Monitoring Report for the
San Juan Spanish Valley Special Service District
Spanish Valley, Utah

May, 2019

Prepared for:
San Juan Spanish Valley SSD,
The Utah Division of Water Rights,
& Spanish Valley Stakeholders

Prepared by:

CASCADE
WATER RESOURCES
CONTENTS

1.0 Introduction ............................................................................................................................1
2.0 Existing Wells & Drilling Activity on SJSVSSD Water Right ...........................................1
3.0 Extractions on SJSVSSD Water Right .................................................................................1
4.0 Water Elevation ................................................................................................................ ......4
5.0 Discussion of Water Elevation Monitoring ..........................................................................7
6.0 Planned Activity for 2019 ....................................................................................................11
7.0 Recommended Changes to Monitoring plan........................................................................11

FIGURES

Figure 1. SJSVSSD Monitoring Plan Location Map.................................................................2
Figure 2. SJSVSSD Approved Points of Diversion.................................................................3
Figure 3. Change in Potentiometric Surface from March 2018 to March 2019..................8
Figure 4. Change in Water Elevation 1986 to 2019...............................................................10

APPENDICES

APPENDIX A: SITLA Behind the Rocks Well Report
APPENDIX B: March 2018 & March 2019 Water Level Data
APPENDIX C: May 1st, 2018 NRCS Utah Water Supply Outlook Report for Southeastern Utah
APPENDIX D: April 1st, 2019 NRCS Utah Water Supply Outlook Report for Southeastern Utah
1.0 INTRODUCTION

As part of a Memorandum Decision for the San Juan Spanish Valley Special Service District (SJSVSSD) water right a37400, monitoring and reporting of water elevation data in the Spanish Valley/Moab City area is a requirement. In an April 2018 report submitted to the Utah Division of Water Rights (DWRi), a framework for the monitoring and reporting was set forth and agreed on by the DWRi. Data will be collected from March to March each year and then reported to the DWRi by end of July. Figure 1 shows the location of the Monitoring plan and the wells involved.

2.0 EXISTING WELLS & DRILLING ACTIVITY ON SJSVSSD WATER RIGHT

Figure 2 shows the location of all of the well points of diversion on change application a37400. When the change application was filed, only one site had an existing well, the informal name given this well is the SITLA Behind the Rocks Well. This well was pump tested in September of 2017 by SJSVSSD. Refer to Appendix A for the report on the pump testing. As of the time of this report there has been no further activity on this site.

From December 2017 to March 2018 a new well with the informal name of SJSVSSD Well 1 was drilled, constructed, developed, & pump tested. Refer to Figure 1 or 2 for the location of this well. All work completed on this well was done in accordance to the guidelines set forth by DWRi and the Utah Division of Drinking Water (DDW). A report on this well has previously been submitted to DWRi. SJSVSSD plans on having this well in production in Fall or Winter of 2019.

3.0 EXTRACTIONS ON SJSVSSD WATER RIGHT

During the testing of the SITLA Behind the Rocks Well an estimated 0.62 acre feet was extracted from the aquifer.

To date the only extractions from SJSVSSD Well 1 have been during the DWRi mandated open hole testing and the DDW mandated 24-hour test. The extractions were 0.31 acre-ft in December of 2017, 5.8 acre-ft in January of 2018, and 2.12 acre-ft in March of 2018.

The graph below depicts the extractions from SJSVSSD Well 1, DWRi has approved up to 500 acre-ft. of extractions from SJSVSSD Well 1.
Figure 1. Location of Monitoring Wells

SITLA Behind the Rocks Well [(D-27-22)26dda-1]
Figure 2. SJSVSSD Existing Wells and Points of Diversion

Drawn By: G3 Mapping
Rich Emerson
rich@g3mapping.com

Project Manager: John Files

Date: May 2019
SJSVSSD monitors Well 1 and three nearby private wells with transducers that are logging at a minimum a reading every 6 hours. These wells are the Spielman, Shumway, and BLM wells. The USGS checks the water level in wells in its monitoring plan once a year in March. As the transducer data can give an insight into the local trends near Well 1, recharge periods, recharge influences, and pumping influences it can be valuable data and will be presented within this document.

Below is a table of the change in water level of the wells monitored with transducers;

<table>
<thead>
<tr>
<th>Well ID</th>
<th>Change in Elevation March 2018 to March 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>SJSVSSD Well 1</td>
<td>-8.85</td>
</tr>
<tr>
<td>Spielman Well</td>
<td>-5.56</td>
</tr>
<tr>
<td>Shumway Well</td>
<td>-4.6*</td>
</tr>
<tr>
<td>BLM Well</td>
<td>-14.49</td>
</tr>
</tbody>
</table>

*Shumway transducer installed in early April of 2018

Below are the time series of the water level or elevation in each well.
SJSVSSD Well 1 Groundwater Elevation

Groundwater Elevation in Spielman Well
To graphically show the change in water level from the time of the start of the monitoring plan in 2018, a change in potentiometric surface elevation map has been created showing the change in water level from March 2018 to March 2019. The USGS water levels are only taken once a year in March, whereas the transducer data is reading a minimum of every 6 hours, levels were used from March 31st, 2019. Figure 3 presents this data. The values used to create this map are included in Appendix B.

The contour intervals given on the map are;

-10’ to -15’ (red shaded)
-5 to -14.99 (orange shaded)
-1 to -4.99 (yellow shaded)
0 to -.99 (green numbers)
.01 to 1.0 (blue numbers)

The values from negative 1 foot to positive 1 foot were not contoured as they are likely more representative of regional changes and not local influence and it was not feasible to draw these changes with a closed contour.

As the 2018 and 2019 data is just a snapshot of the long term trends of the Valley, a long-term USGS time series has been added to the plot to give an idea of the long-term, pre-SJSVSSD Well 1 trends.

5.0 DISCUSSION OF WATER ELEVATION MONITORING

As there were no known changes in extractions from the wells in the Kens Lake area for the March 2018 to March 2019 area, the declines have to be attributed to a decline in recharge for the 2017-2018 water year (Oct-Apr).

The May 1st, 2018 NRCS Utah Water Supply Outlook Report for Southeastern Utah which includes Spanish Valley had the following data for the 2017-2018 water year (Oct-Apr);

“Snowpack in the Southeastern Utah is much below normal at 0% of normal, compared to 0% last year. Precipitation in April was much below average at 31%, which brings the seasonal accumulation (Oct-Apr) to 46% of average. Soil moisture is at 64% compared to 74% last year. Reservoir storage is at 49% of capacity, compared to 92% last year. Forecast streamflow volumes range from 4% to 42% of average. The surface water supply index is 9% for Moab.”

The NRCS Southeastern Report is included in Appendix C
Long term trend of water levels in central Spanish Valley
USGS was unable to measure the water level in this well in the well in 2019

Water level change 2018 - 2019

Figure 3.

SJ SVSSD 2019 Monitoring Report
Water Level Change 2018 - 2019

0 2 Miles

1:100,000

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Project Manager:
John Files

Date: May 2019
When the distribution of change in elevation is studied, it appears the wells closest to Kens Lake have seen the largest decline and the farther away from Kens Lake the less decline. It has been hypothesized that the loss from Kens Lake recharges the local aquifers, the 2018-2019 data seems to support this theory. Figure 4 is a map of the long term trends from USGS monitoring. This data shows a large increase in the water table post construction of Kens Lake. Below is the time series also depicted on Figure 3. This plot also shows the drop from 2018 to 2019.

![USGS Graph](image)

This plot demonstrates the recharge from Kens Lake post construction, then a slow return to “equilibrium”.

As of the end of March 2019, Kens Lake was still at only 23% of capacity and well under the previous years at this time of 59% from last year. Below is the April 1, 2019 summary from the NRCS, the entire report is included in Appendix D.

“Snowpack in the Southeastern Utah is much above normal at 203% of normal, compared to 45% last year. Precipitation in March was much above average at 228%, which brings the seasonal accumulation (Oct-Mar) to 159% of average. Soil moisture is at 59% compared to 45% last year. Reservoir storage is at 23% of capacity, compared to 59% last year. Forecast streamflow volumes range from 145% to 293% of average. The surface water supply index is 94% for Moab.”
Figure 4. Water Level Change 1986 - 2019

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Project Manager: John Files
Date: May 2019

SJ SVSSD 2019 Monitoring Report
Water Level Change 1986 - 2019

Water Level Change 1986 - 2019
SJ SVSSD Well 1

SJSVSSD Well 1

SJSVSSD 2019 Monitoring Report

Miles

0 2

1:100,000
This would seem to indicate that recharge for the Kens Lake area and Spanish Valley has not started as of the end of March 2019. This will mean that data collected in March 2019 to March 2020 will be important in the long term planning and understanding of the aquifer and how recharge refills Kens Lake and the local aquifers.

6.0 PLANNED ACTIVITY FOR 2019

SJSVSSD currently has completed a storage tank and is in the process of installing transmission and distribution lines in its service area. SJSVSSD currently has approximately 220 planned hook ups, many of these hook ups have individual wells that will no longer be used for culinary water. The estimated time for beginning of water service and pumping on SJSVSSD Well 1 is Fall of 2019.

Currently there are no additional planned wells or testing for other POD’s for 2019.

