P.O. Box 70
West Jordan UT 84084-0070

Contact Person/Engineer: Bowen Collins

Well Location *Note any changes*

~~N 2683 E 190 from the SW corner of section 23, Township 3S, Range 1W, SL B&M~~
S 444 E 168 from the NW corner of Section 23, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation, local well #)

Drillers Activity Start Date: 2-1-07 Completion Date: 4-1-07

Check all that apply: ☒ New ☐ Repair ☐ Deepen ☐ Clean ☐ Replace ☐ Public Nature of Use: Public Supply

If a replacement well, provide location of new well. _____ feet north/south and _____ feet east/west of the existing well.

DEPTH (feet) FROM	TO	BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0	100	34	Augur	water
100	480	22	Reverse Rotary	water

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture, degree of weathering, hardness, water quality, etc.)
0	25				✓			✓						
25	75				✓		✓							
75	80				✓									
80	115						✓	✓	✓					
115	135				✓			✓						
135	140							✓						
140	145						✓							
145	155				✓			✓						
155	165							✓						
165	185				✓		✓							

This log was Rec'd on 12/10/2008 - ser mai l log attached

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JUN 30 2010 KH
WATER RIGHTS
SALT LAKE

Static Water Level

Date 3-31-07 Water Level 214 feet Flowing? ☐ Yes ☒ No

Method of Water Level Measurement Sounder If Flowing, Capped Pressure _____ PSI

Point to Which Water Level Measurement was Referenced GL Elevation 4373

Height of Water Level reference point above ground surface _____ feet Temperature _____ degrees ☐ C ☐ F

[redacted] **Well Log** [redacted]

WELL DRILLER'S REPORT ADDTIONAL DATA FORM
State of Utah
Division of Water Rights

DUPLICATE

Well Identification

Change Application: a29595 (59-5786)

Owner *Note any changes*

Jordan Valley Water Conservancy District
P.O. Box 70
West Jordan UT 84084-0070

Contact Person/Engineer: Bowen Collins

Well Location *Note any changes*

~~N 2682 E 190 from the SW corner of section 23, Township 3S, Range 1W, SL B&M~~
S 1944 E 168 from the NW corner of Section 23, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation, local well #)

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture, degree of weathering, hardness, water quality, etc.)
185	200				✓			✓						
200	210				✓			✓						
210	215							✓						
215	220							✓						
220	235				✓			✓						
235	245				✓			✓						
245	260							✓						
260	290				✓									
290	295				✓			✓						
295	305							✓						
305	310							✓						
310	320				✓			✓						
320	335							✓						
335	340							✓						
340	365							✓						
365	380				✓			✓						
380	385							✓						
385	425				✓			✓						
425	440							✓						
440	481				✓			✓						

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WATER RIGHTS
SALT LAKE

[redacted] Well Log [redacted]

Construction Information

DEPTH (feet) FROM	TO	CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)
0	100	AS3 Gr B Steel	.312	26
0	210	FRP Fiberglass	.375	12
215	238	"	"	"
253	291	"	"	"
326	334	"	"	"

DEPTH (feet) FROM	TO	☑SCREEN ☐PERFORATIONS ☐OPEN BOTTOM SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
210	215	.060	12	Fiberwrap
238	253	"	"	"
291	326	"	"	"
334	354	"	"	"
374	394	"	"	"

Well Head Configuration: .7 Ft stickup — Access Port Provided? ☑Yes ☐No

Casing Joint Type: Thread — Perforator Used: MD

Was a Surface Seal Installed? ☑Yes ☐No — Depth of Surface Seal: 180 feet — Drive Shoe? ☐Yes ☑No

Surface Seal Material Placement Method: Pumped with trimie

Was a temporary surface casing used? ☐Yes ☑No If yes, depth of casing: _____ feet diameter: _____ inches

DEPTH (feet) FROM	TO	SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal/sack etc.)
0	100	Cement grout	13 yds	15sk slurry
0	175	Cement grout	20 yds	15sk slurry
175	180	Bentonite	10 Bags	3/8 chips
180	481	Filter pack	30 yds	8X12

Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One GPM	Units Check One CFS	DRAWDOWN (ft)	TIME PUMPED (hrs & min)
3-31-07	Constant Rate	1200	✓		171	24hrs

Pump (Permanent)

Pump Description: _____ Horsepower: _____ Pump Intake Depth: _____ feet

Approximate Maximum Pumping Rate: _____ Well Disinfected upon Completion? ☐Yes ☐No

Comments Description of construction activity, additional materials used, problems encountered, extraordinary Circumstances, abandonment procedures. *Use additional well data form for more space.*

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JUN 30 2010
WATER RIGHTS
SALT LAKE

Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature Robert J Zimm (Licensed Well Driller) Date 11-2-09

Construction Information (con't)

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	DEPTH (feet) FROM	TO	☑ SCREEN ☐ PERFORATIONS ☐ OPEN BOTTOM: SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
354	374	FRP Fiberglass	.375	12	404	414	.060	12	FRP wrap
384	404	"	.375	12	427	432	.060	12	FRP wrap
414	427	"	.375	12	436	441	.060	12	FRP wrap
432	436	"	.375	12					
441	461	"	.375	12					

DEPTH (feet) FROM	TO	SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION: SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)

Comments (con't)

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JUN 30 2010
WATER RIGHTS
SALT LAKE

Well Driller Statement This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature [signature] (Licensed Well Driller) Date 11-2-09

WELL DRILLER'S REPORT
State of Utah
Division of Water Rights

DW-7 JVWCD

For additional space, use "Additional Well Data Form" and attach

Well Identification

Change Application: a29595 (59-5786) WIN: 431292

DUPLICATE

Owner *Note any changes*

Jordan Valley Water Conservancy District
P.O. Box 70
West Jordan UT 84084-0070

Contact Person/Engineer: Tony Winkle Bennett Collins

Well Location *Note any changes*

N 5061 E 2546 from the SW corner of section 21, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Drillers Activity Start Date: 6/9/08 Completion Date: 10/10/08

Check all that apply: [X] New [ ] Repair [ ] Deepen [ ] Clean [ ] Replace [ ] Public Nature of Use:

If a replacement well, provide location of new well. _____ feet north/south and _____ feet east/west of the existing well.

DEPTH (feet) FROM	TO	BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0	50'	42"	Auger Rig	Dry
50'	645'	28"	Reverse Circulation	Water Only

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
0	40'				X									
40'	80'				X		X							
80'	150'					X	X	X						
150'	300'				X		X							
300	306				X									
306	318						X	X						
318	340						X	X						
340	350				X									
350	360						X	X						
360	378				X									

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OCT 21 2009
WATER RIGHTS
SALT LAKE

Static Water Level

Date 10/10/08 Water Level 112.6 feet Flowing? [ ] Yes [X] No
Method of Water Level Measurement Electric Sounder If Flowing, Capped Pressure _____ PSI
Point to Which Water Level Measurement was Referenced Ground Level Elevation _____
Height of Water Level reference point above ground surface _____ feet Temperature _____ degrees [ ] C [ ] F

[redacted] ***Well Log*** [redacted]

Construction Information

DEPTH (feet) FROM	TO	CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)
0	40'	Conductor	.375	32"
40'	260'	FRP Blank	.500	16"
268'	278'	Well Casing	.375	16"
300'	308'	Well Casing	.375	16"
318	324	Well Casing	.375	16"

DEPTH (feet) FROM	TO	☐SCREEN ☐PERFORATIONS ☐OPEN BOTTOM SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
260	268	.070	16"	304 SS.
278	300	.070	16"	304 SS
308	318	.070	16"	304 SS
324	340	.070	16"	304 SS
352	356	.070	16"	304 SS.

Well Head Configuration: _____ Access Port Provided? ☐Yes ☐No

Casing Joint Type: Butt Weld Perforator Used: _____

Was a Surface Seal Installed? ☒Yes ☐No Depth of Surface Seal: 50' feet Drive Shoe? ☐Yes ☒No

Surface Seal Material Placement Method: Tremie Pipe

Was a temporary surface casing used? ☒Yes ☐No If yes, depth of casing: 50 feet diameter: 32 inches

DEPTH (feet) FROM	TO	SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)

Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One GPM	CFS	DRAWDOWN (ft)	TIME PUMPED (hrs & min)
8/19/08	Turbine Pump		2500		112.6	68½

Pump (Permanent)

Pump Description: _____ Horsepower: _____ Pump Intake Depth: 278 feet

Approximate Maximum Pumping Rate: _____ Well Disinfected upon Completion? ☒Yes ☐No

Comments Description of construction activity, additional materials used, problems encountered, extraordinary Circumstances, abandonment procedures. *Use additional well data form for more space.*

RECEIVED
OCT 21 2009
WATER RIGHTS
SALT LAKE

Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature Albert J Zimmerer (Licensed Well Driller) Date 10/16/08

WELL DRILLER'S REPORT ADDTIONAL DATA FORM
State of Utah
Division of Water Rights

DUPLICATE

Well Identification

Change Application: a29595 (59-5786)

Owner *Note any changes*

Jordan Valley Water Conservancy District
P.O. Box 70
West Jordan UT 84084-0070

Contact Person/Engineer: Bowen Collins

Well Location *Note any changes*

N 5061 E 2546 from the SW corner of section 21, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
378	382						X	X						
382	392				X									
392	402						X	X						
402	422				X									
422	428						X	X						
428	431				X									
431	463						X	X						
463	476				X		\							
476	498						X	X						
498	510				X									
510	535						X	X						
535	558				X									
558	571						X	X						
571	590				X									
590	595						X	X						
595	615				X									
615	625						X	X						

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OCT 21 2009
WATER RIGHTS
SALT LAKE

[redacted] *Well Log* [redacted]

Construction Information (con't)

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)
340	352	Well Casing MS	.375	16
356	378	" " "	.375	16
382	392	" " "	.375	16
404	422	" " "	.325	16
428	436	" " "	.375	16
463	476	" " "	.375	16
498	510	" " "	.375	16
535	558	" " "	.375	16
571	590	" " "	.375	16
595	615	" " "	.375	16
625	645	" " "	.375	16

DEPTH (feet) FROM	TO	☐SCREEN ☐PERFORATIONS ☐OPEN BOTTOM: SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
378	382	.070	16	304 SS
392	404	.070	16	"
422	428	.070	16	"
436	463	.070	16	"
476	498	.070	16	"
510	535	.070	16	"
558	571	.070	16	"
590	595	.070	16	"
615	625	.070	16	"

DEPTH (feet) FROM	TO	SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION: SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
130	645	6X9 Silica Sand	114 ton	
130	125	Bentonite Chips	10 bags	
125	0	15 sk ~~Concrete~~ Sand Slurry	18 yd³	1716

Comments (con't)

RECEIVED
OCT 21 2009
WATER RIGHTS
SALT LAKE

Well Driller Statement This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature Albert J Zimmerman (Licensed Well Driller) Date 10/16/08

Utah Division of Water Rights

WELLPRT Well Log Information Listing

Collard Well - Riverton City

Version: 2003.09.18.00 **Rundate: 10/08/2003 05:43 PM**

Utah Division of Water Rights

Water Well Log

LOCATION:

S 1789 ft E 48 ft from N4 CORNER of SECTION 5 T 4S R 1W BASE SL Elevation: 4593.00 feet
COLLARD WELL; 137TH SOUTH 26TH WEST

DRILLER ACTIVITIES:

ACTIVITY # 1 NEW WELL
DRILLER: COMER DRILLING COMPANY LICENSE #: 5
START DATE: 01/23/1963 COMPLETION DATE: 03/01/1963

BOREHOLE INFORMATION:

Depth(ft) From	To	Diameter(in)	Drilling Method	Drilling Fluid
0	345	12	CABLE	

LITHOLOGY:

Depth(ft) From	To	Lithologic Description	Color	Rock Type
0	5	OTHER SOIL		
5	99	CLAY,GRAVEL,BOULDERS	TAN	
99	110	CLAY	TAN	
110	145	CLAY,GRAVEL,BOULDERS		
145	180	CLAY,BOULDERS	TAN	
180	270	WATER-BEARING,SAND,GRAVEL		
270	290	CLAY,SAND,GRAVEL		
290	345	CLAY,SAND		

WATER LEVEL DATA:

Date	Time	Water Level (feet) (-)above ground	Status
03/01/1963		168.00	STATIC

CONSTRUCTION - CASING:

Depth(ft) From	To	Material	Gage(in)	Diameter(in)
0	328	NEW	.375	12

CONSTRUCTION - SCREENS/PERFORATIONS:

Depth(ft) From	To	Screen(S) or Perforation(P)	Slot/Perf. siz	Screen Diam/Length Perf(in)	Screen Type/# Perf.
180	320	PERFORATION	0.5	2.5	APPROX 1250

WELL TESTS:

Date	Test Method	Yield (CFS)	Drawdown (ft)	Time Pumped (hrs)
03/01/1963	PUMP	1.448	21	5
03/01/1963	PUMP	1.916	37	5
03/01/1963	PUMP	2.730	79	5

WATER QUALITY DATA AVAILABLE

(59-1141)

Form 113—SM—12-60

Examined 3-18-63 ACT
Recorded: B. C. 3-19-63 T. B. ACT.
Inspection Sheet 3-19-63 - NW
Copied PHOTOSTATED 3-20-63

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. A25402-a
Claim No. A 4078
Coordinate No. (C-4-1)5acb

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

TITLE CHANGE-SEE ABSTRACT

(1) WELL OWNER:
Name EARL L MAYNARD
Address 1624W 1340S RIVERTON

(2) LOCATION OF WELL:
County SALT LAKE Ground Water Basin (leave blank)
~~North~~ South 1700 feet, East ~~West~~ 75 feet from NW Corner of Section 5, T. 4 S, R. 1 W SLBM (strike out words not needed)

(3) NATURE OF WORK (check): New Well ☑ Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure:

(4) NATURE OF USE (check): Domestic ☐ Industrial ☐ Municipal ☐ Stockwater ☐ Irrigation ☑ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check): Rotary ☐ Dug ☐ Jetted ☐ Cable ☑ Driven ☐ Bored ☐

(6) CASING SCHEDULE: Threaded ☐ Welded ☑
12 " Diam. from 0 feet to 328 feet Gage .375
" Diam. from feet to feet Gage
" Diam. from feet to feet Gage
New ☑ Reject ☐ Used ☐

(7) PERFORATIONS: Perforated? Yes ☑ No ☐
Type of perforator used MILLS KNIFE
Size of perforations 1/2 inches by 2 1/2 inches
APPRX 1250 perforations from 180 feet to 320 feet
perforations from feet to feet
perforations from feet to feet
perforations from feet to feet

(8) SCREENS: Well screen installed? Yes ☐ No ☑
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to
Diam. Slot size Set from ft. to

(9) CONSTRUCTION:
Was well gravel packed? Yes ☐ No ☑ Size of gravel:
Gravel placed from feet to feet
Was a surface seal provided? Yes ☐ No ☐
To what depth? feet
Material used in seal:
Did any strata contain unusable water? Yes ☐ No ☐
Type of water: Depth of strata
Method of sealing strata off:
Was surface casing used? Yes ☐ No ☑
Was it cemented in place? Yes ☐ No ☐

