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Eastern Region

Project No. 116-07-2014

Expert Report and Narrative Relative to Water Right Transfer #79357 for Dairy #2

Prepared for:

Cedar Ridge Dairy
Filer, Idaho

February 13, 2015

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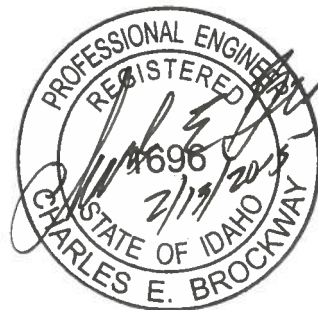


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Brockway Engineering, PLLC
February 13, 2015

A. Introduction

A.1. Objectives

This report examines the effects of Transfer 79357. The transfer proposes to change a portion of irrigation ground water right 47-17589 to a stockwater and commercial use for Dairy #2 that is located south of Filer, Idaho. Hydraulic analyses of the regional aquifer are based on published reports, well drillers logs, USGS/IDWR monitoring wells and pump test data. From this analysis, the effects of Transfer 79357 on the local aquifer and the Protestants' domestic wells can be determined.

A.2. Executive Summary

Water right 47-17589 is currently owned by Thomas Leno and was decreed in the Snake River Basin Adjudication on June 1, 2010. Water right 47-17589 is a valid water right based on the laws and policies of the Idaho Department of Water Resources. Approval of Transfer 79357 will not result in any significant impact on groundwater levels or injure any existing water rights, including the Protestants' domestic wells. An acceptable consumptive use analysis of the portion of 47-17589 to be transferred to Dairy #2 has been performed and no enlargement will result from Transfer 79357. This transfer will allow a local dairy business to use water for beneficial stockwater and commercial purposes and improve the efficiency of its water distribution system.

B. Water Right Information

Water Right 47-7106 was partially decreed by the Snake River Basin Adjudication District Court on June 1, 2010. See Appendix A (partial decree and background information). The source of water for this right is groundwater in Basin 47. Water right 47-7106 is supplied by ground water that is hydraulically connected to the regional aquifer in Basin 47, the same groundwater resource for which the transfer proposes to move a portion of the water right. As recommended by the Director of IDWR, and decreed in the SRBA District Court, the right is described as follows:

Source:	Ground water
Priority Date:	December 25, 1970
Quantity:	1.85 cfs/ 465 acre-feet/year
Purpose of Use:	Irrigation
Place of Use:	155 acres

Based on the IDWR Administrative Memorandum Regarding: Forfeiture Review Period, a water right holder has until the end of the 5th year to resume use of a water right or initiate a defense to forfeiture. See Appendix B (Memo). This water right was partially decreed in 2010 and therefore is considered protected from forfeiture. The end of the calendar year of 2015 will be the end of the 5th year. By the end of 2015, irrigation must be resumed at its current authorized place of use, or the proposed transfer applications must be approved, or the water right is leased to the Idaho Water Supply Bank, or an extension of time to avoid forfeiture must be applied for with IDWR.

Water right 47-7106 is considered a "Parent" water right by IDWR terminology. This means that portions of 47-7106 have been split and transferred off of the

original water right. IDWR has already approved three splits and transfers from this water right. The three transfers are Transfer 77406 to Triple J Dairy, Transfer 77669 to Brackett Cattle Company and Transfer 78127 to Farmers National Bank. Appendix C contains an overview map of the transfers, Corey Skinner transfer memos, and copies of transfer approvals.

To facilitate these transfers, an analysis of the historical consumptive use was required to determine how much of 47-7106 could be transferred as a primary ground water right. An analysis of the acres irrigated, volume of water allowed, engine horse power, engine efficiency, pump efficiency, water pumping depth, operating irrigation system pressure, diesel fuel consumed and irrigation efficiency was used to determine the amount of 47-7106 that IDWR considers to constitute a “primary” ground water right. Based on these inputs into the analysis, it was determined that 94% of water right 47-7106 is considered primary and that 145.7 acres can be split and transferred off of the property from the decreed 155 acre place of use. This analysis is provided in Appendix D.

First, IDWR approved Transfer 77406 in November of 2011. This transfer dried up 9.1 acres and 27.3 acre feet of primary irrigation water under 47-7106. When this transfer was approved by IDWR, water right 47-17569 was split off and owned by Triple J Dairy. Water right 47-17569 is a stock and commercial water right that allows a diversion rate of 0.12 cfs and an annual volume of 17.0 acre feet. The unchanged portion of 47-7106 was changed to 47-17568 which allowed 145.9 acres of irrigation with a diversion rate of 1.73 cfs and a annual volume of 437.7 acre feet.

Second, IDWR approved Transfer 77669 in March of 2012. This transfer dried up 17.6 acres and 52.8 acre feet of primary irrigation water under 47-17568. When this transfer was approved by IDWR, water right 47-17572 was split off and owned by Brackett Cattle Company. Water right 47-17572 is a stockwater right

that allows a diversion rate of 0.22 cfs and an annual volume of 32.9 acre feet. The remaining portion of 47-17568 was changed to 47-17571 which allows 128.3 acres of irrigation with a diversion rate of 1.51 cfs and an annual volume of 384.9 acre feet.

Next, IDWR approved Transfer 78127 in December of 2012. This transfer dried up 25.8 acres and 77.4 acre feet of primary irrigation water under 47-17571. When this transfer was approved by IDWR, water right 47-17590 was split off and owned by Farmers National Bank. Water right 47-17590 is a stock and commercial water right that allows an annual volume of 48.2 acre feet. The remaining portion of 47-17571 was changed to 47-17589 which allows 102.5 acre of irrigation with a diversion rate of 0.30 cfs and an annual volume of 307.5 acre feet.

The Idaho Department of Water Resources has recognized parent water right 47-7106 as a legal water right through the SRBA Court partial decree and the approval of Transfer 77406, Transfer 78127 and Transfer 78127 by IDWR. The consumptive use analysis of 47-7106 required in Transfer 77406, Transfer 78127 and Transfer 78127 has been accepted by IDWR for all three transfers.

C. Transfer Application

C.1. Transfer Summary

Transfer 79357 proposes to dry up 16.3 acres of irrigation from water right 47-17589 and transfer the water right to a dairy facility south of Filer, Idaho ("Dairy #2") for stockwater and commercial use. The dairy facility is located in Township 11 South Range 16 East Section 5 SENE and NESE (see Figure 1). Currently, Dairy #2 is supplied stock and commercial water from two existing wells pursuant to water rights 47-7431B and 47-7519B. These two water rights allow a diversion rate of 0.39 cfs and an annual volume of 166.8 acre feet. The proposed quantity to be transferred to Dairy #2 is 30.5 acre feet annually to be diverted from the

existing wells. The period of use will be changed to January 1st through December 31st of each year.