7.0 RECOMMENDED CHANGES TO MONITORING PLAN

There are no changes to the monitoring plan recommended at this time. The transducer in the BLM well is at the non-pumping static water level when the data was downloaded in April, 2019. Beeman Drilling has been contracted to reset the sounding tube so the transducer can be lowered and data can continue to be collected in this well.
Pump Testing SITLA’s Behind the Rocks Well & Plan for Drilling San Juan County Special Service Districts Behind the Rocks Well

October 2017

Prepared for:
San Juan Spanish Valley SSD, Jones & DeMille Engineering, & Utah State Engineers Office

Prepared by:
CASCADE WATER RESOURCES
# CONTENTS

1.0  Introduction .............................................................................................................................. 1
   1.1  Water Right and Location ................................................................................................. 1

2.0  Well Geology & Construction .............................................................................................. 1

3.0  Pump Testing .......................................................................................................................... 1
   3.1  Constant Rate Test ............................................................................................................. 3
   3.2  Aquifer Test Analysis .......................................................................................................... 5
   3.3  Water Quality ...................................................................................................................... 5

4.0  Safe Yield ............................................................................................................................... 5

5.0  Work Plan for Drilling New Well ......................................................................................... 6
   5.1  Estimated Drawdown from the New Behind the Rocks Well .............................................. 7
   5.2  Drilling and Testing of the Behind the Rocks Well ........................................................... 10

6.0  Conclusions and Monitoring Plan ........................................................................................ 10

## FIGURES

- **Figure 1.** Well Location Map .............................................................................................. 2
- **Figure 2.** Forward Predicted Drawdown on Aerial Imagery Basemap .............................. 8
- **Figure 3.** Forward Predicted Drawdown on Geologic Basemap ........................................ 9
- **Figure 4.** Estimated Behind the Rocks Well Construction Diagram ................................... 12

## APPENDICES

**APPENDIX A:** AQTESOLV Plot
- Well Driller’s Logs from Bridger Jack Mesa with Unit Descriptions

**APPENDIX B:** Keating/Brown Well Driller’s Log
- Conveyance of Keating Water Right
- Theis Estimation of Drawdown for the Keating/Brown Well
1.0 INTRODUCTION

This report includes the recent pump test information of the existing SITLA Behind the Rocks Well. Included in the pump test portion of the report are estimates of aquifer parameters and a forward model to estimate the potential drawdown cone of a higher producing well for the San Juan Spanish Valley Special Service District (SJSVSSD).

This report also details a path forward for the drilling and testing of a new well in the same location as outlined by the State Engineer in the Memorandum Decision for the SJSVSSD change application a37400.

1.1 Water Right and Location

The existing well is located on SITLA Water Right 05-2988. The well is located generally in the Behind the Rocks area of San Juan County. SJSVSSD also has an approved water right on the location, a37400 (base right 09-2349). The location of the well is shown on Figure 1.

2.0 WELL GEOLOGY & CONSTRUCTION

There is no well log for the current well. Included in the well file for 05-2988 is a proof that indicates a 10-inch well, drilled to a depth of 300 feet. It is not known if the well is cased, screened, perforated, or an open hole. In September of 2017, Beeman Well Services moved onto the site, pulled the existing pump and sounded the well. The well had fill in it to a depth of 200 feet and a water level of 162 feet below ground level.

The geology is unknown, but it is inferred from the surrounding surface geology to have been drilled through a thin layer of alluvial material into the Carmel Formation. The estimated depth of the Carmel Formation here is 80 to 150 feet. It is assumed that the producing section of this hole is below the Carmel Formation in the Navajo Sandstone. The local geology can be seen on Figure 3.

3.0 PUMP TESTING

As this well only has 38 feet of saturation, Beeman Well Service first set a smaller pump to make sure the water level did not draw down to the pump intake immediately. The well was pumped for approximately 25 minutes at 25 gpm and stabilized. The flow was increased to 42 gpm, the maximum for the pump. The water level again quickly stabilized at 172 feet. The well was pumped for a total of 3 hours and according to the manual readings recorded by the pump crew, the water level did not appear to draw down at all.

After the preliminary test, a larger pump was installed with the intake at approximately 192 feet and a transducer that was set to record every minute. With the pump intake set at 192, an approximate safe pumping level was determined to about 185 feet. During the constant rate testing the water level would not be allowed to drop below this depth.
Figure 1: Location Map of Existing Wells in the Back of the Rocks Area

San Juan Spanish Valley Special Service District

Date: October 2017
Project Manager: John Files
File: SJSSD_Fig1.pdf
Cartography: maps@bluesunGeographics.com

1 inch = 2,000 ft
3.1 Constant Rate Test

The SITLA well was pumped for a total of 48 hours. The flow was started low at approximately 50 gpm and was bumped up using a VFD while monitoring the water level in order to determine a safe flow rate. During this process, the water levels had an interesting initial response when the flows were increased. When the flows were increased, there was an initial rise in the water level instead of the expected decline. After the first 3 to 6 minutes, the water level did begin to decline. A possible explanation for the initial rise in the water level is the water could be pulling through the fill inside the well and then sealing again. The water was very silty each time the flow was turned up.

At a flow of 75 gpm, it appeared the well was in danger of drawing down too far, therefore at 220 minutes the flow was set to 70 gpm, where it stayed for the remainder of the test.

3.1.1 Water Level Data

Below is a plot of the water levels during the testing as recorded by the transducer.

During the testing of the well, the water level drew down from 162 feet and stabilized at approximately 178 Feet. Below is a plot of the drawdown observed in the well.
Below is a semi-log plot of the same drawdown data. As the flow was adjusted 220 minutes into the test, the semi-log plot starts at 100 minutes.
The well recovered to within 2.5 feet of static within the first minute of recovery. This is indicative of an inefficient well. The majority of the drawdown in the well is related to efficiency issues and is not aquifer related. The efficiency could be related to the well construction or to the water moving through the fill in the well to recharge the area where the pump is set. Below is the recovery data for the well.

3.2 Aquifer Test Analysis

This test data was analyzed using the Theis solution for an unconfined aquifer in the AQTESOLV groundwater software program. As the well had efficiency issues, the early time data that was related to well efficiency was not used as the primary focus of this analysis is to study the aquifer, not the well. The curve fit was very good for the test. The AQTSOLV results plot is included in Appendix A. The calculated transmissivity of the aquifer in this location is approximately 4,290 ft²/day.

3.3 Water Quality

No samples were taken during the testing for analysis, however the field parameters where checked several times and yielded a conductivity of 420 us/sec and a pH of 7.4.

4.0 SAFE YIELD

The Division of Drinking Water (DDW) definition of a safe yield is 2/3 the pump tested flow of a new well in a 24-hour test. With the 48-hour test completed at 70 gpm this would put the safe DDW
safe yield at 46 gpm. However, the purpose of the test was not to determine the DDW safe yield of this well, but to determine the safe yield of the aquifer at this location. The saturated thickness of only 38 feet in this well made testing at an actual safe yield impossible.

At this location the Navajo Sandstone is very transmissive when compared to the majority of the wells that have been tested in the Behind the Rocks/Bridger Jack Mesa area. Wells that have been tested have specific capacities below 1.0 gpm/ft. However, many of the wells that were not tested did have comments on the driller’s logs indicating that the Navajo and Wingate sandstones were very good producing aquifers. Many of the comments were, “lost circulation”, “highly fractured”, not able to airlift, air being lost in fractures”. These comments are indicative of highly transmissive aquifers.

The most significant unknown in this area is the actual thickness of the Navajo Sandstone and its connection to the underlying formations. Well logs that have called out formations on Bridger Jack Mesa indicate a Navajo Sandstone thickness ranging from 150 to 500 feet. It should be noted that the geology in driller’s logs is not always reliable, and in some cases, wells that are only two hundred feet apart indicate completely different geologic units. Well logs from the area that include the Navajo Sandstone unit called out are included in Appendix A. Based on the information in the area well logs, a conservative estimate for the thickness of the Navajo Sandstone here is about 250 feet.

With the above in mind two safe yield estimates are made for a properly constructed well within the Navajo Sandstone in this area.

1. Short-term and long-term: The short-term safe yield would be a flow the well can safely pump for a few weeks during the high demand time of the year. Water levels of the nearby irrigation and city wells should be monitored during this time. The long-term safe yield would be the estimated safe yield on an annual basis.

The short-term safe yield would be 250 gpm. The short-term means the well can be pumped for short durations, usually under two weeks and would need time to recover prior to pumping the well again. The long-term safe yield world be 150 gpm. Both estimates are very conservative given the transmissivity of the aquifer. However, not knowing the precise thickness of the Navajo Sandstone here or the connection to the underlying formations, it would be best to err on the low side. If the actual thickness of the producing aquifer is found to be thicker than 250 feet the safe yield of the aquifer could be in the 400 to 600 gpm range.

The safe yield will be reviewed after the new well is drilled and tested. In addition, after the new well is installed the safe yield can be reviewed each year after pumping and the water level data is analyzed. If adjustments to the long-term safe yield need to be made they can be completed after each year of pumping.

5.0 WORK PLAN FOR DRILLING NEW WELL

As per the “conditions” listed in the Memorandum Decision by the State Engineer on the change application; a pathway forward needs to be outlined in order for a start card to be issued. In the case of this location, there are no wells within 1,000 feet that would require a framework of mitigation. There are several wells and senior underground water rights within 3,000 feet of the new well site. The closest well is approximately 1,600 feet to the south. The log for this well is included in Appendix B. This well has two water rights in current good standing; 05-2598 for 0.45 acre/ft owned by Scott Brown and 05-3304 for 5.73 acre/ft owned by Scott Keating. It should be noted that an
unprocessed conveyance has been submitted for the Keating right as it appears the property now has new owners, William and Judith Perry. The conveyance is included in Appendix B.

5.1 Estimated Drawdown from the New Behind the Rocks Well

Two methods were used to estimate the potential drawdown in the area from pumping a new well at the Behind the Rocks Well location. First, the forward predicting model application in AQTESOLV for Theis unconfined aquifers was used to calculate drawdown contours for the area. Second, individually for the Brown/Keating Well, the Theis Equation drawdown calculator provided by the Utah Division of Water Rights website was used. The input for both models is below;

Flow = 150 gpm
Transmissivity = 4,290 ft²/day
Saturated Thickness = 250 feet
Aquifer Storativity = .01 to .001 (Different coefficients were used as tests, but they did not result in significant contour changes)

There are significant limitations to this method of forward predictive modeling, the most significant is that the Theis solution based models do not take into account recharge and its results are based on a simplified homogeneous aquifer of infinite extent of a constant transmissivity. In addition, the local aquifer is likely fault/fracture controlled and much of the water is derived from the secondary porosity of these fractures. Given these limitations, the AQTESOLV model was only ran for 10 years, as the recharge is now known. However, this method of modeling is a very good predictive guide to the general drawdown and usually over-predicts drawdown, so it is a solid conservative method to use.