(10) WATER LEVELS:
Static level 148 feet below land surface Date 3/1/63
Artesian pressure lbs. feet above land surface Date

LOG RECEIVED

RECEIVED
MAR 18 1963
STATE ENGINEER'S OFFICE

(11) FLOWING WELL:
Controlled by (check) Valve ☐ Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS: Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☑ No ☐ If so, by whom? COMER
Yield: 650 gal./min. with 21 feet drawdown after 5 hours
" 860 " 37 " 5 "
" 1225 " 79 " 5 "
Bailer test gal./min. with feet drawdown after hours
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? No ☐ Yes ☐

(13) WELL LOG: Diameter of well 12 inches
Depth drilled 345 feet. Depth of completed well 328 feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	5											SOIL
5	99	X			X		X					TAN
99	110	X										TAN
110	145	X		X			X					
145	180	X					X					TAN
180	270			X	X							WATER ✓
270	290	X		X	X							
290	345	X		X								

Work started JAN 23 - 1963 Completed MAR 1 1963

(14) PUMP:
Manufacturer's Name
Type: H. P.
Depth to pump or bowles feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.
Name ELDON COMER (Person, firm, or corporation) (Type or print)
Address LEHI UTAH
(Signed) Eldon Comer (Well Driller)
License No. 5 Date MAR 18, 1963

USE OTHER SIDE FOR ADDITIONAL REMARKS

Utah Division of Water Rights

WELLPRT Well Log Information Listing

Garimandi Well - Riverton City

Version: 2003.09.18.00 **Rundate: 10/08/2003 06:53 PM**

Utah Division of Water Rights

Water Well Log

LOCATION:

S 320 ft W 122 ft from NE CORNER of SECTION 31 T 3S R 1W BASE SL Elevation: 4648.00 feet
GARAMENDI WELL 126TH S. 40TH WEST

DRILLER ACTIVITIES:

ACTIVITY # 1 NEW WELL
START DATE: 02/23/1963 COMPLETION DATE: 03/28/1963

BOREHOLE INFORMATION:

Depth(ft) From	Depth(ft) To	Diameter(in)	Drilling Method	Drilling Fluid
0	700	12	CABLE	

LITHOLOGY:

Depth(ft) From	Depth(ft) To	Lithologic Description	Color	Rock Type
0	1	OTHER TOP SOIL		
1	3	GRAVEL		
3	4	CLAY		
4	48	CLAY,GRAVEL,BOULDERS		
48	77	CLAY,BOULDERS	TAN	
77	85	CLAY,GRAVEL LITTLE CLAY		
85	104	CLAY,GRAVEL HALF CLAY		
104	116	WATER-BEARING,GRAVEL		
116	156	CLAY,GRAVEL		
156	159	WATER-BEARING,GRAVEL		
159	222	CLAY,SAND,GRAVEL RED SANDY CLAY, STREAKS OF GRAVEL	RED	
222	227	GRAVEL		
227	360	CLAY,GRAVEL		
360	408	CLAY,SAND,GRAVEL SANDY CLAY & GRAVEL		
408	455	CLAY,GRAVEL BROWN CLAY & GRAVEL	BROWN	
455	482	CLAY,GRAVEL BROWN & WHITE CLAY & GRAVEL	BRWN & WHITE	
482	496	CLAY,SAND,GRAVEL SANDY BROWN CLAY & GRAVEL STICKY	BROWN	
496	531	CLAY,GRAVEL BROWN CLAY & GRAVEL	BROWN	
531	596	CLAY,SAND,GRAVEL SANDY BROWN CLAY & GRAVEL	BROWN	
596	663	CLAY,GRAVEL STICKY BROWN CLAY & GRAVEL	BROWN	
663	700	CLAY,SAND,GRAVEL STICKY BROWN CLAY & GRAVEL & SAND STICKY	BROWN	

WATER LEVEL DATA:

Date	Time	Water Level (feet) (-)above ground	Status
03/20/1963		80.00	STATIC

CONSTRUCTION - CASING:

Depth(ft) From	To	Material	Gage(in)	Diameter(in)
0	50	NEW	3.30	20
0	700	NEW	3.30	12

CONSTRUCTION - SCREENS/PERFORATIONS:

Depth(ft) From	To	Screen(S) or Perforation(P)	Slot/Perf. siz	Screen Diam/Length Perf(in)	Screen Type/# Perf.
140	160	PERFORATION	2.50	.438	MILLS/320
212	220	PERFORATION	2.50	.438	288
266	274	PERFORATION	2.50	.438	128
300	306	PERFORATION	2.50	.438	96
400	414	PERFORATION	2.50	.438	244
482	488	PERFORATION	2.50	.438	96
598	604	PERFORATION	2.50	.438	96

CONSTRUCTION - FILTER PACK/ANNULAR SEALS

Depth(ft) From	To	Material	Amount	Density(pcf)
0	50			

WELL TESTS:

Date	Test Method	Yield (CFS)	Drawdown (ft)	Time Pumped (hrs)
03/20/1963	PUMP	1.671	240	22

WATER QUALITY DATA AVAILABLE

59-1189 D)

Form 113—5M—12-60

Examined April 30-1963 ACT.
Recorded: B. C. 4-30-63 ACT. B. ACT.
Inspection Sheet 5-2-63
Copied [illegible] 5-7-63

Garamendi well

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. a41634-34393
Claim No.
Coordinate No. (C-3-1)31aaa

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Riverton City
Address Riverton Utah

(2) LOCATION OF WELL:
County SL Ground Water Basin (leave blank)
~~North~~ South 320 feet, ~~East~~ West 122 feet from NE Corner
of Section 31, T 3 ~~N~~ S, R 1 ~~E~~ W SLBM (strike out words not needed)

(3) NATURE OF WORK (check):
New Well ☒ Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure:

(4) NATURE OF USE (check):
Domestic ☐ Industrial ☐ Municipal ☒ Stockwater ☐
Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):
Rotary ☐ Dug ☐ Jetted ☐
Cable ☒ Driven ☐ Bored ☐

(6) CASING SCHEDULE:
Threaded ☐ Welded ☒
20 " Diam. from 0 feet to 50 feet Gage 3/16
12 " Diam. from 0 feet to 700 feet Gage 5/16
" Diam. from feet to feet Gage
New ☒ Reject ☐ Used ☐

(7) PERFORATIONS:
Perforated? Yes ☒ No ☐
Type of perforator used Mills
Size of perforations 2½" inches by 9/16" inches
320 perforations from 170' feet to 180 feet
288 perforations from 212 feet to 220 feet
288 perforations from 266 feet to 274 feet
24 perforations from 300 feet to 306 feet
252 perforations from 700 feet to 717 feet

(8) SCREENS:
Well screen installed? Yes ☐ No ☒
Manufacturer's Name
Type 16 - 42 - 255 Model No.
Diam. 16 Slot size .060 Set from ft. to
Diam. Slot size Set from ft. to

(9) CONSTRUCTION:
Was well gravel packed? Yes ☐ No ☒ Size of gravel:
Gravel placed from feet to feet
Was a surface seal provided? Yes ☒ No ☐
To what depth? 50 feet
Material used in seal:
Did any strata contain unusable water? Yes ☐ No ☒
Type of water: Depth of strata
Method of sealing strata off:

Was surface casing used? Yes ☒ No ☐
Was it cemented in place? Yes ☐ No ☒

(10) WATER LEVELS:
Static level 5' feet below land surface Date [illegible]
Artesian pressure feet above land surface Date

LOG RECEIVED:

(11) FLOWING WELL:
Controlled by (check) Valve ☐
Cap ☒ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐ No ☐

(12) WELL TESTS:
Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☒ No ☐ If so, by whom? Rhode Bros
Yield: 750 gal./min. with 240 feet drawdown after 22 hours
" " " " " "
" " " " " "
Baller test gal./min. with feet drawdown after hours
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? No ☒ Yes ☐

(13) WELL LOG:
Diameter of well 12 inches
Depth drilled 700 feet. Depth of completed well 700 feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	1										X	Top soil
1	3				X							Gravel
3	4	X										Clay
4	45	X			X		X					Gravel & Boulders
45	77	X					X					Clay
77	83	X			X							Hard Clay & Gravel
83	107	X			X							Hard Clay
107	116				X							Gravel
116	151	X			X							Clay & Gravel
151	222	X		X	X							Hard Clay & Gravel
222	227				X							Gravel
227	306	X			X							Clay & Gravel
306	405	X		X	X							Sandy Clay & Gravel
405	455	X			X							Brown Clay & Gravel
455	482	X			X							Brown Hard Clay & Gravel
482	531	X		X	X							Sandy Brown Clay & Gravel
531	534	X			X							Brown Clay & Gravel
534	531	X		X	X							Sandy Brown Clay & Gravel
534	663	X			X							Sticky Brown Clay & Gravel
663	700	X		X	X							Sandy Brown Clay & Gravel

Work started 1-2-63, 19 63 Completed 1-31-63, 19 63

(14) PUMP:
Manufacturer's Name
Type: H. P.
Depth to pump or bowles feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name J. A. Lee Drilling Co. (Person, firm, or corporation) (Type or print)
Address 3953 Hoz State St
(Signed) J. A. Lee (Well Driller)
License No. 9 Date April 29, 1963

USE OTHER SIDE FOR ADDITIONAL REMARKS

MICROFILMED

Utah Division of Water Rights

WELLPRT Well Log Information Listing

Version: 2003.09.18.00 **Rundate: 10/08/2003 11:11 PM**

Gedge Well - Riverton City

Utah Division of Water Rights

Water Well Log

LOCATION:

S 191 ft W 403 ft from NE CORNER of SECTION 4 T 4S R 1W BASE SL Elevation: 4478.00 feet
GEDGE WELL; REDWOOD AND 134TH SOUTH

DRILLER ACTIVITIES:

ACTIVITY # 1 NEW WELL
DRILLER: COMER DRILLING COMPANY LICENSE #: 5
START DATE: / / COMPLETION DATE: / /

BOREHOLE INFORMATION:

Depth(ft) From	To	Diameter(in)	Drilling Method	Drilling Fluid
0	500	16	CABLE	

LITHOLOGY:

Depth(ft) From	To	Lithologic Description	Color	Rock Type
0	7	OTHER		TOP SOIL
7	32	CLAY		
32	40	CLAY,GRAVEL		
40	58	GRAVEL,BOULDERS		
58	65	SAND,GRAVEL		
65	67	OTHER		HARDPAN
67	78	CLAY,GRAVEL		
78	85	GRAVEL		
85	100	CLAY,GRAVEL,BOULDERS		
100	135	CLAY,GRAVEL		
135	137	BOULDERS		
137	148	CLAY,GRAVEL		
148	178	CLAY,GRAVEL		
178	183	GRAVEL		
183	195	BOULDERS,OTHER		HARDPAN
195	200	GRAVEL,BOULDERS		
200	205	GRAVEL		
205	209	CLAY		
209	217	GRAVEL		
217	228	CLAY		
228	243	CLAY,BOULDERS		
243	245	CLAY,GRAVEL		
245	251	GRAVEL,OTHER		HARDPAN
251	255	CLAY,GRAVEL		
255	258	GRAVEL		
258	275	OTHER		HARDPAN/CONGLO
275	290	GRAVEL,OTHER		HARDPAN
290	297	GRAVEL		
297	302	CLAY,GRAVEL		
302	304	GRAVEL		
304	310	OTHER		CONGLOMERATE
310	333	GRAVEL		
333	340	GRAVEL,BOULDERS		
340	343	GRAVEL		
343	348	CLAY,GRAVEL		

348	354	CLAY	
354	363	CLAY,GRAVEL,BOULDERS	
363	369	GRAVEL,OTHER	HARDPAN
369	396	CLAY,GRAVEL,OTHER	HARPAN
396	400	GRAVEL	
400	405	GRAVEL	
405	412	GRAVEL	
412	435	CLAY,GRAVEL	
435	441	GRAVEL,OTHER	HARDPAN
441	447	CLAY,GRAVEL	
447	454	GRAVEL	
454	463	CLAY,GRAVEL	
463	480	GRAVEL	
480	500	CLAY,SAND,GRAVEL	

WATER LEVEL DATA:

Date	Time	Water Level (feet) (-)above ground	Status
04/23/1973		45.00	STATIC

CONSTRUCTION - CASING:

Depth(ft) From	To	Material	Gage(in)	Diameter(in)
0	100	NEW	.25	20
0	500	NEW	.375	10

CONSTRUCTION - SCREENS/PERFORATIONS:

Depth(ft) From	To	Screen(S) or Perforation(P)	Slot/Perf. siz	Screen Diam/Length Perf(in)	Screen Type/# Perf.
290	480	PERFORATION	.375	2.5	4900

CONSTRUCTION - FILTER PACK/ANNULAR SEALS

Depth(ft) From	To	Material	Amount	Density(pcf)
0	100	CEMENT GROUT		

WATER QUALITY DATA AVAILABLE

GEDGE Y'KLM E)

rm 113—5M—12-60

xamined ____________
ecorded: B. C. ________ T. B. ________
nspection Sheet ____________
opied ____________

REPORT OF WELL DRILLER
STATE OF UTAH

Application No. 59-3896
Claim No. ________
Coordinate No. ________

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:
Name Riverton City
Address 12?? So. ?? ?? Riverton [illegible]

(2) LOCATION OF WELL:
County S. L. Ground Water Basin ________ (leave blank)
North/South 9191.3 feet, East/West W 403 feet from NE Corner
of Section 4 T. 3 S R. 1 W SLBM/USM (strike out words not needed)

(3) NATURE OF WORK (check): New Well ☑
Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐
If abandonment, describe material and procedure: ________

(4) NATURE OF USE (check):
Domestic ☐ Industrial ☐ Municipal ☑ Stockwater ☐
Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):
Rotary ☐ Dug ☐ Jetted ☐
Cable ☑ Driven ☐ Bored ☐

(6) CASING SCHEDULE: Threaded ☐ Welded ☑
20" Diam. from 0 feet to 100 feet Gage 1/4
16" Diam. from 0 feet to 566 feet Gage 3/8
____" Diam. from ____ feet to ____ feet Gage ____
New ☑ Reject ☐ Used ☐

(7) PERFORATIONS: Perforated? Yes ☑ No ☐
Type of perforator used Mills
Size of perforations 3/8 inches by 2 1/2 inches
1,900 perforations from 256 feet to 430 feet
____ perforations from ____ feet to ____ feet
____ perforations from ____ feet to ____ feet
____ perforations from ____ feet to ____ feet
____ perforations from ____ feet to ____ feet

(8) SCREENS: Well screen installed? Yes ☐ No ☐
Manufacturer's Name ________
Type ________ Model No. ________
Diam. ____ Slot size ____ Set from ____ ft. to ____
Diam. ____ Slot size ____ Set from ____ ft. to ____

(9) CONSTRUCTION:
Was well gravel packed? Yes ☐ No ☐ Size of gravel: ________
Gravel placed from ________ feet to ________ feet
Was a surface seal provided? Yes ☑ No ☐
To what depth? 100 feet
Material used in seal: Cement grout
Did any strata contain unusable water? Yes ☐ No ☐
Type of water: ________ Depth of strata ________
Method of sealing strata off: ________