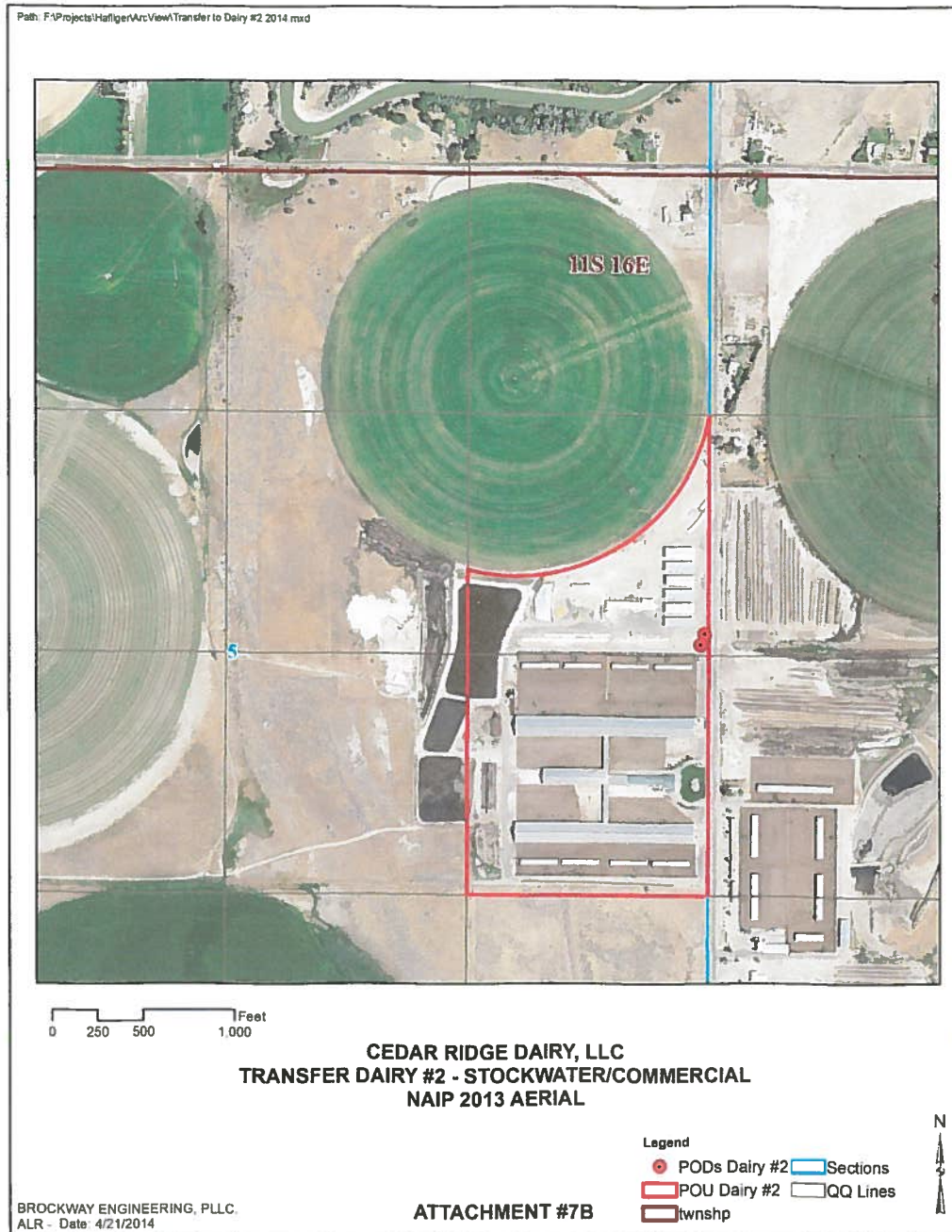


Figure 1: Dairy #2 Location, proposed place of use and well locations.

C.2. Geology and Hydrogeology

Multiple publications have been written analyzing the ground and surface water characteristics in the Salmon Falls Area of Twin Falls County, Idaho (within IDWR Administration Basin 47) and the relationship of this area with the Snake River Basin.

The United States Geological Survey (USGS) published a *Preliminary Report on Ground Water in the Salmon Falls Area, Twin Falls County, Idaho* written by K.H. Fowler in 1960. This report states that the geology of the area consists of volcanic and sedimentary strata of various types which range from nearly impermeable to moderately permeable. Wells in the area have drilled through Snake River Basalt and into sedimentary strata consisting of silt, clay, sand and some gravel. It is this sedimentary strata that provides water to domestic, stock and smaller irrigation wells.

Aquifer recharge in the Salmon Falls area is facilitated by precipitation, seepage loss from streams, canals and reservoirs. The precipitation and streams are located on the east side Highway 93 in Twin Falls County as well as Shoshone Creek, Salmon Falls Creek, Cottonwood Creek drainages basins in northern Nevada. Salmon Falls Creek Reservoir provides storage water for irrigation and ground water recharge through seepage loss. The Salmon Falls Canal Company and also the Twin Falls Canal Company delivery canals also supply recharge to the ground water aquifer through seepage losses. The general direction of ground water movement is a north to northwest direction toward the Snake River.

Discharge measurements indicate that very little ground water is discharged into the creek from the Salmon Falls area between the Salmon River Creek Reservoir and the Roseworth crossing (Lily Grade). It is apparent that most of the ground water leaves the area by some route other than the canyon of Salmon Falls Creek (Fowler, 1960).

The State of Nevada published a report entitled *Water Resources-Reconnaissance Series Report 48, Water-Resources Appraisal of the Snake River Basin in Nevada* written by Donald Moore and Thomas Eakin in 1968. This report analyses the flow of surface water and ground water that flows into the Snake River Basin from Goose Creek Valley, Salmon Falls Creek Valley, Bruneau River Valley, Jarbridge River Valley, Owyhee River Valley, South Fork Owyhee River Valley and East Little Owyhee River Valley. An area of 5,000 square miles in northern Nevada is considered to be in the Snake River Basin. Moore and Eakin indicate by this report that the several northern Nevada ground water aquifers are directly linked and flow northward into the ground water aquifers of Idaho.

Ground water and surface water are closely interrelated along the flood plains and stream channels in northern Nevada. Due to the steep hydraulic gradients of the area, stream systems act as ground water drains. During seasons of low or little flow in streams, ground water may seep into the stream channels.

Eakin and Moore specifically discuss the surface water streams and ground water interaction in northern Nevada. They explain that due to the “steep stream gradients and high unit runoff, the estimated recharge is considered as potential recharge, rather than actual. That is, some or a considerable part of the potential recharge may leave the area as streamflow without ever entering the ground water system. This is due to the fact that, during the part of the year, infiltration rates are exceeded and the water moves off overland. However, this also is due in part to the fact that the ground water system locally is full with respect to the adjacent streams and therefore it rejects water that otherwise would enter the system. Such rejected water must then pass on as streamflow or be lost by evaporation. Because of these features, information from this study is insufficient to permit a direct estimate of the actual average recharge to the ground water system in the area of this report (Eakin, 1968).”