The contours produced from the AQTESOLV forward modeling scenario are presented on Figures 2 and 3. Figure 2 plots the drawdown contours on recent aerial imagery and Figure 3 plots the drawdown contours on the UGS La Sal 30 x 60 geologic map. The contours only extend out to 5 feet of drawdown due to the limitations listed above. In addition to the limitations above there may be either positive or negative boundaries associated with secondary porosity created by fracturing, and the extent of the fracture zone is not known. Using the AQTESOLV predictive modeling, the Keating/Brown Well falls in between the 6 and 7 foot drawdown contours.

Using the second method of just the distance/drawdown Theis calculator, after 10 years the estimated drawdown was 5.10 feet in the Keating/Brown well. The results from this method are included in Appendix B.

Based on the preliminary data from the pump test, some drawdown is expected in the closest well to the Behind the Rocks Well site. However, the drawdown should not be significant enough to impair the pumping of the water rights associated with the well. The predictive modeling can be confirmed this during the testing described in the next section. Unfortunately, given the thin extent of the saturated thickness in the existing well, the aquifer could not be stressed enough to test drawdown in the Keating/Brown well during the recent test.
**Modelling Parameters**

- Saturated Thickness of Aquifer: 250’
- Flow Rate: 150 gpm
- Pumping duration: 10 years
- Transmissivity: 4290 ft\(^2\)/day
- Aquifer Porosity: 0.01
- Gradient: 0.0005

**Drawdown Contours**
- 9’
- 8’
- 7’
- 6’
- 5’

**Figure 2:** Location map of existing wells showing potential drawdown contours after 10 years of pumping POD 7
**Modelling Parameters**

- **Saturated Thickness of Aquifer**: 250’
- **Flow Rate**: 150 gpm
- **Pumping duration**: 10 years
- **Transmissivity**: 4290 ft/day
- **Aquifer Porosity**: 0.01
- **Gradient**: 0.0005

**Geologic Units**

- **Qal/Qea**: Alluvial Deposits
- **Qms**: Slumps and Landslides
- **Kd**: Dakota Sandstone
- **Kbc**: Burro Canyon Fm
- **Jmb**: Morrison Fm, Brushy Basin
- **Jms**: Morrison Fm, Salt Wash
- **Jsmt**: Morrison Fm, Tidwell
- **Jctm**: Curtis Fm, Moab
- **Jes**: Entrada Sandstone
- **Jcd**: Carmel Fm, Dewey Bridge
- **Jn**: Navajo Sandstone
- **Jk**: Kayenta Fm
- **Jw**: Wingate Sandstone

**San Juan Spanish Valley Special Service District**

**Date**: October 2017

**Project Manager**: John Files

**File**: SJSSD_Fig3.pdf

**Cartography**: maps@bluesunGeographics.com

**Figure 3**: Location map of existing wells showing potential drawdown contours after 10 years of pumping POD 7.
5.2 Drilling and Testing of the Behind the Rocks Well

As the saturated thickness of the aquifer is not known, an 8” to 10” diameter pilot hole will be drilled prior to reaming the final hole for well construction. Drilling the pilot hole will define the geology of the site and will give the thickness of the Navajo Sandstone. If the Navajo Sandstone section is thin here, the pilot hole may continue into the undying formations. If hole conditions permit or if the option to put a temporary sleeve for a pump into the well can be done safely, a long-term pump test of the open hole will be completed. The test is expected to run from 48 hours to 7 days depending on the data collected. During the drilling and testing of the open hole if the owners permit, a transducer will be placed in the Keating/Brown well before the start of drilling activities.

Data collected during the drilling and testing of the pilot hole will determine the size of well that will be completed at this location. The estimated diameter of the final well will be 10” to 14”. Figure 4 is the estimated well construction of the New Behind the Rocks Well.

Drilling a well is a dynamic process and plans can change depending on geology, hydrology, hole conditions, and mechanical limitations. The final well construction for any site can change given these unpredictable issues. All data collected during drilling and testing will be used to develop the final well construction and testing plan.

After the well is completed, a pump test will be performed at what is determined to be the safe yield. The well is expected to be tested at flow rates between 150 to 300 gpm. Though if conditions permit, higher flow rates may be possible. This should allow for the aquifer to be stressed enough to record drawdown in the Keating/Brown well. Which in turn, provides the information to better model future drawdown of this well and its influence on other well owners in the area.

The well will be constructed to the Utah Division of Drinking Water standards, and all permitting and reporting required by DDW will be completed before and after the drilling of the well. This includes the Preliminary Evaluation Report and Drinking Water Source Protection Plans. In addition to the DDW reports, a report on the drilling, construction, development, and aquifer testing will be prepared for the Division of Water Rights. This report will update the estimated future drawdown of the well and identify wells in the area, if any, that may be interfered with by the pumping of this well. If rights are identified that are impaired by the pumping of this well, a mitigation agreement that includes replacement water for the impaired rights will be adopted for the potentially interfered with rights.

6.0 CONCLUSIONS AND MONITORING PLAN

Preliminary testing of the current Behind the Rocks Well site indicate a a relatively good aquifer that can be responsibly developed without significantly interfering with any nearby water rights. If this well site is developed, and after the final reporting on all the aquifer parameters and the estimated drawdown is known, a long-term monitoring plan will be developed to ensure that there are no long-term negative impacts on surrounding wells and the overall water balance in the Spanish Valley/Moab area.
#1 - Final borehole diameter will depend on how well pilot tests. Final diameter of the well is estimated to be between 8"-14". Diagram represents a maximum casing diameter of 14".

#2 - Actual size of slot will depend on what is encountered in pilot hole.

#3 - Gravel pack in saturation will depend on what is encountered in pilot. In saturation a 3/8 well-rounded gravel may be used. Above saturation a "filler" gravel may be used.

#4 - Thickness of the Navajo here is unknown. Thickness on logs range from 270' to 500'. Many logs have stated circulation issues in the Navajo.

The pilot hole’s estimated total depth will mostly be through the Navajo Sandstone, as this hole will be in an area with no previous drilling, the actual depth will depend on the geology and flows encountered.

All depths and sizes of final well are estimates due to lack other drilling in this area.

The construction of the final well (if constructed) will be based on the geology and the flows of the pilot hole.

Borehole and well diameters used will be the maximum size expected for the Navajo in this area.
APPENDIX A:

AQTESOLV Plot
Well Driller’s Logs from Bridger Jack Mesa with Unit Descriptions
BEHIND THE ROCKS RECOVERY

Data Set:
Date: 10/02/17
Time: 19:23:08

PROJECT INFORMATION
Company: Cascade Water Resources
Client: San Juan County Spanish Valley
Test Location: Behind the Rocks
Test Well: Behind the Rocks Well
Test Date: Sept. 2017

AQUIFER DATA
Saturated Thickness: 250. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

<table>
<thead>
<tr>
<th>Pumping Wells</th>
<th>Observation Wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Name</td>
<td>X (ft)</td>
</tr>
<tr>
<td>PW 1</td>
<td>0</td>
</tr>
</tbody>
</table>

SOLUTION
Aquifer Model: Unconfined
Solution Method: Theis
T = 4291.5 ft²/day
S = 7.454E-18
**WELL DRILLER'S REPORT**

State of Utah  
Division of Water Rights  

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

---

**Well Identification**
Non-Production Well: 0505024M00  
WIN: 34827

**Owner**
Note any changes:  
Thomas Robertson  
513 W. Cedar Place  
Louisville, CO 80027

**Contact Person/Engineer:**

**Well Location**
Note any changes:  
N 690 W 963 from the s4 corner of section 36, Township 27S, Range 22E, SL Be&M

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

**Driller's Activity**
Check all that apply:  
*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.

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>BOREHOLE DIAMETER (in)</th>
<th>DRILLING METHOD</th>
<th>DRILLING FLUID</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM TO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>12&quot;</td>
<td>Air Rotary</td>
<td>Water Soap</td>
</tr>
<tr>
<td>31</td>
<td>6&quot;</td>
<td>Air Rotary</td>
<td></td>
</tr>
</tbody>
</table>

**Well Log**

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>WATER COLOR</th>
<th>UNCONSOLIDATED SANDSTONE</th>
<th>ROCK TYPE</th>
<th>COLOR</th>
<th>DESCRIPTION AND REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM TO</td>
<td>THEN LOW</td>
<td></td>
<td>Top Soil</td>
<td>Brown</td>
<td>Navajo Sandstone Formation</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>X</td>
<td>Sandstone</td>
<td>Brown</td>
<td>Navajo Sandstone Formation</td>
</tr>
<tr>
<td>3</td>
<td>180</td>
<td></td>
<td>Sandstone</td>
<td>Brown</td>
<td>Navajo Sandstone Formation</td>
</tr>
<tr>
<td>=181</td>
<td>688</td>
<td></td>
<td>Sandstone</td>
<td>Red/Tan/Brown</td>
<td>Wind Gap Sandstone Formation</td>
</tr>
<tr>
<td>181</td>
<td>700</td>
<td></td>
<td>Sandstone</td>
<td>Red/Tan/Brown</td>
<td>Wind Gap Sandstone Formation</td>
</tr>
</tbody>
</table>

**Static Water Level**

Date: 01 31 05  
Water Level: 360 feet  
Flowing: Yes  
If Flowing, Capped Pressure:  
Point to Which Water Level Measurement was Referenced: Top of casing  
Height of Water Level reference point above ground surface: 2 feet  
Temperature: 50 degrees  
Well Log
**WELL DRILLER’S REPORT**
State of Utah
Division of Water Rights

For additional space, use “Additional Well Data Form” and attach

**Well Identification**
PROVISIONAL WELL: 96-05-002-P-03

**RECEIVED**
MAY 06 1996
WATER RIGHTS
SALT LAKE

**Owner**
John Hauer
550 North Main Suite C
Moab, UT 84532

**Note any changes**
Moved to South 1700 feet West 2800 feet
SOUTH 900 feet WEST 2600 feet from the NE Corner of SECTION 36, TOWNSHIP 27S, RANGE 22E, SLB&M.