Was surface casing used? Yes ☑ No ☐
Was it cemented in place? Yes ☐ No ☑

(10) WATER LEVELS:
Static level 45 feet below land surface Date 2/27/73
Artesian pressure ____ feet above land surface Date ____

LOG RECEIVED:

(11) FLOWING WELL:
Controlled by (check): Valve ☐
Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐
No ☑

(12) WELL TESTS: Drawdown is the distance in feet the water level is lowered below static level.
Was a pump test made? Yes ☑ No ☐ If so, by whom? Phillips Bros.
Yield: ____ gal./min. with ____ feet drawdown after ____ hours
" ____ " ____ " ____ "
" ____ " ____ " ____ "
Bailer test ____ gal./min. with ____ feet drawdown after ____ hours
Artesian flow ________ g.p.m. Date ________
Temperature of water ________ Was a chemical analysis made? No ☐ Yes ☑

(13) WELL LOG: Diameter of well 16" inches
Depth drilled 566 feet. Depth of completed well 566 feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
0	7										X	Top Soil
7	38	X										
38	40	X			X							
[illegible]	[illegible]				X		X					
[illegible]	65			X	X							
65	67							X				
67	72	X			X							
72	85				X							
[illegible]	[illegible]	X			X		X					
[illegible]	125	X			X							
125	127						X					
127	142	X			X							
142	172	X			X							
172	182				X							
[illegible]	[illegible]						X	X				
[illegible]	200				X		X					
200	205				X							
[illegible]	[illegible]	X										
[illegible]	[illegible]				X							
217	228	X										
228	243	X					X					
243	245	X			X							
245	251				X			X				
251	255	X			X							
255	258				X							
258	275							X	X			
275	290				X			X				
290	297				X							
297	302	X			X							
302	304				X							
304	316								X			
316	[illegible]				X							

Work started ________, 19__ Completed ________, 19__

(14) PUMP:
Manufacturer's Name ________
Type: ________ H. P. ____
Depth to pump or bowles ________ feet

Well Driller's Statement:
This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.
Name [illegible] (Person, firm, or corporation) (Type or print)
Address 2?30 So. ?? East Salt Lake [illegible]
(Signed) ________ (Well Driller)
License No. 2 Date [illegible] 31, 1973

MICROFILMED

USE OTHER SIDE FOR ADDITIONAL REMARKS

Form 115—3M—12-60

Examined _____
Recorded: B. C._____ T. B._____
Inspection Sheet_____
Copied _____

REPORT OF WELL DRILLER
STATE OF UTAH

Application No._____
Claim No._____
Coordinate No._____

GENERAL STATEMENT: Report of well driller is hereby made and filed with the State Engineer, in accordance with the laws of Utah. (This report shall be filed with the State Engineer within 30 days after the completion or abandonment of the well. Failure to file such reports constitutes a misdemeanor.)

(1) WELL OWNER:

Name _____

Address _____

(2) LOCATION OF WELL:

County_____ Ground Water Basin_____ (leave blank)

North / South _____ feet, East / West _____ feet from _____ Corner of Section _____, T _____ N / S, R _____ E / W SLBM (strike out words not needed)

(3) NATURE OF WORK (check): New Well ☐

Replacement Well ☐ Deepening ☐ Repair ☐ Abandon ☐

If abandonment, describe material and procedure:_____

(4) NATURE OF USE (check):

Domestic ☐ Industrial ☐ Municipal ☐ Stockwater ☐
Irrigation ☐ Mining ☐ Other ☐ Test Well ☐

(5) TYPE OF CONSTRUCTION (check):

Rotary ☐ Dug ☐ Jetted ☐
Cable ☐ Driven ☐ Bored ☐

(6) CASING SCHEDULE: Threaded ☐ Welded ☐

_____" Diam. from_____feet to_____feet Gage_____
_____" Diam. from_____feet to_____feet Gage_____
_____" Diam. from_____feet to_____feet Gage_____

New ☐ Reject ☐ Used ☐

(7) PERFORATIONS: Perforated? Yes ☐ No ☐

Type of perforator used _____
Size of perforations_____inches by_____inches
_____perforations from_____feet to_____feet
_____perforations from_____feet to_____feet
_____perforations from_____feet to_____feet
_____perforations from_____feet to_____feet
_____perforations from_____feet to_____feet

(8) SCREENS: Well screen installed? Yes ☐ No ☐

Manufacturer's Name_____
Type_____ Model No._____
Diam._____Slot size_____Set from_____ft. to_____
Diam._____Slot size_____Set from_____ft. to_____

(9) CONSTRUCTION:

Was well gravel packed? Yes ☐ No ☐ Size of gravel:_____
Gravel placed from_____feet to_____feet
Was a surface seal provided? Yes ☐ No ☐
To what depth?_____feet
Material used in seal:_____
Did any strata contain unusable water? Yes ☐ No ☐
Type of water:_____ Depth of strata_____
Method of sealing strata off:_____

Was surface casing used? Yes ☐ No ☐
Was it cemented in place? Yes ☐ No ☐

(10) WATER LEVELS:

Static level_____feet below land surface Date_____
Artesian pressure_____feet above land surface Date_____

LOG RECEIVED:

(11) FLOWING WELL:

Controlled by (check) Valve ☐
Cap ☐ Plug ☐ No Control ☐
Does well leak around casing? Yes ☐
No ☐

(12) WELL TESTS:

Drawdown is the distance in feet the water level is lowered below static level.

Was a pump test made? Yes ☐ No ☐ If so, by whom?_____
Yield:_____gal./min. with_____feet drawdown after_____hours
" _____ " _____ " _____ "
" _____ " _____ " _____ "
Bailer test _____gal./min. with_____feet drawdown after_____hours
Artesian flow_____g.p.m. Date_____
Temperature of water_____ Was a chemical analysis made? No ☐ Yes ☐

(13) WELL LOG:

Diameter of well_____inches
Depth drilled_____feet. Depth of completed well_____feet.

NOTE: Place an "X" in the space or combination of spaces needed to designate the material or combination of materials encountered in each depth interval. Under REMARKS make any desirable notes as to occurrence of water and the color, size, nature, etc., of material encountered in each depth interval. Use additional sheet if needed.

DEPTH From	DEPTH To	Clay	Silt	Sand	Gravel	Cobbles	Boulders	Hardpan	Conglomerate	Bedrock	Other	REMARKS
339	340				X		X					
340	343				X							
343	347	X			X							
347	354	X										
354	360	X			X		X					
360	365				X			X				
369	376	X			X			X				
376	400				X							
400	465				X							
465	412				X							
412	435	X			X							
435	441				X			X				
441	447	X			X							
447	454				X							
454	463	X			X							
463	480				X							
480	510	X		X	X							

Work started_____, 19____ Completed_____, 19____

(14) PUMP:

Manufacturer's Name_____
Type: _____ H. P._____
Depth to pump or bowles_____feet

Well Driller's Statement:

This well was drilled under my supervision, and this report is true to the best of my knowledge and belief.

Name _____ (Person, firm, or corporation) (Type or print)
Address _____
(Signed) _____ (Well Driller)
License No._____ Date_____, 19____

USE OTHER SIDE FOR ADDITIONAL REMARKS

MICROFILMED

State of Utah
Division of Water Rights

Hill Well - Riverton City

For additional space, use "Additional Well Data Form" and attach

RECEIVED
OCT 20 1995
WATER RIGHTS
SALT LAKE

Well Identification CHANGE APPLICATION: a18555(59-1533)

Owner *Note any changes*
Riverton City
12765 South 1400 West
Riverton, UT 84065

Contact Person/Engineer: LARRY GILSON

Well Location *Note any changes*
COUNTY: Salt Lake
NORTH 83 feet EAST 16 feet from the W¼ Corner of
SECTION 4, TOWNSHIP 4S, RANGE 1W, SLB&M.

Location Description: (address, ~~proximity to buildings~~, landmarks, ground elevation, local well #) 3200 W. 13800 SOUTH
in Riverton RIVERTON, UTAH

Drillers Activity

Start Date: 06/15/95 Completion Date: 07/03/95

Check all that apply:
[X] New [ ] Repair [ ] Deepen [ ] Abandon [ ] Replace [ ] Public Nature of Use:

DEPTH (feet) FROM	TO	BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0	35	44	AUGER	N/A
35	420	25	REVERSE CIRCULATION - ROTARY	LOW SOLIDS - FRESH WATER BENTONITE

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE high	PERMEABLE low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTIONS AND REMARKS (include comments on *water quality* if known.)
0	25			X	X	X								
25	135			X	X			X						
135	185				X		X		X					
185	250		X					X						
250	265				X									
265	280		X					X						
280	300						X	X						
300	310		X					X						
310	320			X	X									
320	360		X					X						

Static Water Level

Date JULY 3, 1995 Water Level 122 feet Flowing? ☐ Yes ☒ No
Method of Water Level Measurement WATER SOUNDER If Flowing, Capped Pressure N/A PSI
Point to Which Water Level Measurement was Referenced GROUND SURFACE
Height of Water Level reference point above ground surface 122 feet Temperature ☐ °C ☐ °F

Construction Information

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	DEPTH (feet) FROM	TO	SCREEN ☐ PERFORATIONS [ ] SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
		****SEE ATTACHED PAGE****							

Well Head Configuration: LOCKING CAP ON 20" CASING Access Port Provided? ☐ Yes ☒ No

Casing Joint Type: BUTT JOINT - WELDED Perforator Used: NONE

DEPTH (feet) FROM	TO	FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL: ANNULAR MATERIAL, ABANDONMENT MATERIAL and/or PACKER DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal.,# bag mix, gal./sack etc.)
0	160	PORTLAND CEMENT	6.8 CUBIC YDS	15.2 LBS/GAL
160	410	4 X 8 GRAVEL PACK	11 CUBIC YDS	

Well Development / Pump or Bail Tests

PUMPING

Date	Method	Yield	Units Check One GPM	Units Check One CFS	DRAWDOWN (ft)	TIME PUMPED (hrs & min)
07/24/95	TURBINE PUMP		2513		89	24 HRS

Pump (Permanent)

Pump Description: _____ Horsepower: _____ Pump Intake Depth: _____ feet

Approximate maximum pumping rate: _____ Well disinfected upon completion? ☐ Yes ☐ No

Comments

Description of construction activity, additional materials used, problems encountered, extraordinary circumstances, abandonment / procedures. *Use additional well data form for more space.*

Well Driller Statement

This well was drilled or abandoned under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name LANG EXPLORATORY DRILLING (Person, Firm, or Corporation – Print or Type) License No. 568

Signature _____ (Licensed Well Driller) Date OCT. 18, 1995

ADDITIONAL WELL DATA FORM

Water Right #_____

OWNER NAME_____

Page____of____

Well Log DEPTH (feet) FROM	TO	WATER	PERMEABLE high	PERMEABLE low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTIONS AND REMARKS (include comments on *water quality* if known.)
360	380			X	X									
380	420		X					X						

Construction Information (con't)

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	DEPTH (feet) FROM	TO	SCREEN ☐ PERFORATIONS ☐ SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
0	30	STEEL	.3125	32					
+2	220	STEEL	.3125	20	220	250	.030	20	S.S. R.M.C.
250	265	STAINLESS STEEL	.3125	20	265	280	.030	20	S.S. R.M.C.
280	300	STAINLESS STEEL	.3125	20	300	310	.030	20	S.S. R.M.C.
310	320	STAINLESS STEEL	.3125	20	320	360	.030	20	S.S. R.M.C.
360	380	STAINLESS STEEL	.3125	20	380	390	.030	30	S.S. R.M.C.
390	410	STAINLESS STEEL	.3125	20					

DEPTH (feet) FROM	TO	FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL: ANNULAR MATERIAL, ABANDONMENT MATERIAL and/or PACKER DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)

Comments (con't)

Well Driller Statement

This well was drilled or abandoned under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name LANG EXPLORATORY DRILLING (Person, Firm, or Corporation – Print or Type) License No. 568

Signature Adam Lang (Licensed Well Driller) Date OCT 18, 1995

WELL DRILLER'S REPORT
State of Utah
Division of Water Rights

Maynard Well - Riverton City

For additional space, use "Additional Well Data Form" and attach

RECEIVED
JAN 22 2007
WATER RIGHTS
SALT LAKE

Well Identification

Change Application: a28300 (59-1141) WIN: 35491

Owner *Note any changes*

Gilson Engineering
12401 S 450 E C-2
DRAPER, UT 84020

Contact Person/Engineer: Scott Hill 801-254-0704

Well Location *Note any changes*

S 1819 E 158 from the N4 corner of section 05, Township 4S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Drillers Aetivity Start Date: 5-1-06 Completion Date: 6-7-06

Check all that apply: ☐New ☐Repair ☐Deepen ☐Clean ☒Replace ☒Public Nature of Use: Municipal

If a replacement well, provide location of new well. 150 feet (north)/south and 20 feet east/(west) of the existing well.

DEPTH (feet) FROM	TO	BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0	40	42	Augur	NO
0	800	17 1/2	Reverse Rotary	Water
0	582	28	Reverse Rotary	Water

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, ordor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
0	50			X	X		X	X					Brown	
50	100						X	X					Blk	
100	135						X	X	X				Grey	
135	140			X	X		X		X				Brown	
140	160						X	X	X				Grey	
160	165			X	X		X		X				Grey	
165	180			X	X		X	X	X				Grey	
180	210						X	X					Dark Brown	water Bearing
210	215			X	X		X						"	
215	260					X	X						"	

Static Water Level

Date 6-7-06 Water Level 175.93 feet Flowing? ☐Yes ☒No

Method of Water Level Measurement Electric Sounder If Flowing, Capped Pressure NO PSI

Point to Which Water Level Measurement was Referenced Ground level Elevation ~~4608~~ 4608

Height of Water Level reference point above ground surface 0 feet Temperature ≅ 60 degrees ☐C ☒F

SCANNED

Well Log

Construction Information

DEPTH (feet) FROM	TO	CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)
0	40	steel A53 Gr. B	.375	30
0	245	A53 Gr B	.375	20
355	375	A53 Gr B	.375	20
395	414	A53 Gr B	.375	20
424	440	A53 Gr B	.375	20

DEPTH (feet) FROM	TO	☑ SCREEN ☐ PERFORATIONS ☐ OPEN BOTTOM SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
245	355	.040	20	SS. WW.
375	395	.040	20	SS WW
414	424	.040	20	SS WW
440	460	.040	20	SS WW
475	495	.040	20	SS WW

Well Head Configuration: 3ft stickup with welded cap Access Port Provided? ☑ Yes ☐ No

Casing Joint Type: Butte Perforator Used: NO

Was a Surface Seal Installed? ☑ Yes ☐ No Depth of Surface Seal: 175 feet Drive Shoe? ☐ Yes ☑ No

Surface Seal Material Placement Method: Trimie placed & pumped

Was a temporary surface casing used? ☐ Yes ☒ No If yes, depth of casing: _____ feet diameter: _____ inches

SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION

DEPTH (feet) FROM	TO	SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
0	170	1 Part Sand / 1 part cement (grout)	18 yds	6gall 15sk slurry
170	175	Bentowite hole plug	13 cu. ft.	18 Bags (50lb ea.)
175	582	6X9 Colorado Silica	35 yds	32 Bags (3000lb super sacks)

Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One GPM	Units Check One CFS	DRAWDOWN (ft)	TIME PUMPED (hrs & min)
6-7-06	Constant Rate	1600	✓		64	24 hrs

Pump (Permanent) NO

Pump Description: _____ Horsepower: _____ Pump Intake Depth: _____ feet

Approximate Maximum Pumping Rate: _____ Well Disinfected upon Completion? ☐ Yes ☐ No

Comments Description of construction activity, additional materials used, problems encountered, extraordinary Circumstances, abandonment procedures. *Use additional well data form for more space.*

Well Driller Statement This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature Robert J Zimmerer (Licensed Well Driller) Date 7-6-06

WELL DRILLER'S REPORT ADDTIONAL DATA FORM

State of Utah
Division of Water Rights

RECEIVED
JAN 22 2007
WATER RIGHTS
SALT LAKE

Well Identification

Change Application: a28300 (59-1141)

Owner *Note any changes*

Gilson Engineering
12401 S 450 E C-2
DRAPER, UT 84020

Contact Person/Engineer: Scott Hill 801-254-0704

Well Location *Note any changes*

S 1819 E 158 from the N4 corner of section 05, Township 4S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Well Log DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, ordor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
260	265			X	X		X						Dark Brown	
265	315						X	X					"	
315	320			X	X	X	X						"	
320	350						X	X					"	
350	395			X	X		X	X					"	
395	395						X	X					"	
395	405			X	X		X	X					"	
405	425						X	X					"	
425	435			X	X		X						"	
435	455						X	X					"	
455	475			X	X		X						Brown	
475	490						X	X					Oil	
490	530			X	X		X						Dark Brown	
530	545						X	X					"	
545	625			X	X		X					B	Brown	
625	745			X	X								"	
745	800			X	X			X					"	

SCANNED

Construction Information (con't)

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)
460	475	A53 Gr. B	.375	20
495	530	A53 Gr. B	.375	20
550	570	A53 Gr. B	.375	20

DEPTH (feet) FROM	TO	☒ SCREEN ☐ PERFORATIONS ☐ OPEN BOTTOM: SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
530	550	.040	20	SS. W.W.

SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION

DEPTH (feet) FROM	TO	SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)

Comments (con't)

Well Driller Statement This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature Robert J Zimmer (Licensed Well Driller) Date 7-6-06

Utah Division of Water Rights

WELLPRT Well Log Information Listing

Version: 2003.09.18.00 **Rundate: 10/08/2003 06:53 PM**

Steneoff Well - Riverton City

Utah Division of Water Rights

Water Well Log

LOCATION:

S 1127 ft E 670 ft from N4 CORNER of SECTION 33 T 3S R 1W BASE SL Elevation: 4500.00 feet
STENENOFF WELL; 12750 S. 2600 W.

DRILLER ACTIVITIES:

ACTIVITY # 1 NEW WELL
START DATE: 07/18/1961 COMPLETION DATE: 08/16/1961

BOREHOLE INFORMATION:

Depth(ft) From	Depth(ft) To	Diameter(in)	Drilling Method	Drilling Fluid
0	357	8	CABLE	

LITHOLOGY:

Depth(ft) From	Depth(ft) To	Lithologic Description	Color	Rock Type
0	15	CLAY TOP SOIL		
15	30	OTHER CLAY, PEA GRAVEL, SAND		
30	36	CLAY MOSTLY CLAY		
36	48	CLAY,SAND,GRAVEL MOSTLY CLAY		
48	68	CLAY,SAND,GRAVEL MOSTLY GRAVEL		
68	80	CLAY,GRAVEL LARGER GRAVEL		
80	95	WATER-BEARING,GRAVEL P. GRAVEL - 87' FIRST WATER		
95	103	OTHER SAND, GRAVEL, CLAY		
103	111	SAND,GRAVEL SMALL AMOUNT OF SAND		
111	118	SAND,GRAVEL SMALL AMOUNT OF SAND		
118	125	GRAVEL PEA GRAVEL		
125	130	SAND PURE SAND		
130	160	CLAY,GRAVEL SMALL AMOUNT OF CLAY		
160	174	SAND,GRAVEL SMALL AMOUNT OF GRAVEL		
174	180	GRAVEL PEA GRAVEL		
180	184	CLAY,SAND,GRAVEL MOSTLY PEA GRAVEL		
184	203	CLAY,GRAVEL		

		SMALL AMOUNT OF CLAY
203	235	GRAVEL
		PEA AND LARGER GRAVEL
235	244	CLAY,GRAVEL
		MOSTLY CLAY
244	246	SAND,GRAVEL
		SMALL AMOUNT OF SAND
246	259	SAND,GRAVEL
		HALF SAND & GRAVEL
259	263	GRAVEL
		PEA GRAVEL
263	282	CLAY,GRAVEL
		LARGER GRAVEL - SOME CLAY
282	298	SAND,GRAVEL
		SMALL AMOUNT OF SAND
298	335	CLAY,GRAVEL
		MOSTLY PEA GRAVEL
335	357	GRAVEL
		PEA GRAVEL

WATER LEVEL DATA:

Date	Time	Water Level (feet) (-)above ground	Status
08/16/1961		85.00	STATIC

CONSTRUCTION - CASING:

Depth(ft) From	To	Material	Gage(in)	Diameter(in)
0	357	REJECT	.344	8

WELL TESTS:

Date	Test Method	Yield (CFS)	Drawdown (ft)	Time Pumped (hrs)
08/16/1961	PUMP	.423	5	1
08/16/1961	PUMP	.590	5	2.5
08/16/1961	PUMP	.780	5	3.5

WATER QUALITY DATA AVAILABLE

WELL DRILLER'S REPORT
State of Utah
Division of Water Rights

Green Well Test Well - Riverton City

For additional space, use "Additional Well Data Form" and attach

Well Identification

Non-Production Well: 1159009M00 WIN: 435256

Owner *Note any changes*

RIVERTON CITY
12830 SOUTH REDWOOD ROAD
RIVERTON, UT 84065

AMENDED WELL LOG

Contact Person/Engineer: Clint Dilley 801-509-1699

Well Location *Note any changes*

N 1930 E 2501 from the SW corner of section 26, Township 3S, Range 1W, SL B&M

Location Description: (address, proximity to buildings, landmarks, ground elevation,local well #)

Drillers Activity Start Date: 11-8-11 Completion Date: 12-20-11

Check all that apply: ☒ New ☐ Repair ☐ Deepen ☐ Clean ☐ Replace ☐ Public Nature of Use: Test well

If a replacement well, provide location of new well. _____ feet north/south and _____ feet east/west of the existing well.

DEPTH (feet) FROM	TO	BOREHOLE DIAMETER (in)	DRILLING METHOD	DRILLING FLUID
0'	100'	36	Auger	Mud Gel + BAR
100'	820'	17.5	Reverse Circulation	Gel BAR SASH 10.5 WT

Well Log

DEPTH (feet) FROM	TO	WATER	PERMEABLE High	PERMEABLE Low	UNCONSOLIDATED CLAY	SILT	SAND	GRAVEL	COBBLES	BOULDER	OTHER	CONSOLIDATED ROCK TYPE	COLOR	DESCRIPTION AND REMARKS (e.g., relative %, grain size, sorting, angularity, bedding, grain composition density, plasticity, shape, cementation, consistancy, water bearing, odor, fracturing, minerology, texture,degree of weathering, hardness, water quality, etc.)
0'	5'				X									
5'	50'				X		X	X				SMALL GRAVEL		
50'	65'									X				
65'	240'						X	X						
240'	340				X		X	X			X	LARGE GRAVEL		
340'	820				X		X	X				Large Gravel		

RECEIVED RECEIVED
MAY 17 2012 JH
WATER RIGHTS
SALT LAKE
MAY 08 2012
WATER RIGHTS
SALT LAKE

Static Water Level

Date 12-20-11 Water Level _____ feet Flowing? ☑ Yes ☐ No

Method of Water Level Measurement _____ If Flowing, Capped Pressure 318 PSI

Point to Which Water Level Measurement was Referenced _____ Elevation _____

Height of Water Level reference point above ground surface 12' feet Temperature _____ degrees ☐ C ☐ F

[redacted] Well Log [redacted]

AMENDED WELL LOG

Construction Information

DEPTH (feet) FROM	TO	CASING: CASING TYPE AND MATERIAL/GRADE	WALL THICK (in)	NOMINAL DIAM. (in)	DEPTH (feet) FROM	TO	☐SCREEN ☑PERFORATIONS ☐OPEN BOTTOM: SCREEN SLOT SIZE OR PERF SIZE (in)	SCREEN DIAM. OR PERF LENGTH (in)	SCREEN TYPE OR NUMBER PERF (per round/interval)
0'	100'	HSLA	0.375	6"	490'	750'	40	6"	
0'	490	HSLA	0.375						

Well Head Configuration: VAlve Access Port Provided? ☒Yes ☐No

Casing Joint Type: Butt weld Perforator Used:

Was a Surface Seal Installed? ☒Yes ☐No Depth of Surface Seal: 490' feet Drive Shoe? ☐Yes ☒No

Surface Seal Material Placement Method: Pumped

Was a temporary surface casing used? ☐Yes ☐No If yes, depth of casing: _____ feet diameter: _____ inches

DEPTH (feet) FROM	TO	SURFACE SEAL / INTERVAL SEAL / FILTER PACK / PACKER INFORMATION: SEAL MATERIAL, FILTER PACK and PACKER TYPE and DESCRIPTION	Quantity of Material Used (if applicable)	GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)
490'	750'	6x9 SRI		
0'	490	5' Gel 3' sand 9yd 155x sand slurry		

Well Development and Well Yield Test Information

DATE	METHOD	YIELD	Units Check One: GPM	CFS	DRAWDOWN (ft)	TIME PUMPED (hrs & min)
11-22-11	AiRLiFT	Flowing	120	0	0	

Pump (Permanent)

Pump Description: N/A Horsepower: _____ Pump Intake Depth: _____ feet

Approximate Maximum Pumping Rate: _____ Well Disinfected upon Completion? ☐Yes ☐No

Comments

Description of construction activity, additional materials used, problems encountered, extraordinary Circumstances, abandonment procedures. *Use additional well data form for more space.*

Well Driller Statement

This well was drilled and constructed under my supervision, according to applicable rules and regulations, and this report is complete and correct to the best of my knowledge and belief.

Name ZIM INDUSTRIES INC (Person, Firm, or Corporation - Print or Type) License No. 697

Signature Richard Green Albert J Zimmerer (Licensed Well Driller) V-P/Secretary Date 2-2-12

ATTACHMENT E

Available Water Quality Results
(DDW and City Provided)

Division of Drinking Water Available Water Quality
Riverton City - Green Well

System Number	System Name	Facility Code	Facility Name	Anlyte Name	Collection Date	UOM	Result Count
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	COPPER, FREE	4/17/2012	MG/L	0.0025
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SELENIUM	4/17/2012	MG/L	0.0046
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ARSENIC	4/17/2012	MG/L	0.0058
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	PHOSPHATE, TOTAL	4/17/2012	MG/L	0.01
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BORON, TOTAL	4/17/2012	MG/L	0.05
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	IRON	4/17/2012	MG/L	0.06
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BARIUM	4/17/2012	MG/L	0.084
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	FLUORIDE	4/17/2012	MG/L	0.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	MBAS - FOAMING AGENTS (SURFACTANTS)	4/17/2012	MG/L	0.22
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TURBIDITY	4/17/2012	NTU	0.45
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	4/17/2012	MG/L	0.7
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE-NITRITE	4/17/2012	MG/L	0.7
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	POTASSIUM	4/17/2012	MG/L	3.5
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	PH	4/17/2012	PH	7.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	MAGNESIUM	4/17/2012	MG/L	23.3
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SILICA	4/17/2012	MG/L	27.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CALCIUM	4/17/2012	MG/L	64
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SODIUM	4/17/2012	MG/L	85.7
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SULFATE	4/17/2012	MG/L	92
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CARBON DIOXIDE	4/17/2012	MG/L	127
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CHLORIDE	4/17/2012	MG/L	160
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BICARBONATE AS HCO3	4/17/2012	MG/L	172
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	HARDNESS, CARBONATE	4/17/2012	MG/L	256
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	HARDNESS, TOTAL (AS CACO3)	4/17/2012	MG/L	256
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TDS	4/17/2012	MG/L	583
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CONDUCTIVITY @ 25 C UMHOS/CM	4/17/2012	UMHO/CM	940
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ARSENIC	12/1/2012	MG/L	0.00045
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	COPPER, FREE	12/1/2012	MG/L	0.0017
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SELENIUM	12/1/2012	MG/L	0.0033
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	PHOSPHATE, TOTAL	12/1/2012	MG/L	0.01
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	MANGANESE	12/1/2012	MG/L	0.012
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BORON, TOTAL	12/1/2012	UG/L	0.06
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	MBAS - FOAMING AGENTS (SURFACTANTS)	12/1/2012	MG/L	0.09
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	IRON	12/1/2012	MG/L	0.12
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	FLUORIDE	12/1/2012	MG/L	0.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE-NITRITE	12/1/2012	MG/L	0.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	12/1/2012	MG/L	0.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BARIUM	12/1/2012	MG/L	0.982
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TURBIDITY	12/1/2012	NTU	2.3
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	POTASSIUM	12/1/2012	MG/L	3.6
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	PH	12/1/2012	PH	7.7
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	MAGNESIUM	12/1/2012	MG/L	23.4
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SILICA	12/1/2012	MG/L	27
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CALCIUM	12/1/2012	MG/L	64.6
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SULFATE	12/1/2012	MG/L	88
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SODIUM	12/1/2012	MG/L	90.4
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CARBON DIOXIDE	12/1/2012	UG/L	126
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	HYDROXIDE AS CALCIUM CARBONATE	12/1/2012	MG/L	141
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CHLORIDE	12/1/2012	MG/L	160
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BICARBONATE AS HCO3	12/1/2012	MG/L	172
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	HARDNESS, TOTAL (AS CACO3)	12/1/2012	MG/L	258
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TDS	12/1/2012	MG/L	548
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CONDUCTIVITY @ 25 C UMHOS/CM	12/1/2012	UMHO/CM	950
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	LEAD	10/2/2013	MG/L	0.0009
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	COPPER, FREE	10/2/2013	MG/L	0.0021
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SELENIUM	10/2/2013	MG/L	0.0037
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ARSENIC	10/2/2013	MG/L	0.005
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CHROMIUM, HEX	10/2/2013	MG/L	0.006
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	PHOSPHATE, TOTAL	10/2/2013	MG/L	0.02
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BORON, TOTAL	10/2/2013	MG/L	0.06
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	IRON	10/2/2013	MG/L	0.1
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BARIUM	10/2/2013	MG/L	0.176
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	FLUORIDE	10/2/2013	MG/L	0.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	RADIUM-228	10/2/2013	PCI/L	0.33
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	LANGELIER INDEX (PH(S))	10/2/2013	LANG	0.33
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS ALPHA, EXCL. RADON & U	10/2/2013	PCI/L	0.6
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE-NITRITE	10/2/2013	MG/L	0.9
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	10/2/2013	MG/L	0.9
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TURBIDITY	10/2/2013	NTU	1.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS BETA PARTICLE ACTIVITY	10/2/2013	PCI/L	2.1
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	POTASSIUM	10/2/2013	MG/L	3.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	PH	10/2/2013	PH	7.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	MAGNESIUM	10/2/2013	MG/L	25.1
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SILICA	10/2/2013	MG/L	27.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CALCIUM	10/2/2013	MG/L	67.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SODIUM	10/2/2013	MG/L	78.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SULFATE	10/2/2013	MG/L	102