The report also indicates that the shallow ground water along the Salmon Falls Creek near to the mouth of Shoshone Creek is affected by a north trending fault line that is located on the east side of the foot hills but west of Highway 93. However, two irrigation wells were drilled in close proximity to Shoshone Creek in the late 1960's and one produced 2,500 gallons per minute and the second well produced 1,250 gallons per minute. The water production from these two wells indicates that the ground water aquifer is prolific and can sustain moderate pumping for irrigation. This indicates that there is sufficient ground water at this location of the aquifer to supply these two irrigation wells. The ground water will continue to flow down gradient into Idaho towards the Snake River.

The United States Geological Survey published *Water Resources of the Salmon Falls Creek Basin Idaho-Nevada*, by E.G. Crosthwaite in 1969. This report indicates that basalt flows overlies Idavada Volcanics which is composed of silicic tuff, ash, clay, silt, sand and gravel. Alluvial and windblown deposits cover the majority of the study area. The upper basin or watershed is located in Nevada and consists of several drainages from mountain ranges. The natural discharge direction of the ground water flow is northward towards the Twin Falls tract and the Snake River. A small amount of aquifer water is discharged into Salmon Falls Creek.

The general interpretation of the all referenced published reports indicate ground water recharge occurs in northern Nevada in the Jackpot area and southern Idaho in Twin Falls County and that the aquifer flows northward towards the Snake River. Precipitation in the form of rain and snow is collected in the mountain ranges and basins that encompass Salmon Falls Creek, Shoshone Creek and Cottonwood Creek. This precipitation supplies these streams and other smaller streams with water and the water in these streams percolate into the ground water aquifer. Salmon Falls Creek Reservoir also supplies ground water recharge

through seepage loss. The general flow direction of the ground water aquifer is in a north northwest direction.

D. Aquifer Characteristics

D.1. Aquifer Features

Based on the publications and analysis by Cosgrove (1998), Fowler (1960) and Young (1971) the aquifer conditions of hydraulic gradient, storativity, hydraulic conductivity and general aquifer flow direction in the Salmon Falls area have been determined.

Hydraulic gradient is the elevation change of the static water level in an aquifer at a given distance. Hydraulic gradient is usually defined with the units of feet per mile or the change in elevation of the static water level in feet over the distance of 1 mile. The hydraulic gradient usually is parallel to the ground surface but can be affected by local aquifer recharge or depletion and geological structures within the aquifer. For the Salmon Falls area, the general hydraulic gradient for the aquifer is 50 feet per mile, Cosgrove (1998).

Storativity of an aquifer is a physical property of the aquifer that characterizes the capacity of the soil or aquifer material to store and release ground water. This aquifer characteristic is dimensionless. Storativity values vary depending on the soil composition of the aquifer. The storativity value for the aquifer area where Dairy #3 is located is 0.12, Cosgrove (1998) and Young (1971).

Hydraulic conductivity is characteristic of an aquifer that describes how fast water flows through the aquifer material. This characteristic has units of feet per day. The tighter packed the aquifer materials are, such as clay or solid rock, the lower the hydraulic conductivity will be or the slower the water will move through the aquifer. The aquifer materials of gravel and sand have high hydraulic

conductivity values and the water flows faster through these materials. The aquifer at the Dairy #3 location has an estimated hydraulic conductivity value of 55 ft/day, Cosgrove (1998).

In aquifer regions of basalt, granite or other solid rock formations, the water is more likely to be moving in areas of geologic faults, cracks or fisher areas of the rock formations. The ability of a well to supply an adequate amount of water in this type of aquifer may depend on whether the well connects with or was drilled through the underground channels formed by the faults, cracks and fishers.

D.2. USGS Monitoring Wells

There are multiple ground water monitoring wells located within a 10 mile radius of the proposed transfer place of use (see Figure 2). The USGS measured these monitoring wells until 2009. The Idaho Department of Water Resources has recorded the water levels in these well since 2010 and will continue to do so into the foreseeable future.

The closest four monitoring wells to the proposed transfer location are identified as 11S15E-07ACB1, 11S15E-02BBB1, 10S15E-26DDA1 and 11S16E-20CCC. It was determined that well 10S15E-26DDA1 could not be used for this analysis due to its close proximity and hydraulic interaction with the Twin Falls Canal Co. canal system. It was also determined that well 11S16E-20CCC could not be used for this analysis because there are only 11 data points collected from this well from 1980 through 2006. The intermittent data is not sufficient to define any statistically sound seasonal trends or long-term trends for well 11S16E-20CCC.