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

**Drillers Activity**

<table>
<thead>
<tr>
<th>Start Date</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-24-96</td>
<td>5-2-96</td>
</tr>
</tbody>
</table>

Check all that apply:
- [ ] New
- [ ] Repair
- [ ] Deepen
- [ ] Abandon
- [ ] Replace
- [ ] Public

**Nature of Use:**
- [ ] Nature of Use:

**DEPTH (feet) FROM**

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>borehole diameter (in)</th>
<th>drilling method</th>
<th>drilling fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>18</td>
<td>9 7/8</td>
<td>Air Rotary</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>58</td>
<td>7 7/8</td>
<td>Air Rotary</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>900</td>
<td>6</td>
<td>Air Rotary</td>
<td>Water &amp; Foam</td>
</tr>
</tbody>
</table>

**Well Log**

- **Descriptions and Remarks**
  (include comments on water quality if known.)

<table>
<thead>
<tr>
<th>depth (feet) FROM</th>
<th>TO</th>
<th>WATER-CLAY-SILT-GRANULAR-CONSOLIDATED-UNCONSOLIDATED-CLAY-SAND-BEDROCK</th>
<th>Rock Type</th>
<th>Color</th>
<th>Descriptions and Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30</td>
<td></td>
<td>Sandstone-Shale</td>
<td>White</td>
<td>upper Morrison</td>
<td></td>
</tr>
<tr>
<td>30-330</td>
<td></td>
<td>Sandstone-Shale</td>
<td>Red/Gray</td>
<td>Morrison</td>
<td></td>
</tr>
<tr>
<td>330-510</td>
<td></td>
<td>Sandstone-Wet</td>
<td>White</td>
<td>Entrada</td>
<td></td>
</tr>
<tr>
<td>510-580</td>
<td></td>
<td>Mudstone-Siltstone</td>
<td>Red/Gray</td>
<td>lower Entrada (Carmel)</td>
<td></td>
</tr>
<tr>
<td>580-780</td>
<td></td>
<td>Sandstone-Lt.Bn.</td>
<td>Navajo</td>
<td>Navajo</td>
<td></td>
</tr>
<tr>
<td>780-838</td>
<td></td>
<td>Sandstone-Bn</td>
<td>Kernenta</td>
<td>Kernenta</td>
<td></td>
</tr>
<tr>
<td>838-860</td>
<td></td>
<td>Sandstone-Bn</td>
<td>Wingate</td>
<td>Fractures - water</td>
<td></td>
</tr>
<tr>
<td>860-866</td>
<td></td>
<td>Sandstone-Bn</td>
<td>Wingate</td>
<td>Fractures - water</td>
<td></td>
</tr>
<tr>
<td>866-900</td>
<td></td>
<td>Sandstone-Bn</td>
<td>Wingate</td>
<td>Fractures - water</td>
<td></td>
</tr>
</tbody>
</table>

**Static Water Level**

- **Date:** 5-2-96
- **Water Level:** 510 feet
- **Flowing?** [ ] Yes [ ] No
- **Method of Water Level Measurement:** Tape
- **If Flowing, Capped Pressure:** PSI
- **Point to Which Water Level Measurement was Referenced:** Surface
- **Height of Water Level reference point above ground surface:** 0 feet
- **Temperature:** 66 °F

**Well Log**
### Construction Information

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>CASING</th>
<th>WALL THICK (in)</th>
<th>NOMINAL DIA. (in)</th>
<th>DEPTH (feet)</th>
<th>SCREEN</th>
<th>PERFORATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM  TO</td>
<td>CASING TYPE</td>
<td>STEEL</td>
<td>.250</td>
<td>6</td>
<td>FROM TO</td>
<td>SLOT SIZE OR PORE SIZE (in)</td>
</tr>
<tr>
<td>+2  58</td>
<td>Steel</td>
<td>.250</td>
<td>6</td>
<td>500  540</td>
<td>1/16</td>
<td>4”</td>
</tr>
<tr>
<td>0  500</td>
<td>Plastic</td>
<td>.400</td>
<td>4 1/2</td>
<td>540  860</td>
<td>1/16</td>
<td>4”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>860  860</td>
<td>1/16</td>
<td>4”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>880  900</td>
<td>1/16</td>
<td>4”</td>
</tr>
</tbody>
</table>

Well Head Configuration: **Welded Steel Cap**  Access Port Provided? □ Yes  □ No

Casing Joint Type: **Glue**  Perforator Used: □ Saw

### FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>ANNUAL MATERIAL, ABANDONMENT MATERIAL AND OR PACKER DESCRIPTION</th>
<th>QUANTITY OF MATERIAL USED (if applicable)</th>
<th>GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0  100</td>
<td>4 1/2” x 6” packer set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0  100</td>
<td>Cement 4 1/2” x 6”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0  18</td>
<td>Cement 6” x 10”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Well Development / Pump or Bail Tests

<table>
<thead>
<tr>
<th>Date</th>
<th>Method</th>
<th>Yield</th>
<th>Units</th>
<th>Drawdown (ft)</th>
<th>Time Pumped (hrs &amp; min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-2-96</td>
<td>Air Lift</td>
<td>5-8</td>
<td>GPM</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### 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.

Cemented 6” Steel to 18’ - Cemented 4 1/2” Plastic to 100’

### 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: **Balsey Well Service** (Person, Firm, or Corporation – Print or Type)

License No. 610

Signature: **Tracey Balsey** (Licensed Well Driller)

Date: 5-3-96
**WELL DRILLER’S REPORT**
State of Utah  
Division of Water Rights

**Well Identification**: PROVISIONAL WELL: 96-05-002-P-01  

**Owner**: John Hauer  
550 North Main Suite C  
Moab, UT 84532

**Contact Person/Engineer**:  

**Well Location**: SOUTH 450 feet WEST 2000 feet from the NE Corner of  
SECTION 36, TOWNSHIP 27S, RANGE 22E, SLB&M.

**Drillers Activity**  
**Start Date**: 3-9-96  
**Completion Date**: 3-16-96

**Check all that apply**:  
- [X] New  
- [ ] Repair  
- [ ] Deepen  
- [ ] Abandon  
- [ ] Replace  
- [ ] Public

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>BOREHOLE DIAMETER (in)</th>
<th>DRILLING METHOD</th>
<th>DRILLING FLUID</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>TO</td>
<td>Air Rotary</td>
<td>Water - Foam</td>
</tr>
<tr>
<td>0</td>
<td>19</td>
<td>Air Rotary</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>800</td>
<td>Air Rotary</td>
<td></td>
</tr>
</tbody>
</table>

**Well Log**  

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>PERMEABLE</th>
<th>UNCONSOLIDATED</th>
<th>CONSOLIDATED</th>
<th>ROCK TYPE</th>
<th>COLOR</th>
<th>DESCRIPTIONS AND REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>high</td>
<td>low</td>
<td></td>
<td></td>
<td></td>
<td>(include comments on water quality if known.)</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>X</td>
<td>226</td>
<td>Sandstone</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>34</td>
<td>X</td>
<td></td>
<td>Morrison</td>
<td>Rd/Bn</td>
<td>Shale w/sandstone layers</td>
</tr>
<tr>
<td>34</td>
<td>290</td>
<td>X</td>
<td></td>
<td>Entrada</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>290</td>
<td>480</td>
<td>X</td>
<td></td>
<td>Entrada</td>
<td>Brown</td>
<td>- Bottom Rd/Bn Fractures Between 600 - 760</td>
</tr>
<tr>
<td>480</td>
<td>800</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Static Water Level**

**Date**: 3-16-96  
**Water Level**: 481 feet  
**Flowing?**: [ ] Yes  
[ ] No

**Method of Water Level Measurement**: Tape  
**If Flowing, Capped Pressure**:  
**PSI**

**Point to Which Water Level Measurement was Referenced**: Surface

**Height of Water Level reference point above ground surface**: 0 feet  
**Temperature**: 58 °C  
**°F**
WELL DRILLER'S REPORT
State of Utah
Division of Water Rights
For additional space, use "Additional Well Data Form" and attach

Well Identification
PROVISIONAL WELL: 96-05-002-P-02

Owner
John Hauer
550 North Main Suite C
Moab, UT 84532

Contact Person/Engineer:

Well Location
SOUTH 2500 feet WEST 2600 feet from the NE Corner of
SECTION 36, TOWNSHIP 27S, RANGE 22E, SLB&M.