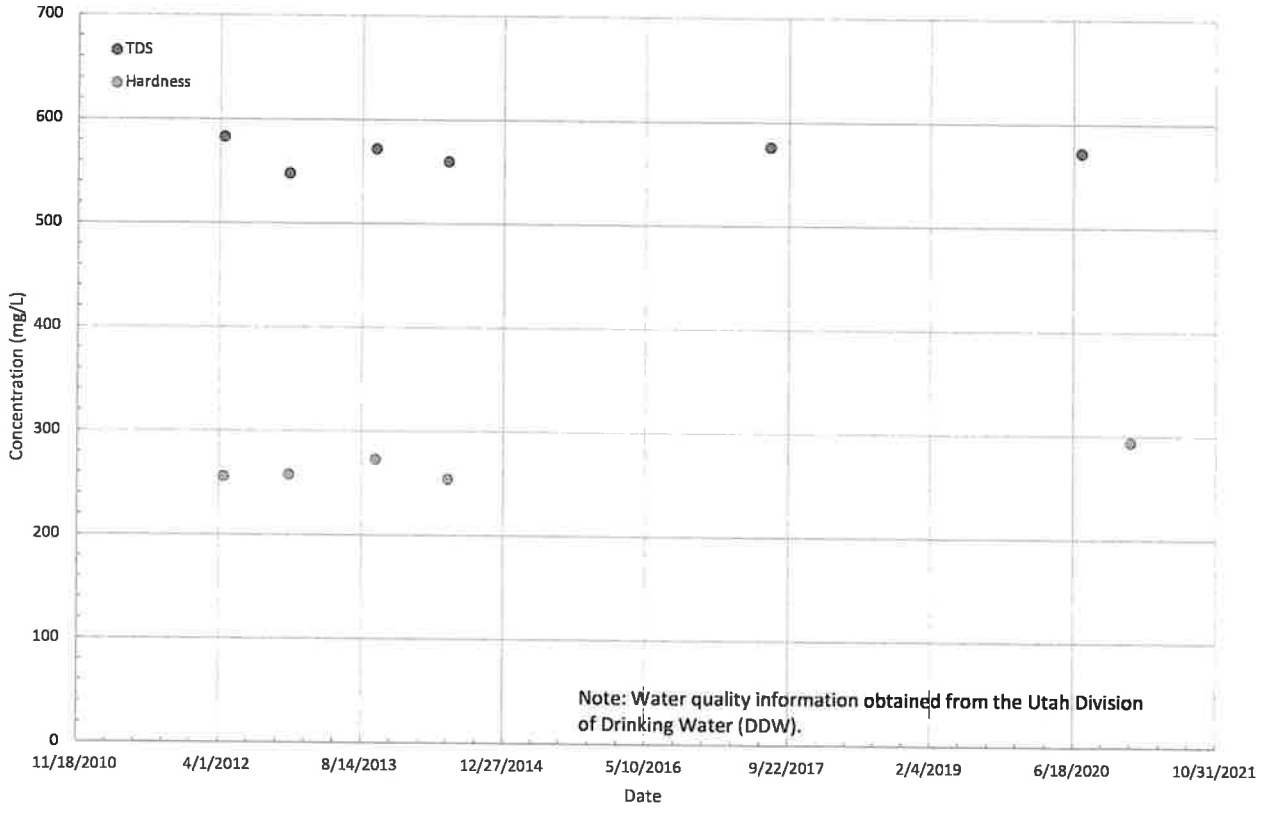
Division of Drinking Water Available Water Quality
Riverton City - Green Well

UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CARBON DIOXIDE	10/2/2013	MG/L	127
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ALKALINITY, TOTAL	10/2/2013	MG/L	141
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BICARBONATE AS HCO3	10/2/2013	MG/L	172
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CHLORIDE	10/2/2013	MG/L	179
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	HARDNESS, TOTAL (AS CACO3)	10/2/2013	MG/L	273
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TDS	10/2/2013	MG/L	572
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CONDUCTIVITY @ 25 C UMHOS/CM	10/2/2013	UMHO/CM	978
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS ALPHA, EXCL. RADON & U	5/20/2014	PCI/L	-2.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	RADIUM-228	5/20/2014	PCI/L	0.52
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS BETA PARTICLE ACTIVITY	5/20/2014	PCI/L	11
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SILVER	6/12/2014	MG/L	0.0005
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SELENIUM	6/12/2014	MG/L	0.0031
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ARSENIC	6/12/2014	MG/L	0.0048
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ORTHOPHOSPHATE	6/12/2014	MG/L	0.01
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BARIUM	6/12/2014	MG/L	0.063
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TURBIDITY	6/12/2014	NTU	0.09
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	FLUORIDE	6/12/2014	MG/L	0.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE-NITRITE	6/12/2014	MG/L	0.9
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	6/12/2014	MG/L	0.9
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	POTASSIUM	6/12/2014	MG/L	3.3
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	PH	6/12/2014	MG/L	7.7
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	MAGNESIUM	6/12/2014	MG/L	23.6
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CALCIUM	6/12/2014	MG/L	63
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SODIUM	6/12/2014	MG/L	82.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SULFATE	6/12/2014	MG/L	93
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ALKALINITY, TOTAL	6/12/2014	MG/L	146
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CHLORIDE	6/12/2014	MG/L	153
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	HARDNESS, TOTAL (AS CACO3)	6/12/2014	MG/L	254
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TDS	6/12/2014	MG/L	560
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CONDUCTIVITY @ 25 C UMHOS/CM	6/12/2014	UMHO/CM	962
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS ALPHA, EXCL. RADON & U	9/15/2014	PCI/L	-1.7
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	RADIUM-228	9/15/2014	PCI/L	0.3
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS BETA PARTICLE ACTIVITY	9/15/2014	PCI/L	3.1
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS ALPHA, EXCL. RADON & U	12/17/2014	PCI/L	-1.6
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	RADIUM-228	12/17/2014	PCI/L	0.21
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS BETA PARTICLE ACTIVITY	12/17/2014	PCI/L	6
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS ALPHA, EXCL. RADON & U	3/4/2015	PCI/L	-1.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	RADIUM-228	3/4/2015	PCI/L	0.29
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS BETA PARTICLE ACTIVITY	3/4/2015	PCI/L	6.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	RADIUM-228	6/12/2015	PCI/L	0.23
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	6/12/2015	MG/L	0.8
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS ALPHA, EXCL. RADON & U	6/12/2015	PCI/L	2.9
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS BETA PARTICLE ACTIVITY	6/12/2015	PCI/L	5.7
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	RADIUM-228	9/23/2015	PCI/L	0.31
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS ALPHA, EXCL. RADON & U	9/23/2015	PCI/L	1.9
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS BETA PARTICLE ACTIVITY	9/23/2015	PCI/L	4.5
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	RADIUM-228	12/9/2015	PCI/L	0.88
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS ALPHA, EXCL. RADON & U	12/9/2015	PCI/L	4.4
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	GROSS BETA PARTICLE ACTIVITY	12/9/2015	PCI/L	4.7
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	6/14/2016	MG/L	1
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	COPPER, FREE	7/18/2017	MG/L	0.0016
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SELENIUM	7/18/2017	MG/L	0.0039
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ARSENIC	7/18/2017	MG/L	0.0049
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	IRON	7/18/2017	MG/L	0.0601
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BORON, TOTAL	7/18/2017	MG/L	0.062
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BARIUM	7/18/2017	MG/L	0.0633
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	FLUORIDE	7/18/2017	MG/L	0.172
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TURBIDITY	7/18/2017	NTU	0.3
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	7/18/2017	MG/L	0.899
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	POTASSIUM	7/18/2017	MG/L	3.3674
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	MAGNESIUM	7/18/2017	MG/L	25.7378
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SILICA	7/18/2017	MG/L	26.6993
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CALCIUM	7/18/2017	MG/L	74.717
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SODIUM	7/18/2017	MG/L	83.4543
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SULFATE	7/18/2017	MG/L	100.362
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ALKALINITY, TOTAL	7/18/2017	MG/L	139.2
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CHLORIDE	7/18/2017	MG/L	170.6454
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TDS	7/18/2017	MG/L	576
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CONDUCTIVITY @ 25 C UMHOS/CM	7/18/2017	UMHO/CM	1011
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	6/25/2018	MG/L	0.716
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	7/9/2019	MG/L	0.8432
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	CYANIDE	7/15/2020	MG/L	0.002
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SELENIUM	7/15/2020	MG/L	0.0024
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	ARSENIC	7/15/2020	MG/L	0.0045
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	BARIUM	7/15/2020	MG/L	0.0589
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	FLUORIDE	7/15/2020	MG/L	0.1642
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	7/15/2020	MG/L	0.6635
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SODIUM	7/15/2020	MG/L	75.6763
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	SULFATE	7/15/2020	MG/L	97.1072
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	TDS	7/15/2020	MG/L	572
UTAH18025	RIVERTON CITY WATER SYSTEM	WS013	GREEN WELL	NITRATE	7/14/2021	MG/L	0.7586

Division of Drinking Water Available Water Quality
Riverton City - Green Well

	Riverton City Collected Sample		GREEN WELL	Hardness	1/6/2021	MG/L	294
	Riverton City Collected Sample		GREEN WELL	Alkalinity as CaCO3	1/6/2021	MG/L	145
	Riverton City Collected Sample		GREEN WELL	pH	1/6/2021	PH	7.79
	Riverton City Collected Sample		GREEN WELL	Conductivity	1/6/2021	UMHO/CM	999

Figure E 1 - Available Green Well Water Quality
2012-2021 TDS and Hardness (mg/L)



JORDAN VALLEY WATER

Delivering Quality Every Day

Jordan Valley Laboratory

Results Report
Total Hardness
Method: SM 2340 C
MRL = 5 mg/L

Agency: Riverton City
Water System #: 18025

Date Range: 1/4/21 to 1/9/21
Report Generation: 1/27/21 13:06

Date/Time Collected	Unique Lab ID#	Sample Type	Facility ID	Sampling Location	Sample Point	Chlorine Residual	Sampler	Analyst	Date/Time Analyzed	Parameter	Result mg/L
1/6/21 10:01	21010609-01	Investigative	DS001	12660 S 4570 W	DS001		SALDIVAR, KEN	SAVIDTRIT	1/7/21 19:22	Total Hardness as	180
1/6/21 13:20	21010609-02	Investigative	DS001	13760 S 3052 W	DS001		SALDIVAR, KEN	SAVIDTRIT	1/7/21 19:22	Total Hardness as	184
1/6/21 13:10	21010609-03	Investigative	DS001	Hill Well Chlorine Generation	DS001		SALDIVAR, KEN	SAVIDTRIT	1/7/21 19:22	Total Hardness as	<5.00
1/6/21 13:38	21010609-04	Investigative	WS008	Steffenoff Well	WS008		SALDIVAR, KEN	SAVIDTRIT	1/7/21 19:22	Total Hardness as	635
1/6/21 10:48	21010609-05	Investigative	WS013	Green Well	WS013		SALDIVAR, KEN	SAVIDTRIT	1/7/21 19:22	Total Hardness as	294

Total Samples: 5

Approved By: _____ **Date:** 1/27/2021

Paul Mattinson / Laboratory Director

Report Definitions

Total Hardness a = Total Hardness as CaCO3

JORDAN VALLEY WATER

Delivering Quality Every Day

Jordan Valley Laboratory

15105 South 3200 West • Herriman, UT 84065 • Ph: 801.446.2020 • Fax: 801.254.5485

Results Report
Alkalinity
Method: SM 2320 B
MRL = 5 mg/L

Date Range: 1/4/21 to 1/9/21
Report Generation: 1/27/21 13:03

Agency: Riverton City
Water System #: 18025

Date/Time Collected	Unique Lab ID#	Sample Type	Facility ID	Sampling Location	Sample Point	Chlorine Residual	Sampler	Analyst	Date/Time Analyzed	Parameter	Result mg/L
1/6/21 13:38	21010609-04	Investigative	WS008	Steffenoff Well	WS008		SALDIVAR, KEN	EMILIEB	1/13/21 11:56	Alkalinity as CaC	277
1/6/21 10:48	21010609-05	Investigative	WS013	Green Well	WS013		SALDIVAR, KEN	EMILIEB	1/13/21 11:56	Alkalinity as CaC	145

Total Samples: 2

Approved By: _____ **Date:** 1/27/2021

Paul Mattinson / Laboratory Director

Report Definitions
Alkalinity as CaC -- Alkalinity as CaCO3

JORDAN VALLEY WATER

Delivering Quality Every Day

Jordan Valley Laboratory

5295 South 3200 West • Hamilton UT 84065 • PH 801 446 2020 • Fax 801 254 5455

Results Report
pH
Method: EPA 150.1

Agency: Riverton City
Water System #: 18025

Date Range: 1/4/21 to 1/9/21
Report Generation: 1/27/21 13:05

Date/Time Collected	Unique Lab ID#	Sample Type	Facility ID	Sampling Location	Sample Point	Chlorine Residual	Sampler	Analyst	Date/Time Analyzed	Parameter	Result pH units
1/6/21 13:38	21010609-04	Investigative	WS008	Steffenoff Well	WS008		SALDIVAR, KEN	SAVIDTRIT	1/6/21 19:02	pH	7.32
1/6/21 10:48	21010609-05	Investigative	WS013	Green Well	WS013		SALDIVAR, KEN	SAVIDTRIT	1/6/21 19:06	pH	7.79

Total Samples: 2

Approved By: _____ **Date:** 1/27/2021

Paul Mattinson / Laboratory Director

JORDAN VALLEY WATER

Delivering Quality Every Day

Jordan Valley Laboratory

Results Report
Conductivity
Method: SM 2510 B
MRL = 10 umhos/cm

Date Range: 1/4/21 to 1/9/21
Report Generation: 1/27/21 13:02

Agency: Riverton City
Water System #: 18025

Date/Time Collected	Unique Lab ID#	Sample Type	Facility ID	Sampling Location	Sample Point	Chlorine Residual	Sampler	Analyst	Date/Time Analyzed	Parameter	Result umhos/cm
1/6/21 13:38	21010609-04	Investigative	WS008	Steffenoff Well	WS008		SALDIVAR, KEN	LORENAP	1/22/21 12:57	Conductivity	1676
1/6/21 10:48	21010609-05	Investigative	WS013	Green Well	WS013		SALDIVAR, KEN	LORENAP	1/22/21 12:59	Conductivity	999