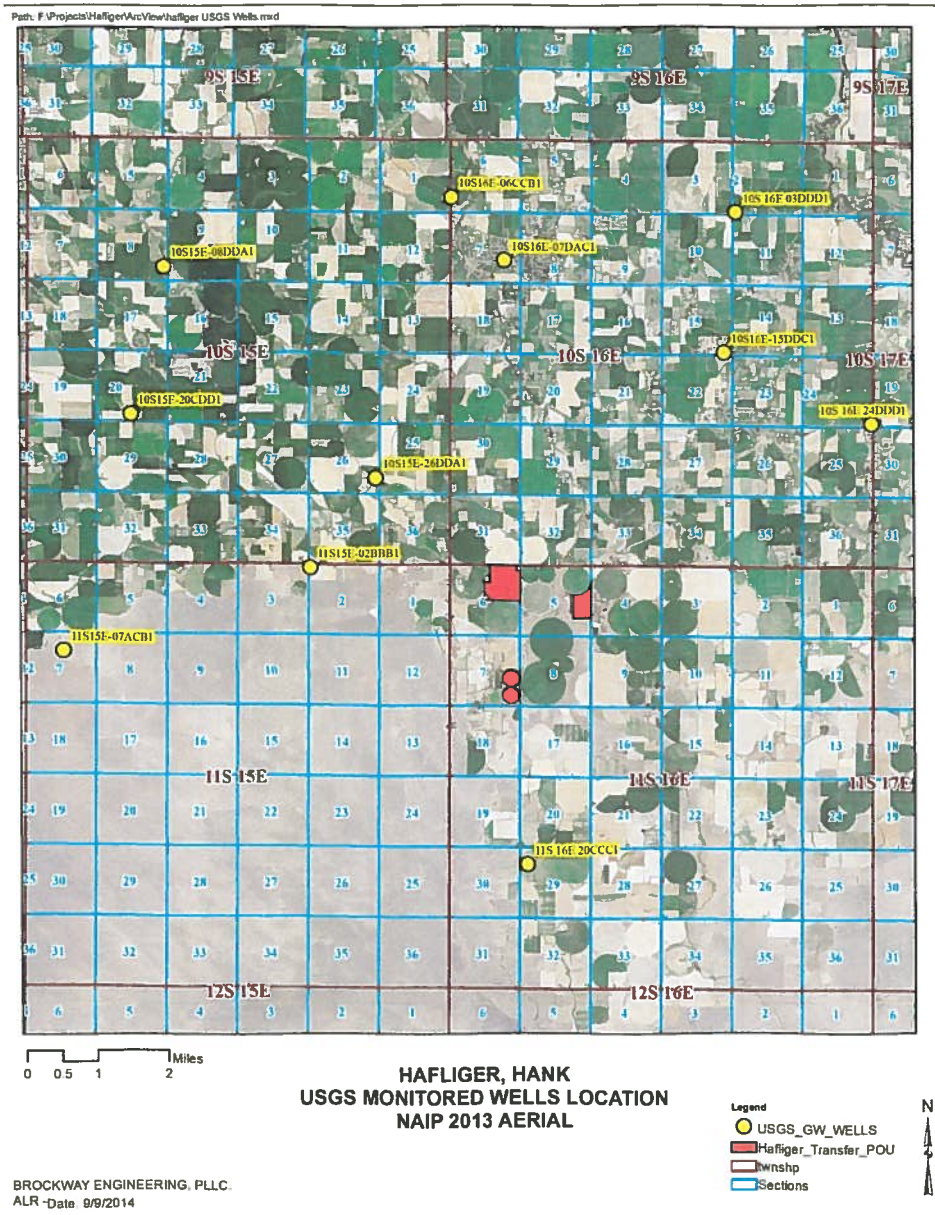


Figure 2: USGS Monitoring Wells Locations

Well 11S15E-07ACB1 is located approximately 7.4 miles west of the proposed point of diversion for Transfer 79357. Data from this well have been recorded from the spring of 1980 to the present time with over 120 well measurements having been performed. A graphical representation of the data from this well is shown in Figure 3 as Well 11S 15E Sec 7 SWNW.

Well 11S15E-02BBB1 is located approximately 3.9 miles west of the proposed point of diversion for Transfer 79357. Data from this well have been collected from the fall of 1980 to the present time with over 250 well measurements having been performed. A graphical representation of the data from this well is provided in Figure 3 as 11S 15E Sec 2 NWNW. The tabular data for these two wells can be found at <http://www.idwr.idaho.gov/hydro.online/gwl/gwl.html>.

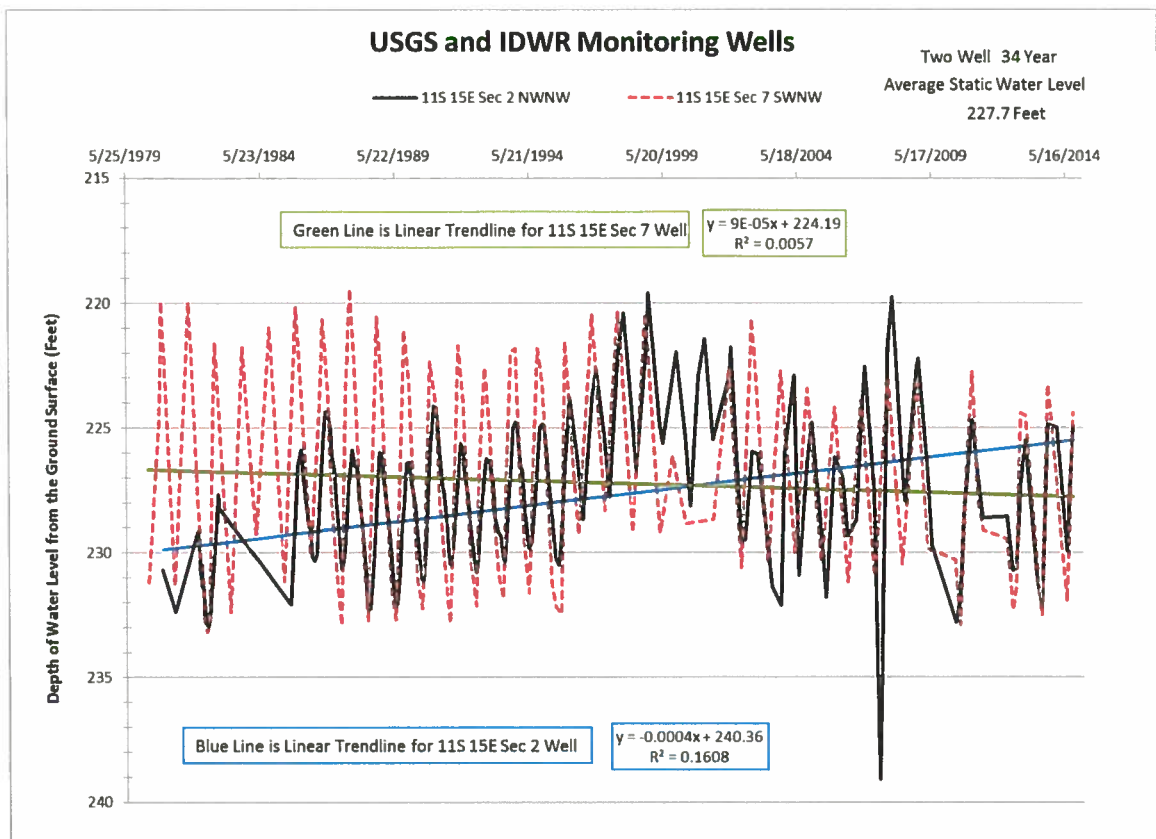


Figure 3: USGS Monitoring Wells 11S15E-07ACB1 and 11S15E-02BBB1 static water levels.

It is unknown why there is an irregularity in the number of measurements from these two wells. It is important to recognize that wells 11S15E-07ACB1 and 11S15E-02BBB1 are located on the southern edge of the local cultivated farm ground area. Additionally, as documented by Cosgrove (1998), Young (1971), Crosthwaite (1969), Fowler (1960) and Eakin (1968), the ground water flow direction is in a north and northwest direction. Because these wells are up-gradient and on the southern edge of cultivated areas, there are no wells or ground

water diversions from the Salmon Falls area aquifer that would significantly affect the static water level measurements in these two wells as the groundwater flows north. The static water level measurements in these two wells are representative of the unaffected aquifer water level throughout the local aquifer. In addition, because these wells are directly west of the existing dairy facilities, the hydraulic effect from the existing wells and pumping at the dairy locations is minimal on the static water level in monitoring wells 11S15E-07ACB1 and 11S15E-02BBB1.

The average combined static water level in wells 11S15E-07ACB1 and 11S15E-02BBB1 over the last 34 years is 227.7 feet below ground surface. The static water measurements have fluctuated between a depth of 220 feet and 235 feet below ground surface since 1980. Because the fluctuation over the last 34 years is constant and there is no indication from these wells the aquifer water table is decreasing or increasing, it can be concluded that ground water aquifer is stable. The trendlines for both 11S15E-07ACB1 and 11S15E-02BBB1 indicated that there is no statistical variation of water level over the last 34 years.

The water level data for monitoring wells 11S15E02BBB and 11S15E07ACA were subjected to a trend analysis using the Mann-Kendall non-parametric method. The Mann-Kendall method is a standard technique for analysis of trends in hydraulic systems. To remove seasonal effects from the data from these two wells a water-year average was calculated including only those years with more than two readings per year. This resulted in 30 values for 11S15E02BBB and 18 values for 11S15E07ACA. At the 95% confidence level, no increasing or decreasing trend was detected in either well. This confirms the qualitative result indicated by visual inspection of the well data.