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

Drillers Activity
Start Date: 4-5-96
Completion Date: 4-13-96
Check all that apply:

- [x] New
- [ ] Repair
- [ ] Deepen
- [ ] Abandon
- [ ] Replace
- [ ] Public

Nature of Use:

<table>
<thead>
<tr>
<th>DEPTH (feet) FROM TO</th>
<th>BOREHOLE DIAMETER (in)</th>
<th>DRILLING METHOD</th>
<th>DRILLING FLUID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 18</td>
<td>9 7/8&quot;</td>
<td>Air Rotary</td>
<td>Foam &amp; Water</td>
</tr>
<tr>
<td>18 820</td>
<td>6&quot;</td>
<td>Air Rotary</td>
<td></td>
</tr>
</tbody>
</table>

Well Log

<table>
<thead>
<tr>
<th>DEPTH (feet) FROM TO</th>
<th>UNCONSOLIDATED</th>
<th>CONSOLIDATED</th>
<th>ROCK TYPE</th>
<th>COLOR</th>
<th>DESCRIPTIONS AND REMARKS (include comments on water quality if known.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 303</td>
<td></td>
<td></td>
<td>Sandstone</td>
<td>White</td>
<td>Sandstone/Ad &amp; Gm Shales -Marriage</td>
</tr>
<tr>
<td>303 455</td>
<td></td>
<td></td>
<td>Entroda</td>
<td>White</td>
<td>Sandstone</td>
</tr>
<tr>
<td>435 555</td>
<td></td>
<td></td>
<td>Entroda</td>
<td>Ad/Gm</td>
<td>Sandstone/Silstone</td>
</tr>
<tr>
<td>555 820</td>
<td>205'</td>
<td></td>
<td>Navajo</td>
<td>Red</td>
<td>6'01' Fracture -water 6'12'-6'18' -6'46' -Fractures Water</td>
</tr>
</tbody>
</table>

Static Water Level

- Date: 4-12-96
- Water Level: 497 feet
- Flowing?: [ ] Yes [X] No
- Method of Water Level Measurement: Tape
- If Flowing, Capped Pressure: PSI
- Point to Which Water Level Measurement was Referenced: 0 - Surface
- Height of Water Level reference point above ground surface: 0 feet
- Temperature: 50 °C 60 °F
### Construction Information

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>CASING</th>
<th>DEPTH (feet)</th>
<th>SCREEN</th>
<th>PERFORATIONS</th>
<th>CASING TYPE AND MATERIAL GRADE</th>
<th>WALL THICK (in)</th>
<th>NOMINAL DIAM. (in)</th>
<th>FROM TO</th>
<th>SLOT SIZE OR PORE SIZE (in)</th>
<th>SCREEN DIAM OR PORE LENGTH (in)</th>
<th>SCREEN TYPE OR NUMBER PERI (per row/interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+2 19</td>
<td>Steel</td>
<td>15 480</td>
<td>Plastic</td>
<td>19 480</td>
<td></td>
<td>2.50</td>
<td>6</td>
<td>480</td>
<td>800</td>
<td>1/6&quot;</td>
<td>6&quot;</td>
</tr>
</tbody>
</table>

Well Head Configuration: Welded cap
Access Port Provided? □ Yes □ No
Casing Joint Type: 6Line
Perforator Used: Saw

### Filter Pack / Grout / Packers / Abandonment Material

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL</th>
<th>Annular Material, Abandonment Material and/or PACKER DESCRIPTION</th>
<th>Quantity of Material Used (if applicable)</th>
<th>GROUT DENSITY (lbs/gal, # bag mix, gal/sack etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 19</td>
<td>Cement</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Well Development / Pump or Bail Tests

<table>
<thead>
<tr>
<th>Date</th>
<th>Method</th>
<th>Yield</th>
<th>Units Check One</th>
<th>Drawdown (ft)</th>
<th>Time Pumped (hrs &amp; min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-13-96</td>
<td>Air Lift</td>
<td>2-3</td>
<td>GPM CFS</td>
<td></td>
<td>3 hrs</td>
</tr>
</tbody>
</table>

### 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 produced 2-3 gpm with air lift. Pumped well should actually produce more water.

### 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: Balsley Well Service

License No. 610

Signature: Tracy Balsley

(Licensed Well Driller) 

Date: 3-18-96
## Construction Information

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>CASING</th>
<th>WALL THICK (in)</th>
<th>NOMINAL DIAM. (in)</th>
<th>DEPTH (feet)</th>
<th>SCREEN</th>
<th>PERFORATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>TO</td>
<td>CASING TYPE AND MATERIAL</td>
<td>ARAID</td>
<td>FROM</td>
<td>TO</td>
<td>SLOT SIZE OR PER/360 (in)</td>
</tr>
<tr>
<td>+2</td>
<td>18</td>
<td>steel</td>
<td>2.50</td>
<td>6&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>820</td>
<td>Plastic</td>
<td>0.40</td>
<td>4(\frac{1}{2})</td>
<td>600</td>
<td>820</td>
</tr>
</tbody>
</table>

Well Head Configuration: **Welded Steel Cap**  
Access Port Provided? □ Yes □ No

Casing Joint Type: **6-lae**  
Perforator Used: □ Saw

## FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL</th>
<th>ANNUAL MATERIAL, ABANDONMENT MATERIAL and/or PACKER DESCRIPTION</th>
<th>Quantity of Material Used (if applicable)</th>
<th>GROUT DENSITY (lbs./gal., # bag mix, gal./sack etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>TO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>18</td>
<td>Cement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Well Development / Pump or Bail Tests

<table>
<thead>
<tr>
<th>Date</th>
<th>Method</th>
<th>Yield</th>
<th>Units</th>
<th>Check One</th>
<th>Drawdown (ft)</th>
<th>Time Pumped (hrs &amp; min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-12-96</td>
<td>Air Lift</td>
<td>1-2</td>
<td>GPM</td>
<td>CFS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 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.

Fractures from 60' to T.D.

## 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: **Balsley Well Service**  
License No.: **610**

Signature: **Balsley**  
Date: **4-14-96**
WELL DRILLER'S REPORT
State of Utah
Division of Water Rights

For additional space, use “Additional Well Data Form” and attach

Well Identification
PROVISIONAL WELL: 96-05-002-P-03

Owner
John Hauer
550 North Main Suite C
Moab, UT 84532

Contact Person/Engineer:

Well Location
Moved to SOUTH 1700 feet WEST 2800 feet
SOUTH 900 feet WEST 2600 feet from the NE Corner of
SECTION 36, TOWNSHIP 27S, RANGE 22E, SLB&M.

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

Drillers Activity
Start Date: 4-24-96
Completion Date: 5-2-96

Check all that apply:
☐ New ☐ Repair ☐ Deepen ☐ Abandon ☐ Replace ☐ Public Nature of Use:

<table>
<thead>
<tr>
<th>DEPTH (feet) FROM TO</th>
<th>BOREHOLE DIAMETER (in)</th>
<th>DRILLING METHOD</th>
<th>DRILLING FLUID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 18</td>
<td>9 3/8</td>
<td>Air Rotary</td>
<td></td>
</tr>
<tr>
<td>18 - 58</td>
<td>7 3/8</td>
<td>Air Rotary</td>
<td>Water + Foam</td>
</tr>
<tr>
<td>58 - 900</td>
<td>6</td>
<td>Air Rotary</td>
<td></td>
</tr>
</tbody>
</table>

Well Log

<table>
<thead>
<tr>
<th>DEPTH (feet) FROM TO</th>
<th>WATER PERMEABLE</th>
<th>UNCONSOLIDATED</th>
<th>CONSOLIDATED</th>
<th>ROCK TYPE</th>
<th>COLOR</th>
<th>DESCRIPTIONS AND REMARKS (include comments on water quality if known.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 30</td>
<td></td>
<td></td>
<td></td>
<td>Sandstone</td>
<td>White</td>
<td>upper Morrison</td>
</tr>
<tr>
<td>30 - 330</td>
<td></td>
<td></td>
<td></td>
<td>Shale</td>
<td></td>
<td>Sandstone Cretaceous-Wy. Morrison</td>
</tr>
<tr>
<td>330 - 510</td>
<td></td>
<td></td>
<td></td>
<td>Sandstone</td>
<td>White</td>
<td>Entrada</td>
</tr>
<tr>
<td>510 - 580</td>
<td></td>
<td></td>
<td></td>
<td>Mudstone</td>
<td></td>
<td>Siltstone Rd/Bn.</td>
</tr>
<tr>
<td>580 - 780</td>
<td></td>
<td></td>
<td></td>
<td>Sandstone</td>
<td>White</td>
<td>Lower Entrada (Carmel)</td>
</tr>
<tr>
<td>780 - 838</td>
<td></td>
<td></td>
<td></td>
<td>Lucia</td>
<td></td>
<td>Navajo</td>
</tr>
<tr>
<td>838 - 860</td>
<td></td>
<td></td>
<td></td>
<td>Sandstone</td>
<td></td>
<td>Kayenta</td>
</tr>
<tr>
<td>860 - 866</td>
<td></td>
<td></td>
<td></td>
<td>Sandstone</td>
<td></td>
<td>Wingate Fractures-water</td>
</tr>
<tr>
<td>866 - 900</td>
<td></td>
<td></td>
<td></td>
<td>Sandstone</td>
<td></td>
<td>Wingate - Fractures-water</td>
</tr>
</tbody>
</table>

Static Water Level
Date: 5-2-96
Water Level: 510 feet
Flowing? ☐ Yes ☑ No
Method of Water Level Measurement: Tape
If Flowing, Capped Pressure: PSI
Point to Which Water Level Measurement was Referenced: Surface
Height of Water Level reference point above ground surface: 0 feet
Temperature: 66 °C 66 °F
### Construction Information

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>CASING</th>
<th>DEPTH (feet)</th>
<th>SCREEN</th>
<th>PERFORATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM TO</td>
<td>CASING TYPE AND MATERIAL GRADE</td>
<td>WALL THICK (IN)</td>
<td>NOMINAL DIAM. (IN)</td>
<td>FROM TO</td>
</tr>
<tr>
<td>+2 58</td>
<td>Steel 280 6</td>
<td>.280 6</td>
<td>500 540</td>
<td>1/8</td>
</tr>
<tr>
<td>0 500</td>
<td>Plastic 16 4 1/2</td>
<td>.16 4 1/2</td>
<td>540 880</td>
<td>1/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>880 880</td>
<td>1/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>880 900</td>
<td>1/8</td>
</tr>
</tbody>
</table>

Well Head Configuration: **Welded Steel cap**  
Access Port Provided? □ Yes □ No  
Casing Joint Type: **Glue**  
Perforator Used: **Saw**

### Filter Pack / Grout / Pack / Abandonment Material

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM TO</td>
<td>ANNULAR MATERIAL, ABANDONMENT MATERIAL and/or PACKER DESCRIPTION</td>
</tr>
<tr>
<td>100'</td>
<td>4 1/2&quot; x 6&quot; packer set</td>
</tr>
<tr>
<td>0 100'</td>
<td>Cement 4 1/2 x 6&quot;</td>
</tr>
<tr>
<td>0 18'</td>
<td>Cement 6&quot; x 10&quot;</td>
</tr>
</tbody>
</table>

### Well Development / Pump or Bail Tests

<table>
<thead>
<tr>
<th>Date</th>
<th>Method</th>
<th>Yield</th>
<th>Units Check One</th>
<th>DRAWDOWN (ft)</th>
<th>TIME PUMPED (hrs &amp; min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-2-96</td>
<td>Air lift</td>
<td>5-8</td>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### 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.