Total Samples: 2

Approved By: _____ **Date:** 1/27/2021

Paul Mattinson / Laboratory Director

JORDAN VALLEY WATER

Delivering Quality Every Day

Jordan Valley Laboratory

[illegible] · Ph 801.446.2020 · Fax 801.254.2405

Results Report
Calcium
Method: SM 3500-Ca B
MRL = 2 mg/L

Agency: Riverton City
Water System #: 18025

Date Range: 1/4/21 to 1/9/21
Report Generation: 1/28/21 15:34

Date/Time Collected	Unique Lab ID#	Sample Type	Facility ID	Sampling Location	Sample Point	Chlorine Residual	Sampler	Analyst	Date/Time Analyzed	Parameter	Result mg/L
1/6/21 13:38	21010609-04	Investigative	WS008	Steffenoff Well	WS008		SALDIVAR, KEN	SAVIDTRIT	1/7/21 17:34	Calcium	180
1/6/21 10:48	21010609-05	Investigative	WS013	Green Well	WS013		SALDIVAR, KEN	SAVIDTRIT	1/7/21 17:34	Calcium	78.2

Total Samples: 2

Approved By: _____ **Date:** 1/28/2021

Paul Mattinson / Laboratory Director

CHEMTECH-FORD
LABORATORIES

Certificate of Analysis

Lab Sample No.: 21A0187-01

Name:	**Riverton City Corporation**	***Sample Date:***	1/6/2021 10:53 AM
Sample Site:	Green Well	***Receipt Date:***	1/6/2021 11:39 AM
Comments:		***Sampler:***	Ken Saldivar
Sample Matrix:	Drinking Water	***Project:***	
PO Number:		***System No.:***	UTAH18025
Source Code:	WS013	***Sample Point:*** WS013	***Report to State:*** Y

Parameter	Sample Result	EPA Max Contaminant Level (MCL)	Minimum Reporting Limit	Units	Analytical Method	Preparation Date/Time	Analysis Date/Time	Flag
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,1,1-Trichloroethane	ND	200	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,1,2,2-Tetrachloroethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,1,2-Trichloroethane	ND	5	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,1,2-Trichlorotrifluoroethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,1-Dichloroethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,1-Dichloroethene	ND	7	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,1-Dichloropropene	ND		0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,2,3-Trichlorobenzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,2,3-Trichloropropane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,2,4-Trichlorobenzene	ND	70	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,2,4-Trimethylbenzene	ND	70	1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,2-Dichlorobenzene	ND	600	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,2-Dichloroethane	ND	5	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,2-Dichloropropane	ND	5	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,3,5-Trimethylbenzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,3-Dichlorobenzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,3-Dichloropropane	ND		0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
1,4-Dichlorobenzene	ND	75	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
2,2-Dichloropropane	ND		0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
2-Chlorotoluene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
4-Chlorotoluene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Benzene	ND	5	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Bromobenzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Bromochloromethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Bromodichloromethane	ND		0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Bromoform	ND		0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Bromomethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Carbon Tetrachloride	ND	5	1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Chlorobenzene	ND	100	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Chloroethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Chloroform	ND		0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Chloromethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
cis-1,2-Dichloroethene	ND	70	1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
cis-1,3-Dichloropropene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Dibromochloromethane	ND		0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Dibromomethane	ND	5	1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Dichlorodifluoromethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Ethyl Benzene	ND	700	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	

CHEMTECH-FORD
LABORATORIES

Certificate of Analysis

Lab Sample No.: 21A0187-01

Name:	**Riverton City Corporation**	***Sample Date:***	1/6/2021 10:53 AM
Sample Site:	Green Well	***Receipt Date:***	1/6/2021 11:39 AM
Comments:		***Sampler:***	Ken Saldivar
Sample Matrix:	Drinking Water	***Project:***	
PO Number:		***System No.:***	UTAH18025
Source Code:	WS013	***Sample Point:*** WS013	***Report to State:*** Y

Parameter	Sample Result	EPA Max Contaminant Level (MCL)	Minimum Reporting Limit	Units	Analytical Method	Preparation Date/Time	Analysis Date/Time	Flag
Volatile Organic Compounds (cont.)								
Hexachlorobutadiene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Isopropylbenzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Methyl tert-Butyl Ether (MTBE)	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Methylene Chloride	ND	5	1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Naphthalene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
n-Butyl Benzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
n-Propyl Benzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
p-Isopropyltoluene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
sec-Butyl Benzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Styrene	ND	100	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
tert-Butylbenzene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Tetrachloroethene	ND	5	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Toluene	ND	1000	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
trans-1,2-Dichloroethene	ND	100	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
trans-1,3-Dichloropropene	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Trichloroethene	ND	5	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Trichlorofluoromethane	ND		1.0	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Vinyl Chloride	ND	2	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	
Xylenes, total	ND	10000	0.5	ug/L	EPA 524.2	01/11/2021	01/11/2021	

ATTACHMENT F

Published Report Information
SLV Aquifer

(Wallace & Lowe, 2009)

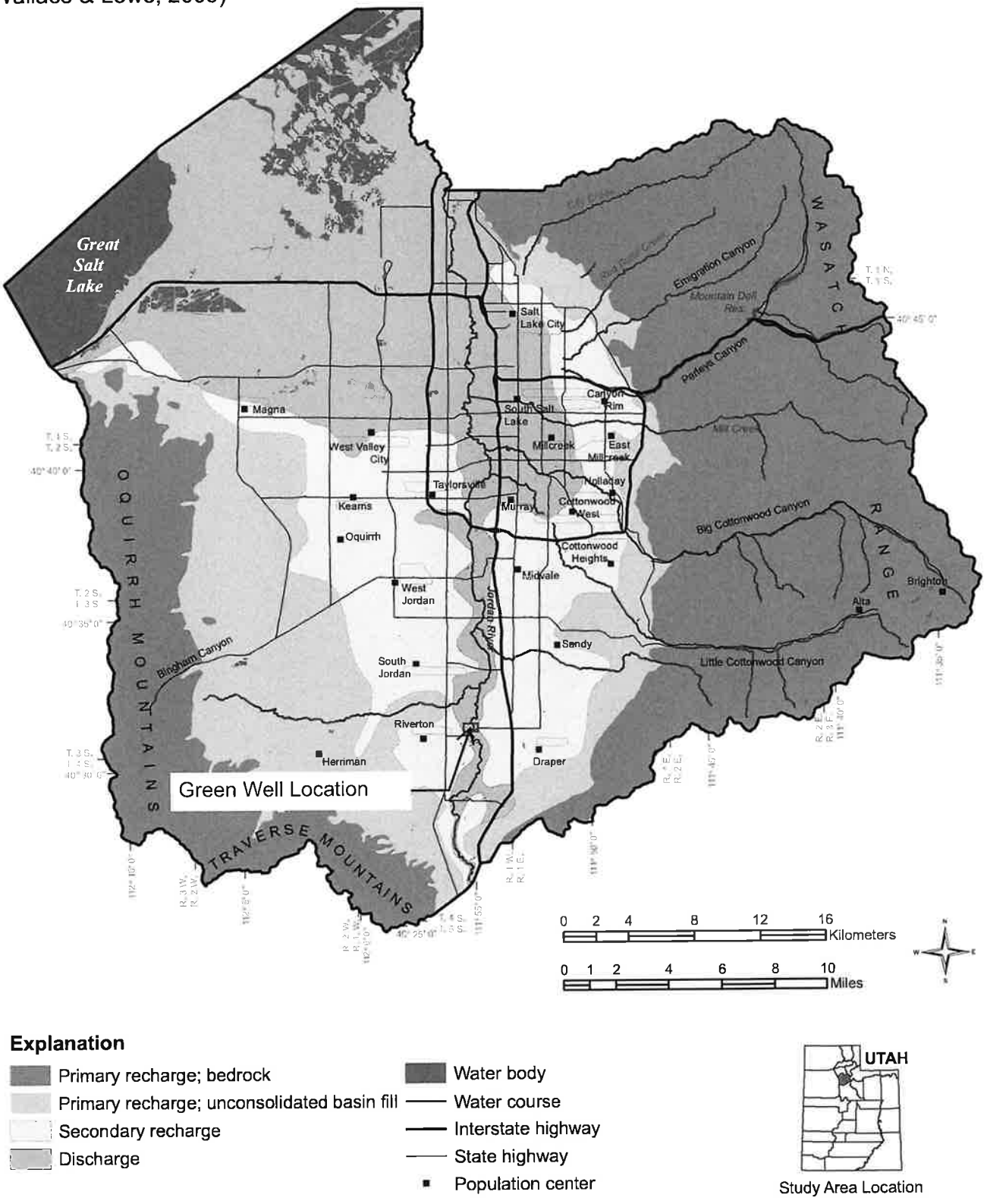


Figure 5. *Recharge and discharge areas in Salt Lake Valley, Salt Lake County, Utah (modified from Anderson and others 1994).*

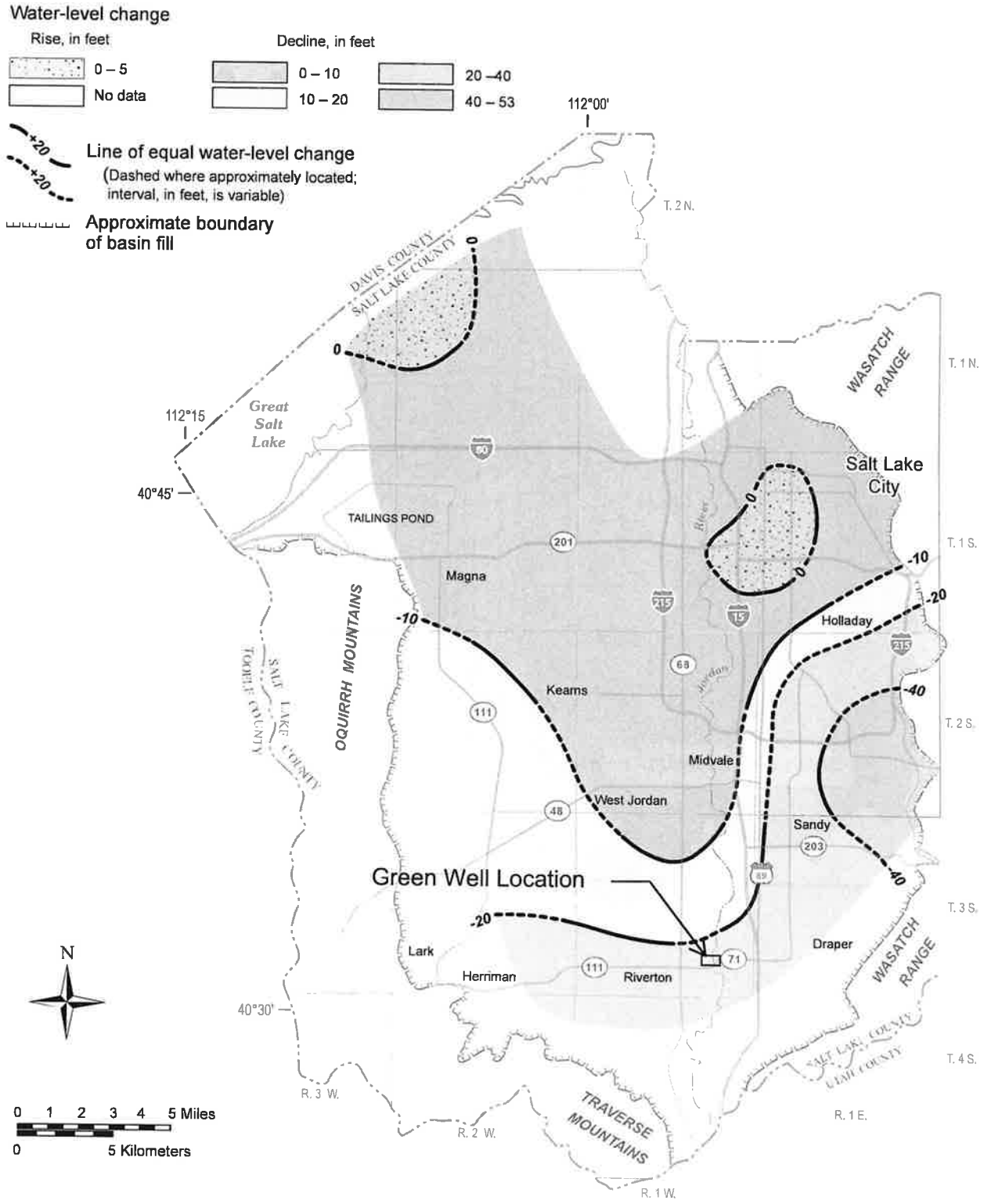
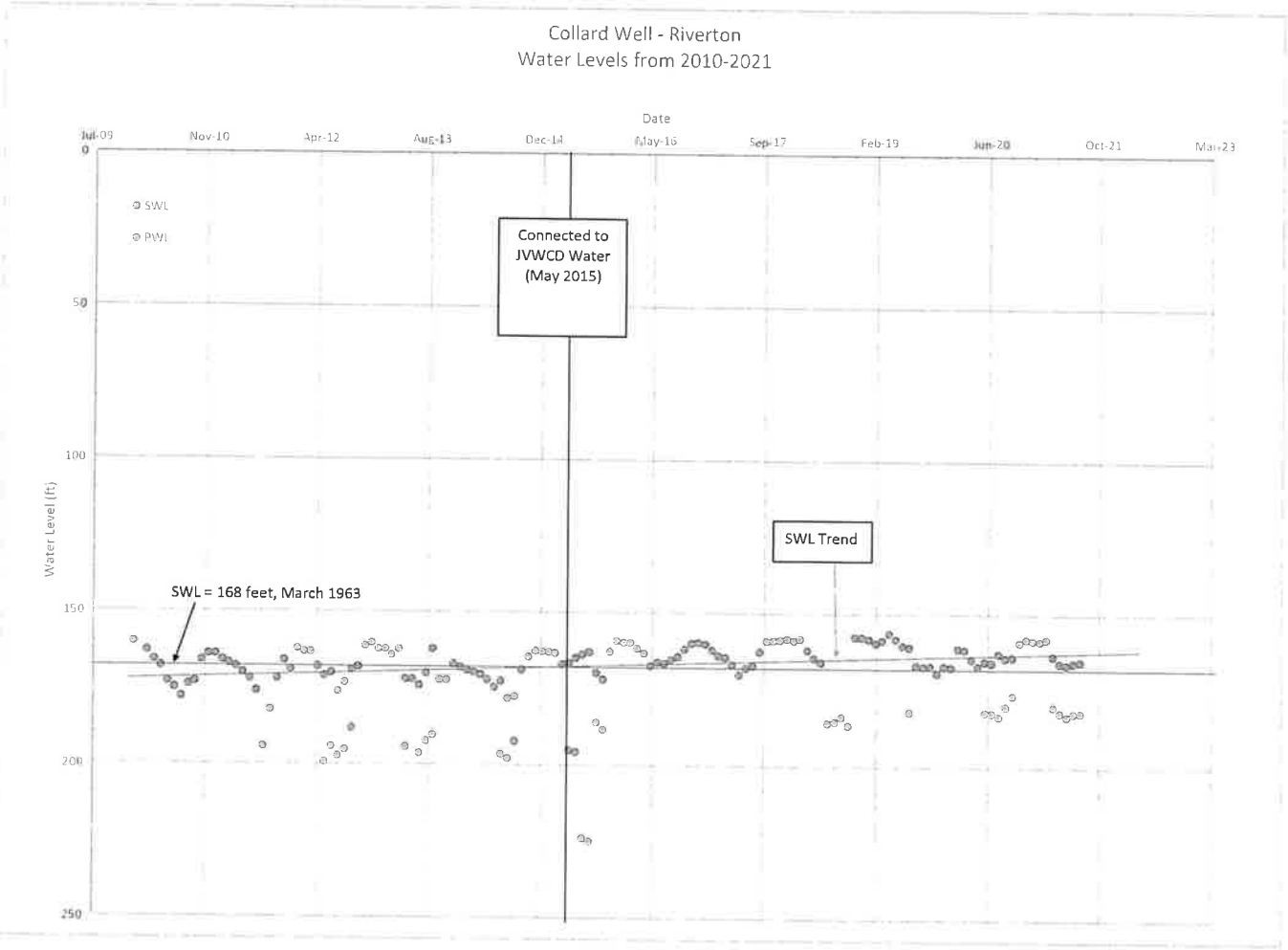