D.3. Local Well Drillers Logs Analysis

An analysis of local wells was performed utilizing information gathered from 25 well drillers logs for wells drilled after the year 2000 that are located within a 2 mile radius of the dairy location. The data from the well logs is supplemented by static water measurements from wells owned by Hank Hafliger or other associated entities. Water level measurements from one domestic well (well that pump tested in Oct. 2015), one irrigation well (adjacent to southern edge of Dairy #3) and three commercial wells (wells at Dairy #1, Dairy #2, Dairy #3) have been recorded in 2014.

The wells locations were compared to National Elevation Data (NED), 10 meter 1999 elevation data. The NED is the primary elevation data product of the USGS. The NED provides basic elevation information for earth science studies and mapping applications in the United States. Scientists and resource managers use the NED data for global change research, hydrologic modeling, resource monitoring, mapping, visualization, and many other applications. The NED is updated continually to integrate newly available, improved elevation source data (<http://ned.usgs.gov>). The NED data provides ground surface elevation contours in which the ground surface elevation for each well can be estimated.

The static water levels from the 25 wells were obtained by examination of the well logs. The static water levels from the domestic well, the irrigation well and the three commercial wells were obtained by field measurements for general well and pump maintenance and also from the pump test performed in October 2014.

Depth to water contours were obtained by subtracting the static water levels from the 25 wells and the field measurements from the ground surface contours generated from the NED data. The result is a contour map of the depth to water levels in the area of the proposed transfer applications (Figure 4).

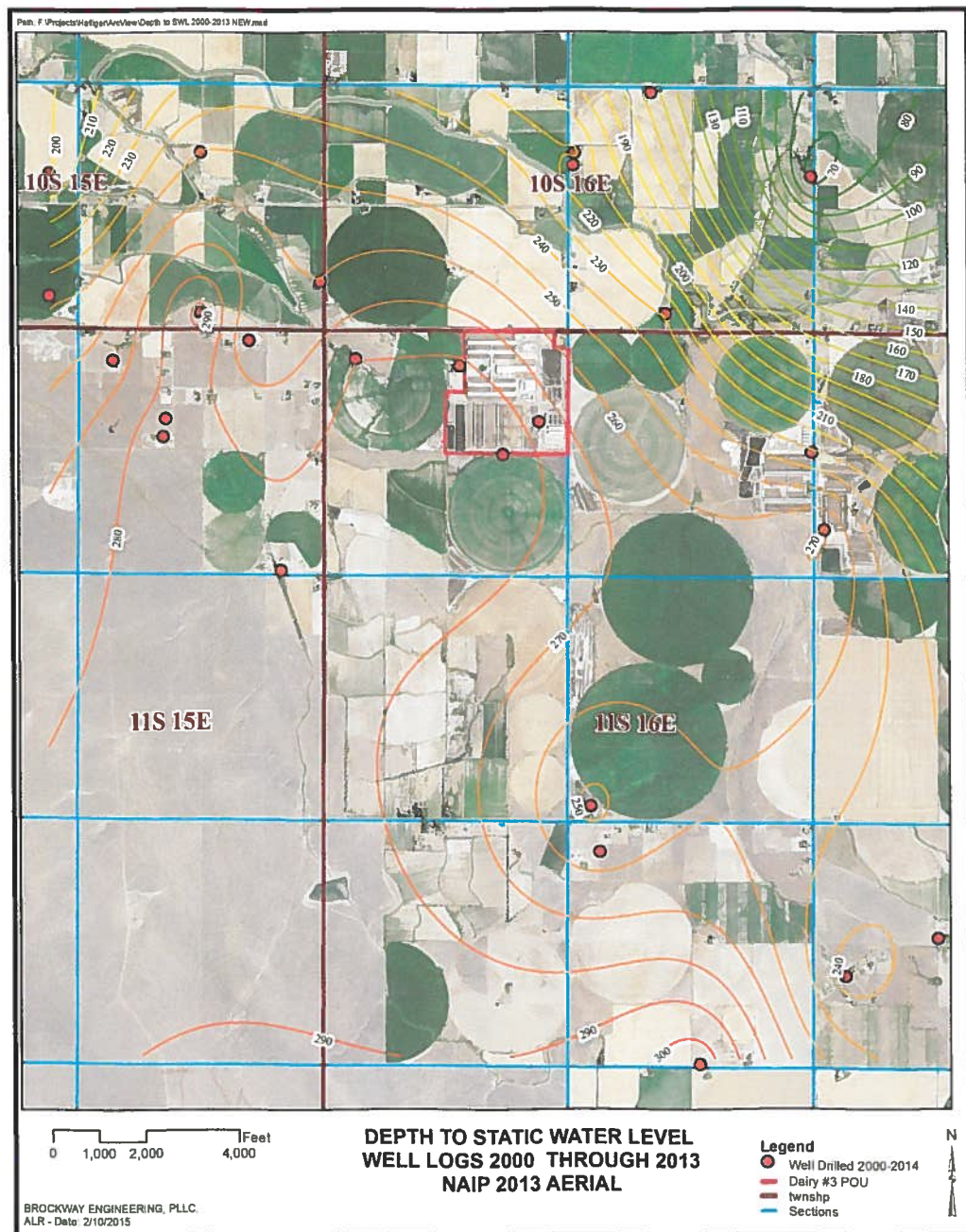


Figure 4: Depth to Static Water Level Contour Map

The static water level contour map indicates the depth to water in the areas where domestic wells of the Protestants to Transfer 79357 are located. The estimated depth to water, ground surface elevation contour and water level elevation maps are located in Appendix E.

The well drillers log data, pump test data, ground elevation contour map, static water level contour map, Brockway Engineering Memo and estimated depth to water at protestants domestic well locations values are provided in Appendix E. No estimation values were obtained for several of the Protestants' domestic well locations because the distance was too far away from the 25 identified well logs and field measurements to provide an accurate estimation. Known water level values of the Protestants' wells are provided in Appendix E.

The depths to water levels decrease or are shallower as the contours encounter the Twin Falls Canal Company High Line and Low Line canals. This is due to the seepage of water from the canal system into the aquifer. The seepage from the canal system provides elevated aquifer levels that are accessed by shallower wells with shallower static water levels. It would be expected that these shallower wells would experience seasonal water level fluctuation related to water being diverted into the canal during the months of April through October and would be less affected by the increased pumping that would occur by this proposed transfer. As water flows through the Low Line and High Line Canal systems, canal water seeps into the ground water. This canal water seepage is evident by shallower depths to water in wells that are close in proximity of the Low Line and High Line canals.

E. Aquifer Impact

E.1. Winflow Model

Groundwater impacts were modeled in the immediate area of the proposed transfers using the Winflow 3.05 analytical element modeling software. This software essentially utilizes the Theis approach to calculate aquifer drawdown, but allows multiple wells, transient fluxes, aquifer flow direction and distributed aquifer stresses.