Cemented 6" Steel to 18' - Cemented 4 1/2" plastic to 100'

### 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:** Balsley Well Service  
(Version, Firm, or Corporation - Print or Type)  
**License No.:** 610  
**Signature:** Tracy Balsley  
(Licensed Well Driller)  
**Date:** 5-3-96
WELL DRILLER'S REPORT
State of Utah
Division of Water Rights

Well Identification: PROVISIONAL WELL: 96-05-002-P-01
MAR 20 1996

Owner: John Hauer
550 North Main Suite C
Moab, UT 84532

Contact Person/Engineer:

Well Location: SOUTH 450 feet WEST 2000 feet from the NE Corner of SECTION 36, TOWNSHIP 27S, RANGE 22E, SLB&M.

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

Drillers Activity: Start Date: 3-9-96 Completion Date: 3-16-96

Check all that apply:
- New
- Repair
- Deepen
- Abandon
- Replace
- Public

<table>
<thead>
<tr>
<th>DEPTH (feet) FROM</th>
<th>BOREHOLE DIAMETER (in)</th>
<th>DRILLING METHOD</th>
<th>DRILLING FLUID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>9 1/8</td>
<td>Air Rotary</td>
<td>Water - Foam</td>
</tr>
<tr>
<td>19</td>
<td>6</td>
<td>Air Rotary</td>
<td></td>
</tr>
</tbody>
</table>

Well Log

| DEPTH (feet) FROM | WATER PERMEABLE CLAY CONSOLIDATED ROCK TYPE COLOR DESCRITIONS AND REMARKS |
|------------------|--------------------------|------------------|--------------------------------|
| 0                | k                        | 2x                | Rd/Bn Dredged                |
| 1 3/4            | k                        |                 | Sandstone White              |
| 34               | k                        |                 | Morrison Rd/Ga Shale w/sandstone layers |
| 290              | k                        |                 | Entrada White                |
| 480              | k                        |                 | Entrada Brown - Bottom Rd/Bm Fractures Between 600 - 760 |

Static Water Level

Date: 3-16-96
Water Level: 481 feet Flowing?: No
Method of Water Level Measurement: Tape
Point to Which Water Level Measurement was Referenced: Surface
Height of Water Level reference point above ground surface: 0 feet Temperature: 58°F

Well Log
### Construction Information

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>CASING</th>
<th>WALL THICK (in)</th>
<th>NOMINAL DIAM (in)</th>
<th>DEPTH (feet)</th>
<th>SCREEN □</th>
<th>PERFORATIONS □</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>TO</td>
<td>CASING TYPE AND MATERIAL/GRADE</td>
<td></td>
<td>FROM</td>
<td>TO</td>
<td>SLIT SIZE OR PER FOR SIZE (in)</td>
</tr>
<tr>
<td>+2 19</td>
<td>Steel</td>
<td>250</td>
<td>6</td>
<td>15 480</td>
<td>Plastic</td>
<td>4 1/2</td>
</tr>
</tbody>
</table>

Well Head Configuration: **Welded cap**
Access Port Provided? □ Yes ☒ No
Casing Joint Type: **Glue** Perforator Used: **Saw**

### FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL</th>
<th>ANNULAR MATERIAL, ABANDONMENT MATERIAL and/or PACKER DESCRIPTION</th>
<th>Quantity of Material Used (if applicable)</th>
<th>GROUT DENSITY (lbs./gal.,# bag mix, gal./sack etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 19</td>
<td>Cement</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Well Development / Pump or Bail Tests

<table>
<thead>
<tr>
<th>Date</th>
<th>Method</th>
<th>Yield</th>
<th>Units Check One</th>
<th>DRAWDOWN (ft)</th>
<th>TIME PUMPED (hrs &amp; min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-13-96</td>
<td>Air Lift</td>
<td>2-3</td>
<td>GPM CFS</td>
<td></td>
<td>3 hrs</td>
</tr>
</tbody>
</table>

### Pump (Permanent)

Pump Description: 
Horsepower: 
Pump Intake Depth: __________ feet
Approximate maximum pumping rate: 
Well disinfected upon completion? □ Yes ☒ No

### Comments

*Well produced 2-3 gpm with air lift. - Pumped well should actually produce more water.*

### 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: **Balsley Well Service**
License No: **610**
Signature: **Tracy Balsley**
(Person, Firm, or Corporation – Print or Type)
(Licensed Well Driller)
Date: **3-18-96**
WELL DRILLER'S REPORT
State of Utah
Division of Water Rights

For additional space, use “Additional Well Data Form” and attach

Well Identification
PROVISIONAL WELL: 96-05-002-P-02

Owner
John Hauer
550 North Main Suite C
Moab, UT 84532

Contact Person/Engineer:

Well Location
SOUTH 2500 feet WEST 2600 feet from the NE Corner of SECTION 36, TOWNSHIP 27S, RANGE 22E, SLB&M.

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

Drillers Activity
Start Date: 4-5-96
Completion Date: 4-13-96

Check all that apply:
- [X] New
- [ ] Repair
- [ ] Deepen
- [ ] Abandon
- [ ] Replace
- [ ] Public

Nature of Use:

<table>
<thead>
<tr>
<th>DEPTH (feet) FROM TO</th>
<th>BOREHOLE DIAMETER (in)</th>
<th>DRILLING METHOD</th>
<th>DRILLING FLUID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>18</td>
<td>9 7/8&quot;</td>
<td>Air Rotary</td>
</tr>
<tr>
<td>18</td>
<td>820</td>
<td>6&quot;</td>
<td>Air Rotary</td>
</tr>
</tbody>
</table>

Well Log

<table>
<thead>
<tr>
<th>DEPTH (feet) FROM TO</th>
<th>WATER PERMEABLE ROCK TYPE</th>
<th>WATER UNCONSOLIDATED ROCK TYPE</th>
<th>WATER CONSOLIDATED ROCK TYPE</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>303</td>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>303</td>
<td>435</td>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>435</td>
<td>535</td>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>555</td>
<td>820</td>
<td>K</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DESCRIPTIONS AND REMARKS
(include comments on water quality if known.)

- Sandstone, White sandstone/Rd + Fm. Shales - Morrison
- Entrada, White sandstone
- Entrada Rd/Rm. sandstone/Siltstone
- Navajo Rd/Rm. Sandstone
- 601' Fracture - water
- 612' - 618' - 696' - Fractures Water

Static Water Level

Date: 4-12-96
Water Level 497 feet
Flowing? [□ Yes [X] No
Method of Water Level Measurement: Tape
If Flowing, Capped Pressure: PSI
Point to Which Water Level Measurement was Referenced: 0 - Sur face
Height of Water Level reference point above ground surface: 0 feet
Temperature: 50 [□ °C [X] °F

Well Log
### Construction Information

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>CASING</th>
<th>DEPTH (feet)</th>
<th>SCREEN</th>
<th>PERFORATIONS</th>
</tr>
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<tbody>
<tr>
<td>FROM</td>
<td>TO</td>
<td>CASING TYPE:</td>
<td>WALL</td>
<td>NOMINAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MATERIAL</td>
<td>THICK (in)</td>
<td>DIAM. (in)</td>
</tr>
<tr>
<td>+2</td>
<td>18</td>
<td>Steel</td>
<td>0.250</td>
<td>6&quot;</td>
</tr>
<tr>
<td>4</td>
<td>820</td>
<td>Plastic</td>
<td>0.40</td>
<td>4 1/2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>600</td>
<td>820</td>
</tr>
</tbody>
</table>

Well Head Configuration: **Welded Steel Cap**  Access Port Provided? □ Yes □ No
Casing Joint Type: **6-1/2**  Perforator Used: **Saw**  

### FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>FILTER PACK / GROUT / PACKER / ABANDONMENT MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>TO</td>
</tr>
<tr>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Cement</td>
</tr>
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</table>

### Well Development / Pump or Bail Tests

<table>
<thead>
<tr>
<th>Date</th>
<th>Method</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-12-96</td>
<td>Air Lift</td>
<td>1-2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units</th>
<th>Check One</th>
<th>DRAWDOWN (ft)</th>
<th>TIME PUMPED (hrs &amp; min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPM</td>
<td>CFS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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.

Fractures from 60' to T.D.

### 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: **Balsley Well Service**  License No: **618**
Signature: **Russ Balsley**  (Licensed Well Driller)  Date: **4-14-96**
APPENDIX B:

Keating/Brown Well Driller’s Log
Conveyance of Keating Water Right
Theis Estimation of Drawdown for the Keating/Brown Well
WELL DRILLER'S REPORT  
State of Utah  
Division of Water Rights  

Well Identification: WATER RIGHT APPLICATION: 05-2595 (A70047)  

Owner: Brown, Jeffrey R.  
1701 West Behind The Rocks Road  
Moab, UT 84532  

Contact Person/Engineer:  

Well Location: COUNTY: San Juan  
SOUTH 40 feet EAST 612 feet from the NW Corner of  
SECTION 36, TOWNSHIP 27S, RANGE 22E, SLB&M.  