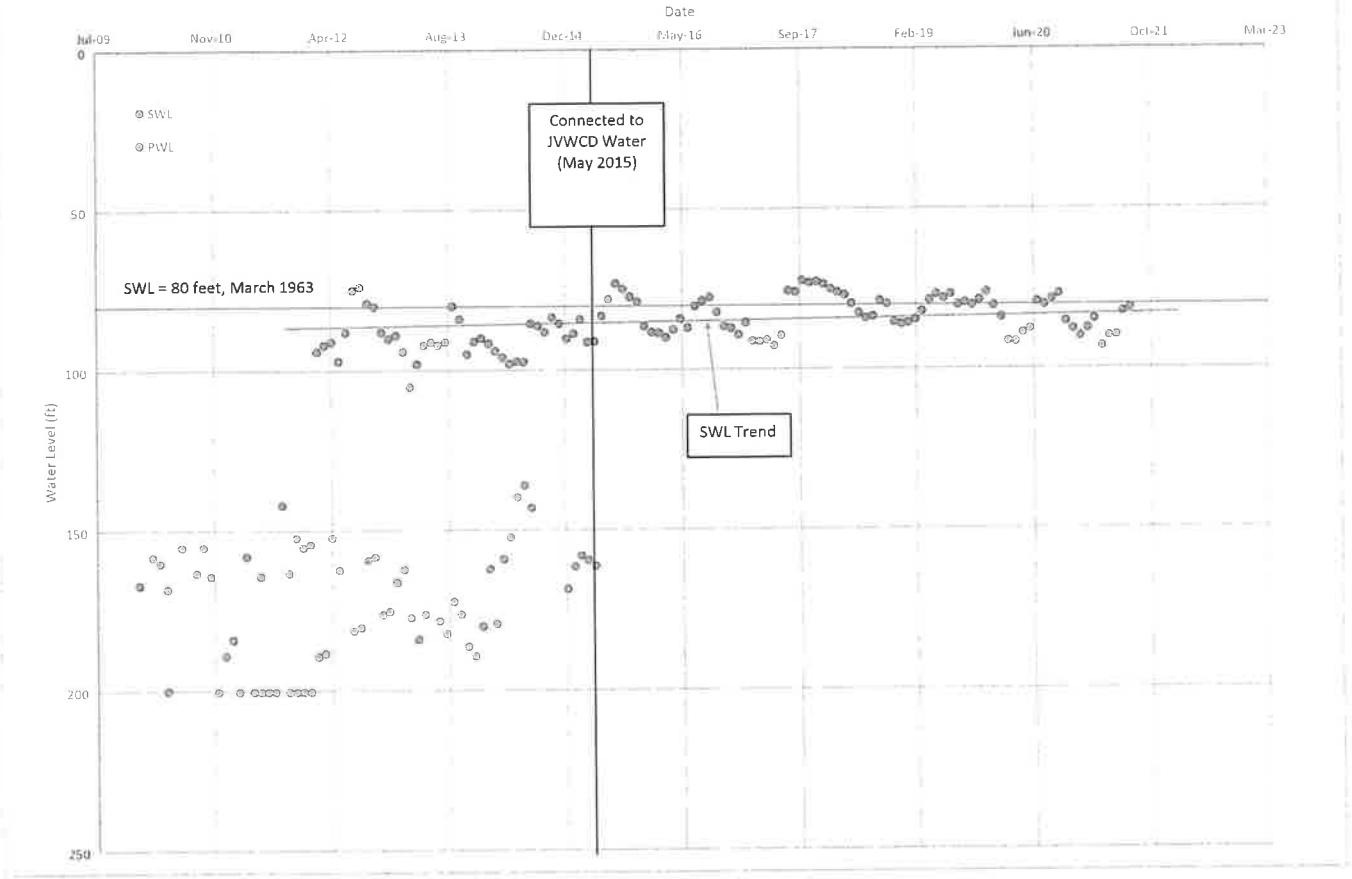
Figure 3. *Change of water level in Salt Lake Valley from spring 1975 to spring 2005 (modified from Burden and others, 2005).*

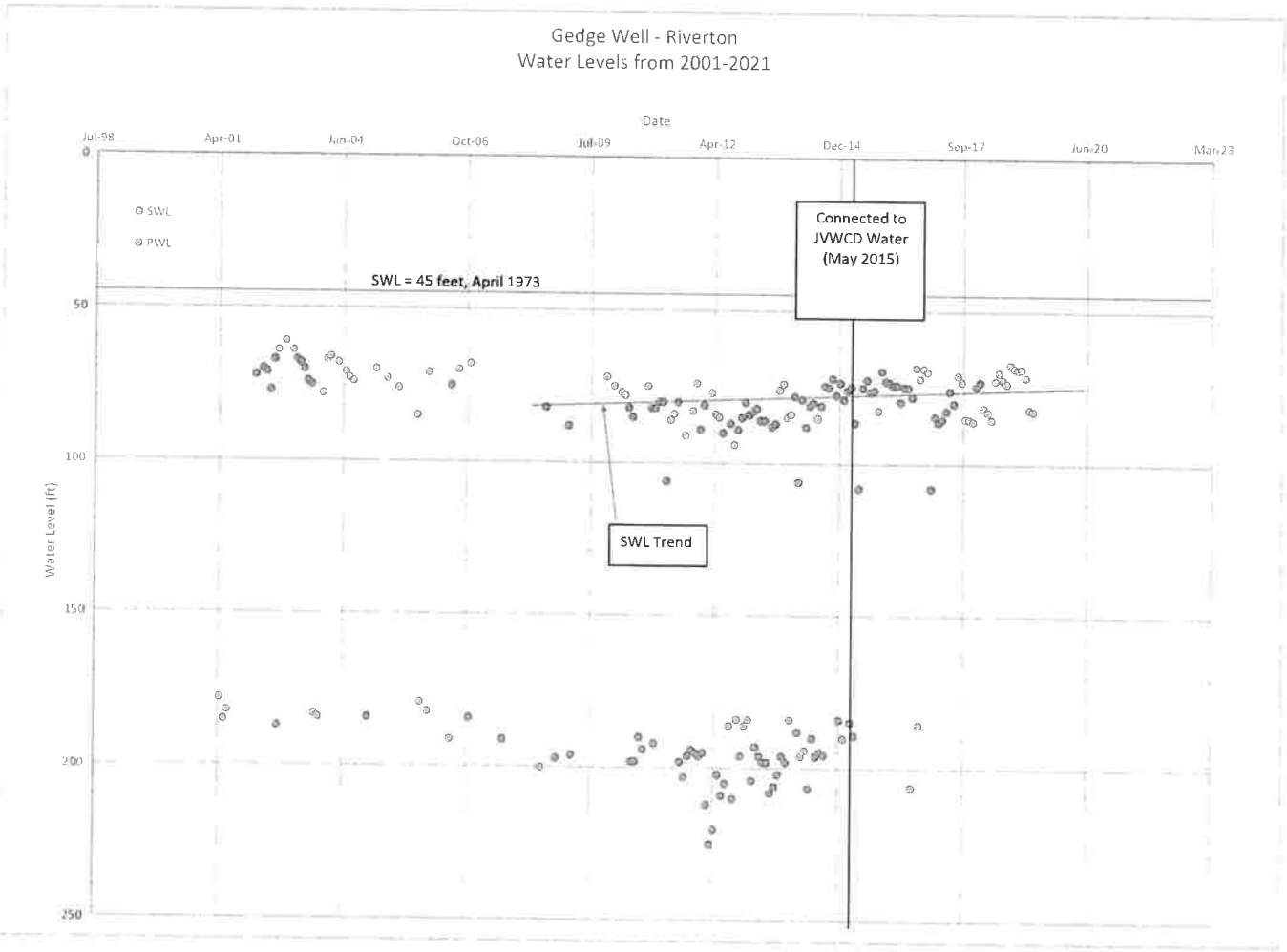
ATTACHMENT G

Available Water Level Information
(JVWCD and Riverton City Provided)

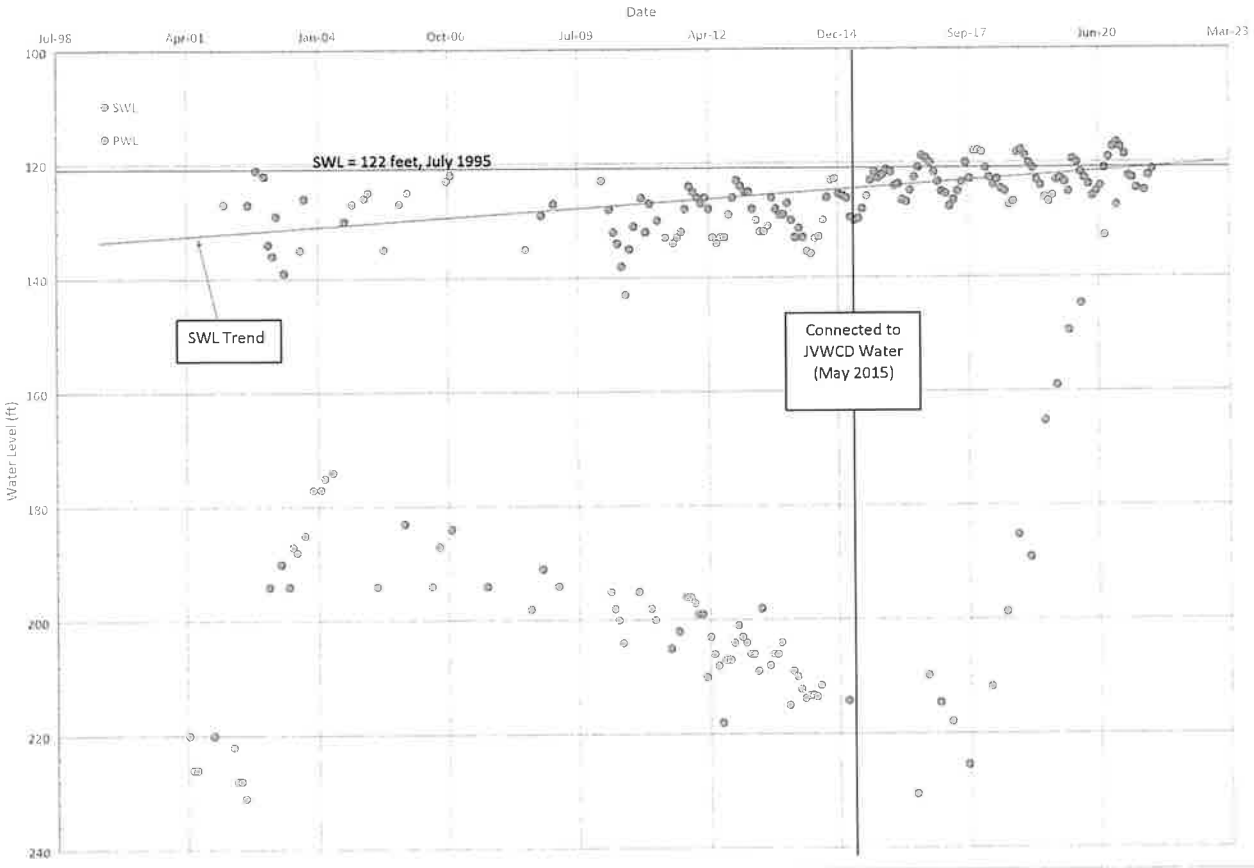

Collard Well - Riverton
Water Levels from 2010-2021
Date
Jul-09
Nov-10
Apr-12
Aug-13
Dec-14
May-16
Sep-17
Feb-19
Jun-20
Oct-21
Mar-23
0
50
100
150
200
250
Water Level (ft)
SWL
PWL
Connected to JVWCD Water (May 2015)
SWL Trend
SWL = 168 feet, March 1963