The Theis method utilizes aquifer conditions to provide a calculated drawdown effect at a given distance away from a discharge location or well. This method can be adjusted to accommodate multiple discharge locations with several locations at different distances by utilizing multiple runs of the Theis method. The Theis method is considered to be a standard method by IDWR of analysis for aquifer affects and drawdown and has been utilized by Brockway Engineering for multiple water right transactions and analyses.

The Winflow model utilizes the Theis method and bolsters the analysis with spatial recognition of multiple discharge or observation points and aquifer flow direction. Winflow analyses provides a more complete analysis of the effects of discharge at a known location and the expected drawdown at multiple observation locations with one run of the model.

Aquifer hydraulic parameters were based on well drilling records in the area of the proposed transfer, and the calibrated large-scale model developed for the Twin Falls tract by Cosgrove, et al. Model parameters are based on published data for the general Salmon Falls aquifer characteristics and specifically aquifer characteristics of the proposed point of diversion when the aquifer data is available. The following model parameters were applied in this analysis:

Groundwater gradient: 50 ft/mile (Cosgrove, et al.)

Ambient flow direction: 315 degrees clockwise from north (Cosgrove, et al.)

Saturated thickness: 435 feet (aquifer bottom 700 below land surface, average static water level in vicinity of pumping well 265 feet below land surface)

Hydraulic conductivity: 55 ft/day (Cosgrove, et al.)

Storativity: 0.12 (typical for unsaturated aquifers, confirmed by Cosgrove, et al.)

A transient model was developed, using monthly time steps and stress periods. For the proposed transfer, the monthly average groundwater diversion was estimated, with the annual volume limited by the proposed water right transfer. The diversion was assumed to be the same each year over a model simulation time of 20 years. As a check, a simple manual calculation, the Theis equation was used to verify an identical test scenario in Winflow of one discharge point and one observation point at a known distance. The results of the Theis method and the Winflow model were in agreement: both procedures provided an estimated drawdown effect that was equivalent.

Protestant domestic well locations have been identified and labeled Well 1 through Well 16 (Table 1) for analysis utilizing the Winflow Model. The Protestants' domestic well locations were also identified in Figure 5. Well 8 is absent from the list because Victoria Henson is protesting the transfer on behalf of her mother Lois Rice whose domestic well is identified as Well 7.

Table 1: Protestants Domestic Well Labels for Winflow Analysis

Well 1	Slifer
Well 2	Winsryg/Elliott
Well 3	Hackard
Well 4	Houtz
Well 5	Parrott
Well 6	Ritter
Well 7	Rice/Henson
Well 9	McCreary
Well 10	Hamby
Well 11	Stephens
Well 12	Ellsworth
Well 13	Smith
Well 14	Humphries
Well 15	Conder
Well 16	Miller

In an effort to better understand the hydraulic relationship between the Protestants' domestic wells and the proposed PODs for Transfer 79357 an aerial

map of the proposed POU and PODs of Transfer 79357 and the measured distance for five Protestant domestic well locations is provided (Figure 5).

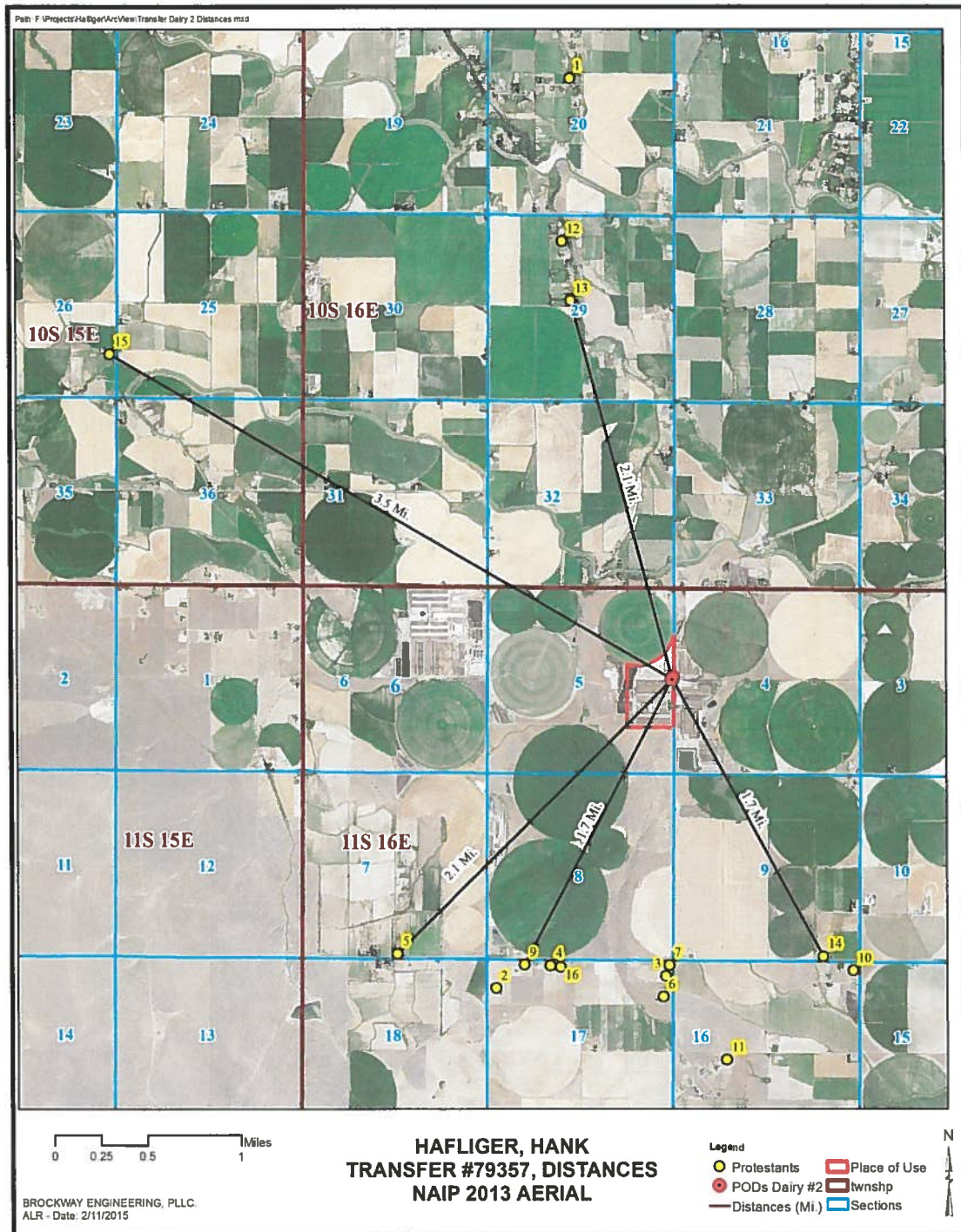


Figure 5: Protestants Domestic Well Locations and Distance From Protestants Domestic Wells to Proposed Transfer POD.