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

Drillers Activity:  

Check all that apply:  
<> New  □ Repair  □ Deepen  □ Abandon  □ Replace  □ Public  Nature of Use: IRR, STK, DOM  

DEPTH (feet) FROM TO  

BOREHOLE DIAMETER (in)  

DRILLING METHOD  

DRILLING FLUID  

IR  

Well Log  

DEPTH (feet) FROM TO  

WATER PERMEABLE  

UNCONSOLIDATED C S S G R B O B O L L E R L L R A L V L E S  

CONSOLIDATED  

ROCK TYPE  

COLOR  

DESCRIPTIONS AND REMARKS  
(include comments on water quality if known.)  

<table>
<thead>
<tr>
<th>DEPTH (feet) FROM TO</th>
<th>ROCK TYPE</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>Sand</td>
<td>Orange</td>
</tr>
<tr>
<td>10-20</td>
<td>Sand</td>
<td>Purple</td>
</tr>
<tr>
<td>20-60</td>
<td>Stone</td>
<td>Purple</td>
</tr>
<tr>
<td>60-80</td>
<td>Stone</td>
<td>Orange</td>
</tr>
<tr>
<td>80-110</td>
<td>Stone</td>
<td>Purple</td>
</tr>
<tr>
<td>110-220</td>
<td>Stone</td>
<td>Orange</td>
</tr>
<tr>
<td>220-320</td>
<td>Stone</td>
<td>Purple</td>
</tr>
<tr>
<td>230-380</td>
<td>Shell</td>
<td>Purple</td>
</tr>
<tr>
<td>280-340</td>
<td>Stone</td>
<td>Orange</td>
</tr>
</tbody>
</table>

Static Water Level:  

Date:  

Water Level 250 feet Flowing?  
□ Yes  □ No  

Method of Water Level Measurement: If Flowing, Capped Pressure PSI  

Point to Which Water Level Measurement was Referenced  

depth of casing 220 ft down  

Height of Water Level reference point above ground surface  

feet Temperature  
□ °C  □ °F
### Construction Information

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>CASING</th>
<th>DEPTH (feet)</th>
<th>SCREEN</th>
<th>PERFORATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM TO</td>
<td>CASING TYPE &amp; MATERIAL/GRADE</td>
<td>WALL THICK (in)</td>
<td>NOMINAL DIAM (in)</td>
<td>FROM TO</td>
</tr>
<tr>
<td>0 - 30</td>
<td>Steel casing</td>
<td>$.2</td>
<td>7</td>
<td>230 - 300</td>
</tr>
<tr>
<td>0 - 540</td>
<td>Plastic casing</td>
<td>$.2</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Access Port Provided?** □ Yes □ No

**Casing Joint Type:** Blue

**Perforator Used:** Cutting Torch

### Filter Pack / Grout / Packer / Abandonment Material

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>ANNULAR MATERIAL, ABANDONMENT MATERIAL and/or Packer Description</th>
<th>Quantity of Material Used (if applicable)</th>
<th>Grout Density (lbs/gal, # bag mix, gal/sack etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 30</td>
<td>Tench steel casing, Portland cement, Crushed chert</td>
<td>3 Bags</td>
<td></td>
</tr>
<tr>
<td>0 - 540</td>
<td></td>
<td>6 Bags</td>
<td></td>
</tr>
</tbody>
</table>

### Well Development / Pump or Bail Tests

<table>
<thead>
<tr>
<th>Date</th>
<th>Method</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 32-74</td>
<td>LCR Test</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Units</th>
<th>Drawdown (ft)</th>
<th>Time Pumped (hrs &amp; min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check One GPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Pump (Permanent)

**Pump Description:**

**Horsepower:**

**Pump Intake Depth:** feet

**Approximate maximum pumping rate:**

**Well disinfect 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:** H. E. Brennan Drilling

**License No.:** 218

**Signature:** H. E. Brennan

**Date:** June 34, 1976

(Licensed Well Driller)
RETURN No. 17-00453

WILLIAM AND JUDITH PERRY
PO BOX 122
CARBONDALE, CO 81623

Dear Applicant/Professional:

This letter is regarding Report of Conveyance (ROC) for: 05-3304 (A76874)

Unfortunately, the above item(s) WILL NOT be processed and is being returned for the following reason(s):

1. Insufficient Documents were Attached.

Therefore, the Division is returning your Check numbered 1997 for $40.

Please fix the issues detailed herein and resubmit your request. If you have any questions or concerns, please visit the Utah State Division of Water Rights at 1594 West North Temple, Suite 220, Salt Lake City, UT 84114 or call us at (801)538-7240.

Enclosure(s):

Report of Conveyance (ROC) for 05-3304 (A76874)
Check #1997 in the amount of $40
REPORT OF WATER RIGHT CONVEYANCE

USE THIS CONVEYANCE REPORT FORM WHEN 100% OF THE WATER RIGHT IS CONVEYED.

WATER RIGHT # 05-3304

SECTION A. CONVEYANCE SUMMARY

By Appurtenance (no water right number mentioned on deed) Yes (maps attached) No X

1. Assignment__ Warranty Deed X Quitclaim Deed __ Sheriff's Deed __ Trustee's Deed __ Water Deed __ Trust Deed __
   Other: ________________________________
2. Date Signed 04/15/2010 Date Recorded 11/21/2010
   Book 923 Page # 563-564 Entry # 114653
3. Grantor William K. Perry and Judith Fox-Perry
4. Grantee(s) Perry Moa LLC
5. Mailing Address: PO Box 122, Carbondale, CO 81623
6. E-mail Address (to be notified of ownership updates): foxperry@windblue.net
7. Special Conditions/Information of Conveyance ________________________________

By Appurtenance (no water right number mentioned on deed) Yes (maps attached) No X

1. Assignment__ Warranty Deed X Quitclaim Deed __ Sheriff's Deed __ Trustee's Deed __ Water Deed __ Trust Deed __
   Other: ________________________________
2. Date Signed 03/01/07 Date Recorded 03/01/07
   Book 367 Page # 348-349 Entry # 091274
3. Grantor Scott Keating and Nancy Loveland
4. Grantee(s) William K. Perry and Judith Fox-Perry
5. Mailing Address: PO Box 122, Carbondale, CO 81623
6. E-mail Address (to be notified of ownership updates): foxperry@windblue.net
7. Special Conditions/Information of Conveyance ________________________________

By Appurtenance (no water right number mentioned on deed) Yes (maps attached) No __

1. Assignment __ Warranty Deed X Quitclaim Deed __ Sheriff's Deed __ Trustee's Deed __ Water Deed __ Trust Deed __
   Other: ________________________________
2. Date Signed 03/01/07 Date Recorded 03/01/07
   Book 367 Page # 345-347 Entry # 091223
3. Grantor Scott Keating and Nancy Loveland
4. Grantee(s) William K. Perry and Judith Fox-Perry
5. Mailing Address: PO Box 122, Carbondale, CO 81623
6. E-mail Address (to be notified of ownership updates): foxperry@windblue.net
7. Special Conditions/Information of Conveyance ________________________________
REPORT OF WATER RIGHT CONVEYANCE

WATER RIGHT # 05-3304

SECTION B. CERTIFICATION for Perry MIDAB UC

I, William K. Perry, certify that I am authorized by Administrative Rule R655-3-7 to complete this report, and that the information contained herein or attached hereto is true and accurate to the best of my knowledge.

William K. Perry 2/7/2017 970 963 2464
Signature Date Phone #
Member - Perry MIDAB UC

FOR LICENSED PROFESSIONALS ONLY

I, ____________________________, certify that I am licensed as ____________________________ in the State of Utah, that my license number is ____________________________ , that I was retained by an owner of the water right to prepare or supervise the preparation of the Report of Conveyance; that the report is true and accurate to the best of the preparer's knowledge; that an appropriate search of County Records records has been made and that the attached documents evidence the ownership interest of the grantee.

Signature Date Phone #
Address:

This report is not a title opinion based on the title search made. It does not warrant or guarantee title to water rights. This report was prepared for the purpose of updating records of the Division of Water Rights.

SECTION C. DIVISION OF WATER RIGHTS - FOR OFFICIAL USE ONLY

Received: __/__/______ Filed: __/__/______ Reviewed By: __________
Database Changed: __/__/______ By: __________
File Changed: __/__/______ By: __________
New File Number based on Segregation
Remarks:

________________________
________________________
________________________

AMOUNT OF WATER RIGHT RETAINED 

RECEIVED
FEB 09 2017
WATER RIGHTS
SALT LAKE

No agency of the State of Utah warrants or guarantees title to certain water rights. The water right ownership information of record in the Division of Water Rights concerning this water is based on the information which has been submitted by this Report of Water Right Conveyance.
Perry Moab LLC – William Perry & Judith Fox-Perry

PO Box 122, Carbondale, CO 81623

Feb 7, 2017

To Division of Water Rights

1594 West North Temple, Suite 220, Salt Lake City, Utah 84116

Please find the enclosed forms with fees. I tried to do this in 2012 but the forms were returned.

100% Water Right Conveyance Form with $40.00 fee.

Water Right Owner change of address request

Request for Extension of Time to file Proof of Beneficial Use with $50.00 fee

Copy of Extension of Time form filed in 2012

Please make sure all correspondence goes to

William Perry – Perry Moab LLC

PO Box 122, Carbondale, CO 81623

970 963 2464 – email foxperry@wildblue.net.