Garimandi Well - Riverton
Water Levels from 2010-2021

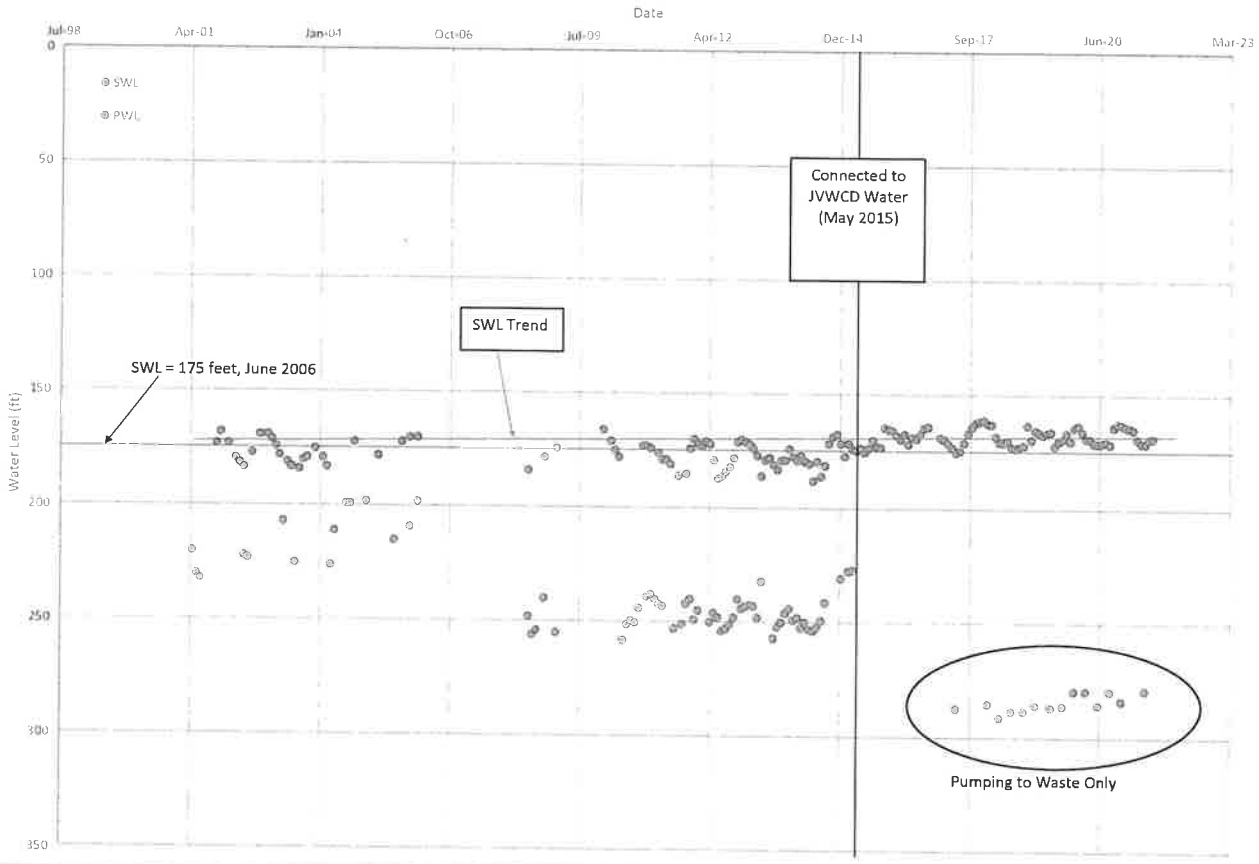


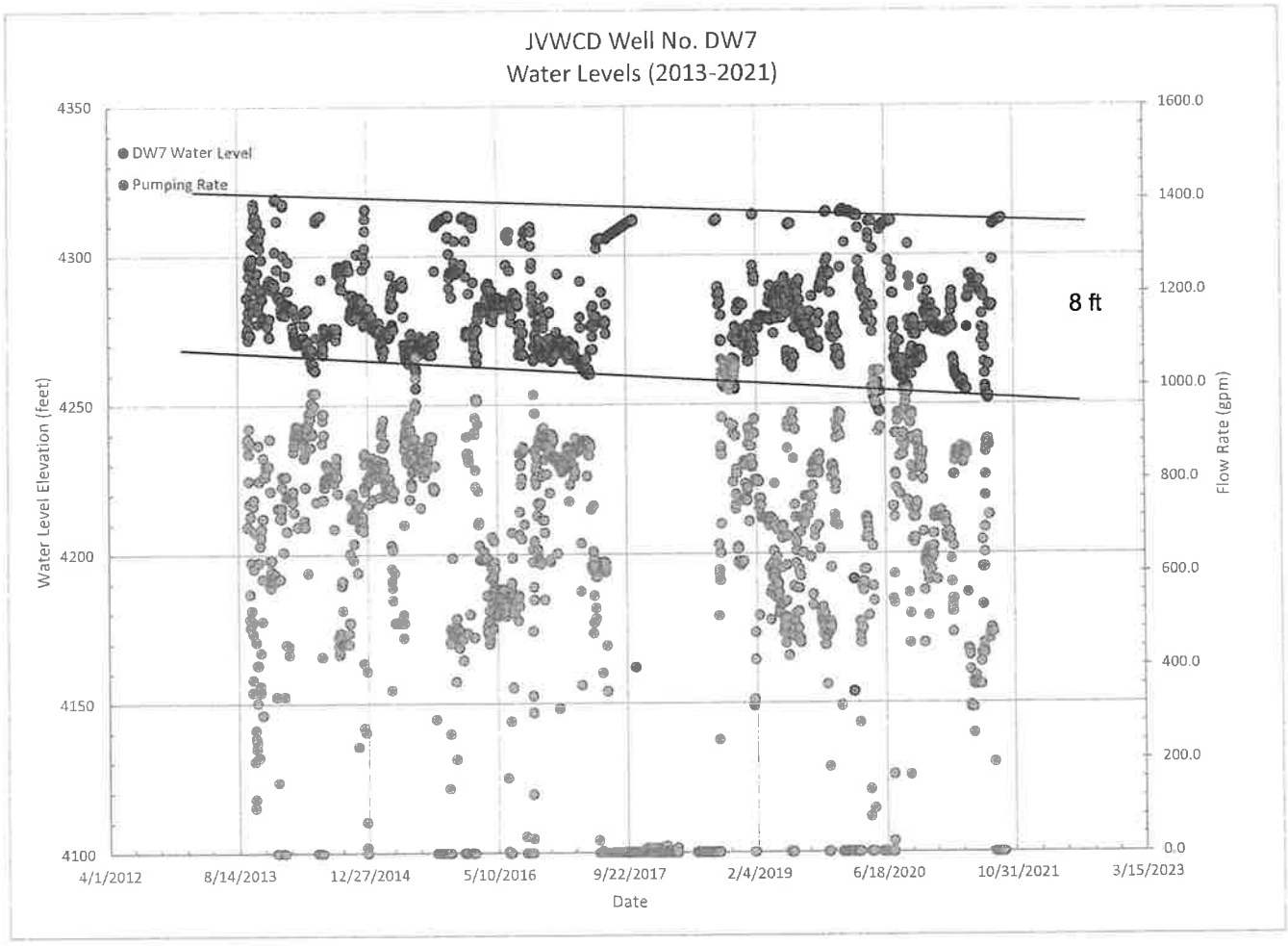

Gedge Well - Riverton
Water Levels from 2001-2021
Date
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
Sep-17
Jun-20
Mar-23
0
50
100
150
200
250
Water Level (ft)
SWL
PWL
SWL = 45 feet, April 1973
Connected to JVWCD Water (May 2015)
SWL Trend

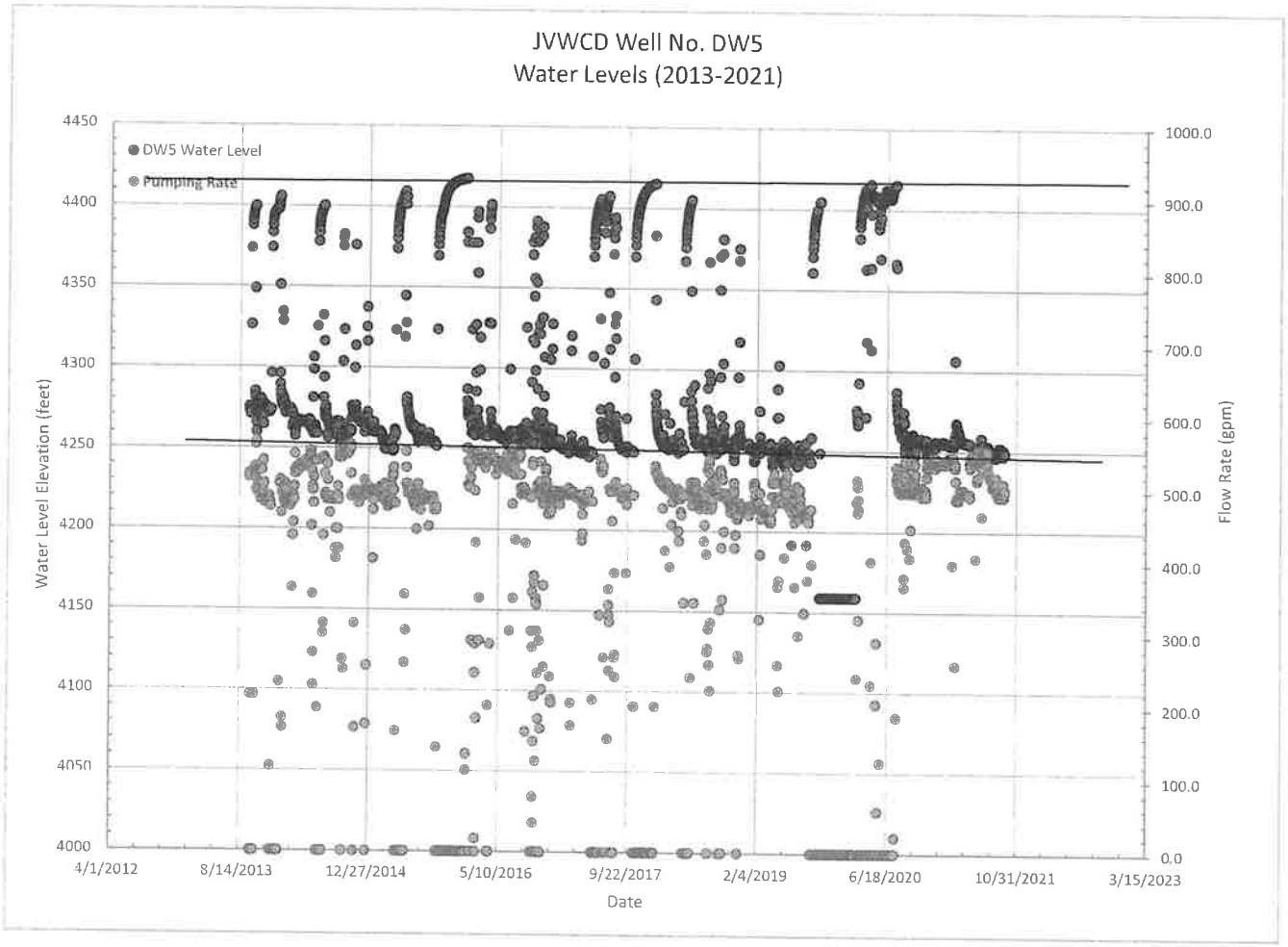
Hill Well - Riverton
Water Levels from 2001-2021

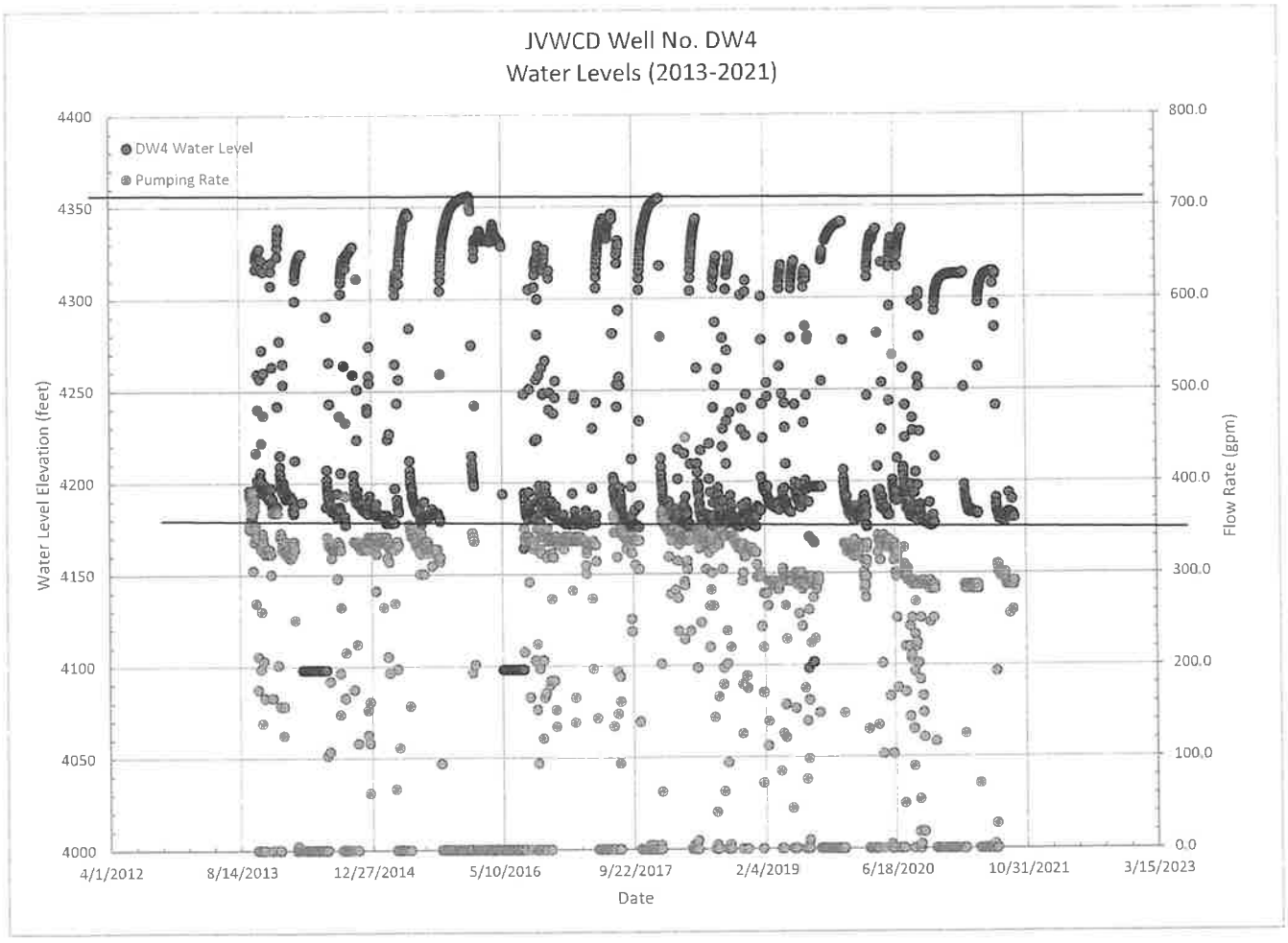


Maynard Well - Riverton
Water Levels from 2001-2021




JVWCD Well No. DW7
Water Levels (2013-2021)
DW7 Water Level
Pumping Rate
8 ft
Water Level Elevation (feet)
Flow Rate (gpm)
Date
4350
4300
4250
4200
4150
4100
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.0
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023


JVWCD Well No. DW5
Water Levels (2013-2021)
DW5 Water Level
Pumping Rate
Water Level Elevation (feet)
Flow Rate (gpm)
Date
4450
4400
4350
4300
4250
4200
4150
4100
4050
4000
1000.0
900.0
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023


JVWCD Well No. DW4
Water Levels (2013-2021)
DW4 Water Level
Pumping Rate
Water Level Elevation (feet)
Flow Rate (gpm)
Date
4400
4350
4300
4250
4200
4150
4100
4050
4000
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
4/1/2012
8/14/2013
12/27/2014
5/10/2016
9/22/2017
2/4/2019
6/18/2020
10/31/2021
3/15/2023

ATTACHMENT H

Conceptual Cost Estimate for Further Investigation

Engineers Opinion of Probable Cost

BOWEN COLLINS & ASSOCIATES

Further Investigation — *Date: 08/30/21*

Project: Green Well - Pull Pump, Investigate, Clean & Re-Test

Prepared by: CD

Owner: Riverton City

No.	Item	Quantity	Units	Unit Cost	Cost
1	Mobilization/Demobilization/Cleanup	1	lump	$ 15,000.00	$ 15,000.00
2	Remove Existing Pump, Motor, Column & Oil	1	lump	$ 20,000.00	$ 20,000.00
3	Video Camera Survey	3	Each	$ 3,000.00	$ 9,000.00
4	Well Cleaning - Brush & Bail	20	hr	$ 600.00	$ 12,000.00
5	Geophysical Logs	1	lump	$ 20,000.00	$ 20,000.00
6	Chemical Treatment - NW220	1	lump	$ 7,500.00	$ 7,500.00
6a	Chemical Treatments - Injecting	16	hr	$ 650.00	$ 10,400.00
7	Well Development - Remove Chemical Treatment	40	hr	$ 650.00	$ 26,000.00
8	Reinstall Pump, Motor and Column	1	lump	$ 20,000.00	$ 20,000.00
9	Swages/casing patches (if needed)	3	Each	$ 25,000.00	$ 75,000.00
	Total Cost (All Items)				**$ 214,900.00**
	Total Cost (w/o Items 5 & 9)				**$ 119,900.00**

*Costs do not include performing two constant rate tests with the existing City pump