E.2. Winflow Analysis 1

For the Dairy #2 transfer, the monthly diversions were developed by “shaping” the season curve assuming that the peak summertime diversion is 50% higher than the wintertime low usage to account for increased water demand for animal and barn usage in the hotter months, Figure 6. The total annual volume was limited to the proposed transfer amount (30.5 afa for Dairy #2). Per IDWR policy, the dairy water use was assumed to be fully consumptive with no return to the aquifer. This approach is considered a conservative assumption.

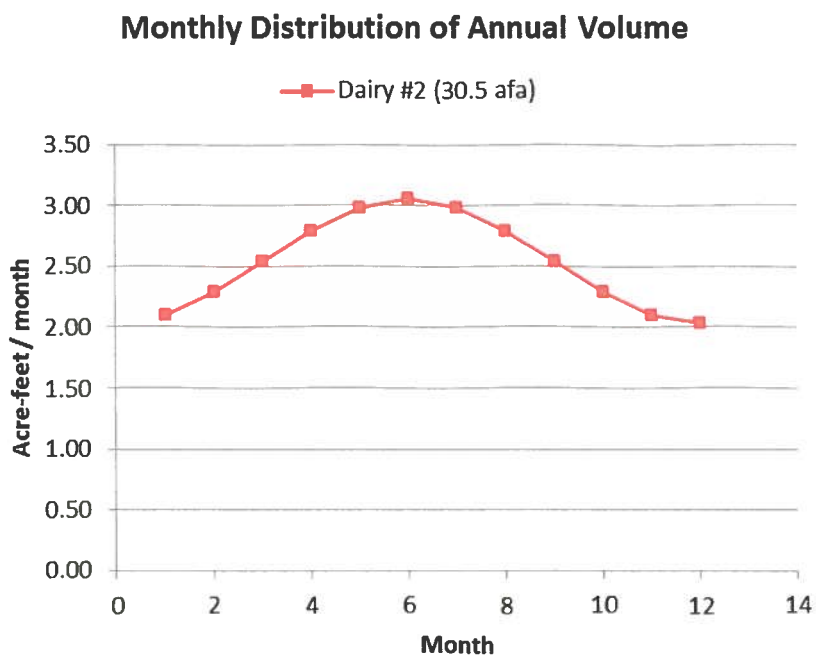


Figure 6: Monthly Diversion Seasonal Curve

In the Winflow model, observation points were located at each of the 15 wells in question to calculate the drawdown at these points. The model was run for a 20-year period and the results are shown on the attached plots. The calculated drawdowns are shown in Figure 7.

For the Dairy #2 transfer, maximum drawdown ranges from 0.028 to 0.047 feet (0.34 to 0.56 inches). These drawdowns are very small and are negligible relative to the observed seasonal fluctuations of the water table and the normal operation of a domestic well. Based on the analysis with the Winflow Model with a hydraulic conductivity of 55 ft/day, there will be no significant drawdown as a result of Transfer 79357 in the domestic wells of the Protestants. The greatest estimated drawdown is less than 1 inch. These drawdowns are very small and are negligible relative to the observed seasonal fluctuations of the water table and the normal operation of a domestic well. Complete results for the Winflow model analysis are located in Appendix F.

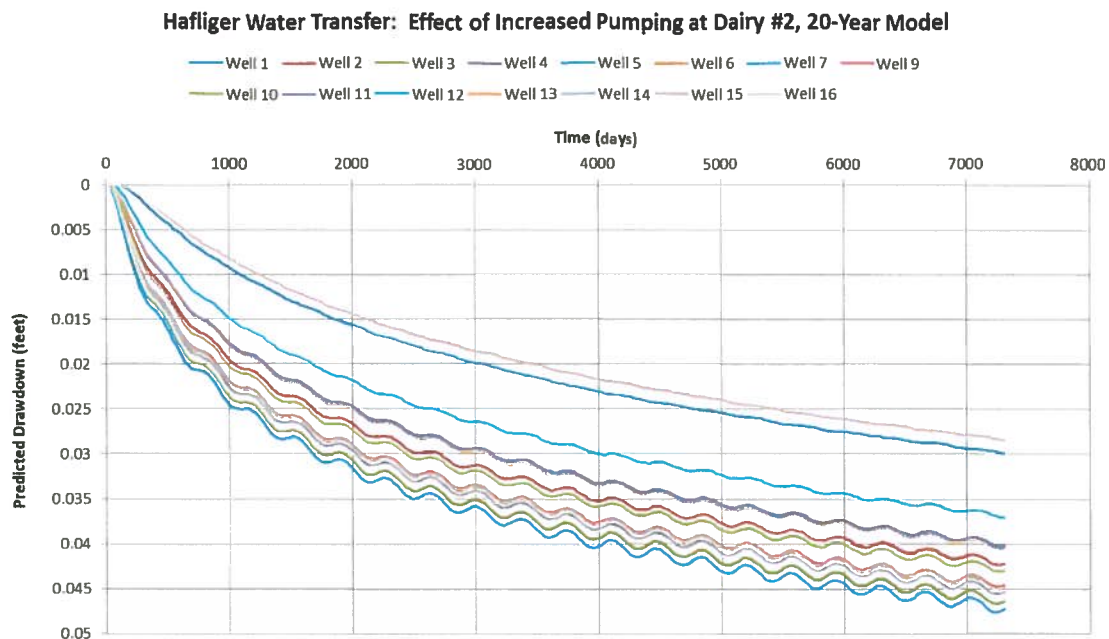


Figure 7: 20 Year Drawdown Estimation with a 55 ft/day hydraulic conductivity.

E.3. Winflow Analysis 2

A second Winflow model analysis was performed utilizing the hydraulic conductivity value of 15.3 ft/day to utilize specific aquifer conditions calculated from local well drillers logs and pump tests. This hydraulic conductivity value was calculated by examination of local well logs and utilizing pump test data

from those well logs. The well logs are identified in Table 2. Table 2 contains the data collected from the identified well logs and the pump test performed on the proposed irrigation well on October 7th and 8th 2014.

Table 2: Transmissivity and Hydraulic Conductivity Estimation with Partial Penetration.

Transmissivity Estimation with Partial Penetration

Bradbury and Rothschild (1985) specific capacity method.

Suitable for situations where a single time and drawdown measurement is available.

Includes effects of partial penetration using Sternberg (1973) approach.