Thank you

William Perry

RECEIVED
FEB 09 2017
WATER RIGHTS AM
CALCULATED THEIS:

Given input:

- Constant pumping rate (Q): 0.334201 cfs
- Aquifer transmissivity (T): 4290 ft²/day or 0.049653 ft²/second
- Time since pumping began (t): 1825 days
- Radial distance from well (r): 1,600.00 feet
- Aquifer storativity (S): .001

\[
\begin{align*}
\theta_e - \theta &= \frac{Q}{4\pi^2} W(u) \\
\theta_e - \theta &= \frac{Q}{4\pi^2} \left[ -0.5772 - \ln u + \frac{u^2}{2} \cdot \frac{1}{2!} + \frac{u^4}{3!} \cdot \frac{1}{4!} + \cdots \right]
\end{align*}
\]

- Q is the constant pumping rate (L³/T; ft³/day or m³/day)
- h is hydraulic head (L; ft or m)
- ho is hydraulic head before pumping started (L; ft or m)
- ho-h is the drawdown (L; ft or m)
- T is aquifer transmissivity (L²/T; ft²/day or m²/day)
- t is time since pumping began (T; days)
- r is radial distance from the pumping well (L; ft or m)
- S is aquifer storativity (dimensionless)
- b is aquifer thickness (L; ft or m)

\[ u: 0.000082 \]

W(u) series: 8.8347908446537

Drawdown (ho-h) at day 1825: 4.73 ft using series calculation of W(u) to u⁶

Drawdown over the course of a year from initial well drilling:
- Day 1: 0.79 ft
- Day 4: 1.47 ft
- Day 7: 1.76 ft
- Day 10: 1.95 ft
- Day 13: 2.09 ft
- Day 16: 2.20 ft
- Day 19: 2.29 ft
- Day 22: 2.37 ft
- Day 25: 2.44 ft
- Day 28: 2.50 ft
- Month 1: 2.54 ft
- Month 2: 2.91 ft
- Month 3: 3.13 ft
- Month 4: 3.28 ft
- Month 5: 3.40 ft
- Month 6: 3.50 ft
- Month 7: 3.58 ft
- Month 8: 3.65 ft
- Month 9: 3.72 ft
- Month 10: 3.77 ft
- Month 11: 3.82 ft
- Month 12: 3.87 ft

Drawdown over multiple years from initial well drilling:
- Year 1: 3.87 ft
- Year 2: 4.24 ft
- Year 3: 4.46 ft
- Year 4: 4.61 ft
- Year 5: 4.73 ft
- Year 6: 4.83 ft
- Year 7: 4.91 ft
- Year 8: 4.98 ft
- Year 9: 5.05 ft
- Year 10: 5.10 ft
- Year 11: 5.15 ft
- Year 12: 5.20 ft
- Year 13: 5.24 ft
- Year 14: 5.28 ft
APPENDIX B:

March 2018 & March 2019 Water Elevation Data
<table>
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APPENDIX C:

May 1st, 2018 NRCS Utah Water Supply Outlook Report for Southeastern Utah
Southeastern Utah
April 1, 2019

Snowpack in the Southeastern Utah is much above normal at 203% of normal, compared to 45% last year. Precipitation in March was much above average at 228%, which brings the seasonal accumulation (Oct-Mar) to 159% of average. Soil moisture is at 59% compared to 45% last year. Reservoir storage is at 23% of capacity, compared to 59% last year. Forecast streamflow volumes range from 145% to 293% of average. The surface water supply index is 94% for Moab.
Southeastern Utah Streamflow Forecasts - April 1, 2019

### Forecast Exceedance Probabilities for Risk Assessment

<table>
<thead>
<tr>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>% Avg</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30yr Avg (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mill Ck at Sheley Tunnel nr Moab</td>
<td>APR-JUL</td>
<td>8.1</td>
<td>9.2</td>
<td>10</td>
<td>233%</td>
<td>10.8</td>
<td>11.9</td>
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<tr>
<td>South Ck ab Resv nr Monticello</td>
<td>MAR-JUL</td>
<td>1.68</td>
<td>2.4</td>
<td>3</td>
<td>275%</td>
<td>3.7</td>
<td>4.8</td>
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<tr>
<td>Colorado R nr Cisco</td>
<td>APR-JUL</td>
<td>1.62</td>
<td>2.3</td>
<td>2.9</td>
<td>293%</td>
<td>3.6</td>
<td>4.7</td>
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<tr>
<td>San Juan R near Bluff</td>
<td>APR-JUL</td>
<td>4990</td>
<td>5760</td>
<td>6320</td>
<td>148%</td>
<td>6900</td>
<td>7800</td>
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</table>

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

### Reservoir Storage End of March, 2019

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Current (KAF)</th>
<th>Last Year (KAF)</th>
<th>Average (KAF)</th>
<th>Capacity (KAF)</th>
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</thead>
<tbody>
<tr>
<td>Ken’s Lake</td>
<td>0.5</td>
<td>1.4</td>
<td>1.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Basin-wide Total</td>
<td>0.5</td>
<td>1.4</td>
<td>1.3</td>
<td>2.3</td>
</tr>
<tr>
<td># of reservoirs</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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### Watershed Snowpack Analysis April 1, 2019

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<th># of Sites</th>
<th>% Median</th>
<th>Last Year</th>
<th>% Median</th>
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<td>Lasal Mountains</td>
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<td>187%</td>
<td>68%</td>
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<tr>
<td>Lower San Juan</td>
<td>2</td>
<td>209%</td>
<td>28%</td>
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<tr>
<td>Lower Green</td>
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<td>49%</td>
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<td>Henry Mountains</td>
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Moab Surface Water Supply Index

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<tr>
<th>Basin or Region</th>
<th>Mar EOM Storage</th>
<th>APR-JUL Forecast</th>
<th>Storage + Forecast</th>
<th>Percentile</th>
<th>SWSI</th>
<th>Years with similar SWSI</th>
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<tr>
<td>Moab</td>
<td>0.52</td>
<td>10.00</td>
<td>10.52</td>
<td>94</td>
<td>3.66</td>
<td>93, 05, 16, 95</td>
</tr>
</tbody>
</table>

*EOM, end of month; ^SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.
Southeastern Utah

As of April 1, 2019:

- 203% of Normal SWE
- 159% of Normal Precipitation
- 228% of Normal Precipitation Last Month
- 59% Saturation Soil Moisture

Sources: Esri, USGS, NOAA, Garmin, USGS, NPS
APPENDIX D:

April 1st, 2019 NRCS Utah Water Supply Outlook Report for Southeastern Utah
Southeastern Utah
May 1, 2018

Snowpack in the Southeastern Utah is much below normal at 0% of normal, compared to 0% last year. Precipitation in April was much below average at 31%, which brings the seasonal accumulation (Oct-Apr) to 46% of average. Soil moisture is at 64% compared to 74% last year. Reservoir storage is at 49% of capacity, compared to 92% last year. Forecast streamflow volumes range from 4% to 42% of average. The surface water supply index is 9% for Moab.
### Southeastern Utah

#### Streamflow Forecasts - May 1, 2018

**Forecast Exceedance Probabilities for Risk Assessment**

<table>
<thead>
<tr>
<th>Southeastern Utah</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>% Avg</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30yr Avg (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mill Ck at Sheley Tunnel nr Moab</td>
<td>MAR-J UL</td>
<td>0</td>
<td>0.02</td>
<td>0.04</td>
<td>6%</td>
<td>0.08</td>
<td>0.16</td>
<td>0.69</td>
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<tr>
<td></td>
<td>MAY-J UL</td>
<td>0</td>
<td>0.02</td>
<td>0.04</td>
<td>6%</td>
<td>0.08</td>
<td>0.16</td>
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<td>APR-J UL</td>
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<td>35%</td>
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<td>South Ck ab Resv nr Monticello</td>
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<td>1100</td>
<td>1360</td>
<td>1560</td>
<td>42%</td>
<td>1770</td>
<td>2100</td>
<td>3720</td>
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<td></td>
<td>MAY-J UL</td>
<td>1350</td>
<td>1610</td>
<td>1810</td>
<td>42%</td>
<td>2020</td>
<td>2350</td>
<td>4280</td>
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<td>Colorado R nr Cisco</td>
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<td>138</td>
<td>166</td>
<td>15%</td>
<td>198</td>
<td>255</td>
<td>1100</td>
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<td>72</td>
<td>100</td>
<td>12%</td>
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<td>855</td>
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<td>San Juan R near Bluff</td>
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<td>1100</td>
<td>1360</td>
<td>1560</td>
<td>42%</td>
<td>1770</td>
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<td>2020</td>
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1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions
3) Median value used in place of average

#### Reservoir Storage

<table>
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<tr>
<th>Reservoir Storage</th>
<th>Current (KAF)</th>
<th>Last Year (KAF)</th>
<th>Average (KAF)</th>
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<td>Ken's Lake</td>
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<td>2.3</td>
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<td>Basin-wide Total</td>
<td>1.1</td>
<td>2.1</td>
<td>1.5</td>
<td>2.3</td>
</tr>
<tr>
<td># of reservoirs</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Watershed Snowpack Analysis

<table>
<thead>
<tr>
<th>Watershed Snowpack Analysis</th>
<th># of Sites</th>
<th>Median</th>
<th>Last Year</th>
<th>% Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lasal Mountains</td>
<td>2</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Lower San Juan</td>
<td>2</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Lower Green</td>
<td>2</td>
<td>0%</td>
<td>195%</td>
<td>195%</td>
</tr>
<tr>
<td>Henry Mountains</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Surface Water Supply Index

<table>
<thead>
<tr>
<th>Basin or Region</th>
<th>Apr EOM Storage</th>
<th>MAY-JUL Forecast Storage</th>
<th>Storage + Forecast</th>
<th>Percentile</th>
<th>SWSI#</th>
<th>Years with similar SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moab</td>
<td>1.12</td>
<td>1.12</td>
<td>2.24</td>
<td>9</td>
<td>-3.39</td>
<td>13, 02, 12, 90</td>
</tr>
</tbody>
</table>

*EOM, end of month; #SWSI, Surface Water Supply Index; ^KAF, thousand acre-feet.
Southeastern Utah

As of May 1, 2018:
- 0% of Normal SWE
- 46% of Normal Precipitation
- 31% of Normal Precipitation Last Month
- 64% Saturation Soil Moisture
- 49% Reservoir Capacity

% of Normal
- < 50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- > 150%
- No Normal