Well No.	Name	Location ¹	Pumping Rate [gpm]	Drawdown [ft]	Time [min]	Well radius [in]	Storativity	SWL [ft]	Well Depth [ft]	Aquifer bottom ² [ft]	Open interval [ft]	Average aquifer thickness [ft]	Calc T [ft/d]	Calc K [ft/d]
1	13 Domestic	11S15E1SESW	20	90	60	3	0.15	210	345	700	45	445.0	340.5	0.8
2	27 Domestic	11S15E1NWNE	30	21	60	3	0.15	269	355	700	65	420.5	1493.9	3.6
3	32 Domestic	11S16E17NENW	20	90	120	3	0.15	410	555	700	55	245.0	146.4	0.6
4	80 Irrigation	11S16E5NWNE	900	21	1260	8	0.15	193	485	700	271	496.5	13990.6	28.2
5	84 Domestic	11S16E5NWNE	15	60	180	3	0.15	340	500	700	100	330.0	129.4	0.4
6	86 Domestic	11S16E9NENE	19	72	30	3	0.15	288	500	700	140	376.0	103.8	0.3
7	87 Domestic	10S16E32SESE	658	35	18	3	0.15	188	250	700	27	494.5	53425.0	108.0
8	102 Irrigation	11S16E9NESE	100	132	240	6	0.15	318	720	700	270	316.0	97.0	0.3
9	114 Domestic	10S15E36SENW	20	90	30	3	0.15	250	343	700	3	405.0	4136.0	10.2
10	Pump Test Well	10S15E36SENW	140	153	960	4	0.15	247	550	700	150	376.5	378.9	1.0

¹ From drilling records, corrected if needed based on water right records and/or aerial photo evidence.

² From Preliminary Report on Ground Water in the Salmon Falls Area, Twin Falls County Idaho Geological Survey Circular 436, K. H. Fowler, 1960

Mean	7424	15.3
Median	359.7	0.9
Max	53425.0	108.0
Min	97.0	0.3
Std dev	16728.0	33.7

The hydraulic conductivity value of 15.3 ft/day is considered very conservative compared to published values for similar strata. Hydraulic conductivity values are best calculated from pump tests that have a high discharge over an extended period of time. The high discharge rate is important to stress or maximize the ability of the aquifer to provide water. If a pump test is not capable of stressing the aquifers ability to provide water, then the estimated hydraulic conductivity value will be smaller than the actual hydraulic conductivity value.

Typically, large discharge pump tests are performed for irrigation, municipal and industrial beneficial uses. These large discharge pump tests must be performed with large pumps for a period of time that spans several hours to several days. Domestic wells are small production wells that typical require a discharge of less than 20 gpm.

By using the 15.3 ft/day hydraulic conductivity value, the range of calculated drawdown effects after 20 years of pumping for the Dairy #2 transfer is 0.05 to

0.12 feet (0.6 to 1.4 inches) and are depicted in Figure 8. These drawdowns are very small and are negligible relative to the observed seasonal fluctuations of the water table and the normal operation of a domestic well. Based on the analysis with the Winflow Model with a hydraulic conductivity of 15.3 ft/day, there will be no significant drawdown as a result of Transfer 79357 in the domestic wells of the Protestants. Complete results for the Winflow model analysis are located in Appendix G.

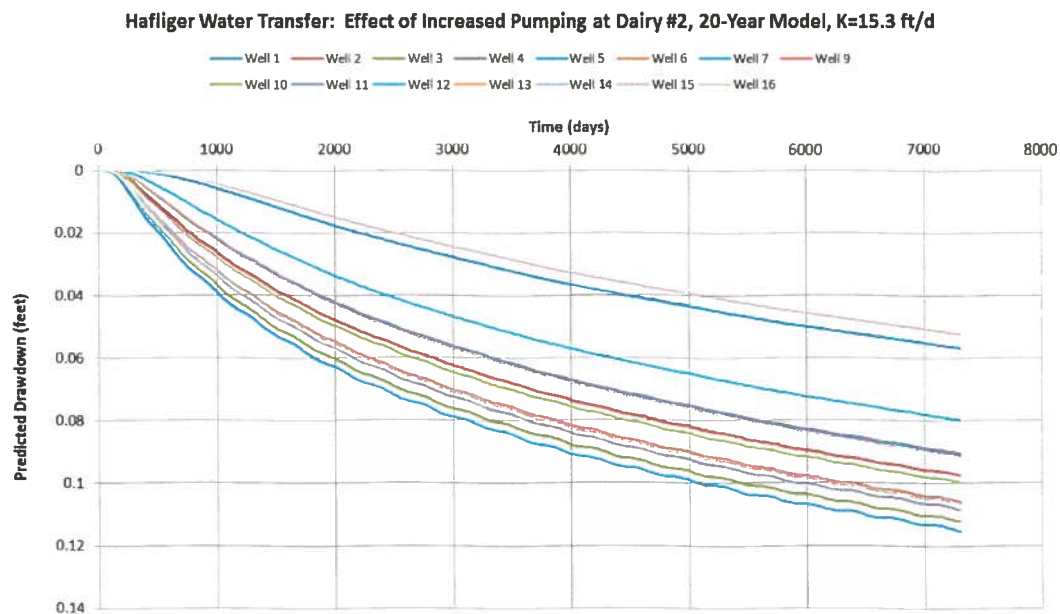


Figure 8: 20 Year Drawdown Estimation with a 15.3 ft/day hydraulic conductivity.

F. Evaluation of Transfer Application Criteria

F.1. Authority to File

Transfer 79357 was filed in the name of Thomas and Dorothy Leno. Thomas and Dorothy Leno currently own water right 47-17589. Dorothy Leno passed away several years ago, so Thomas Leno has sole ownership of water right 47-17589. Thomas Leno and Cedar Ridge Dairy have entered into an agreement that Cedar Ridge Dairy will purchase the portion of water included in Transfer 79357 after the transfer is approved.

After the proposed transfer is approved and payment for the water right has been accepted. The seller will Deed the water right to the buyer. The buyer then has the responsibility to update the ownership of the water right with the Idaho Department of Water Resources.

F.2. Water Right Validity

Water right 47-17589 (Parent 47-7106) was partially decreed in the Snake River Basin Adjudication June 1, 2010. The Idaho Department of Water Resources allows a five year period of non-use after partial decree year before the water right can be considered subject to forfeiture. Therefore, 47-17589 is a valid irrigation water right.

F.3. Injury to Other Water Rights and Domestic Wells

Natural occurring seasonal fluctuations in the USGS/IDWR monitoring wells have an approximate 5 feet elevation shift annually which is due to precipitation, seepage loss from irrigation, canals, reservoirs and stream channels. Based on the hydraulic analysis of the ground water aquifer and the Winflow analyses for Transfer 79357, the largest additional drawdown to be expected from this transfer is 0.12 feet or 1.4 inches at the Rice/Henson well (Well 7). This additional drawdown cannot be measured with an annual water level shift of 5 feet. It is expected that no significant hydraulic impact on local domestic wells will occur with a fluctuation of 1.4 inches.

F.4. Enlargement of Use

Brockway Engineering has performed analysis of the historical water use from water right 47-7106. Only the consumptive use portion of the 16.3 acres to be dried up will be transferred with Transfer 79357. This action is consistent with standard analysis practices of The Idaho Department of Water Resources. This

transfer will result in a net decrease in the allowable annual diversion volume because only the 30.5 acre feet annually of the consumptive volume will be pumped, which is less than the allowed 48.9 acre feet annually under the 16.3 acres of 47-7106.

The Idaho Department of Water Resources accepted this same hydraulic consumptive use analysis for Transfer 77406, Transfer 77669 and Transfer 78127.

Based on this analysis there will be no enlargement of the water right to be transferred.

F.5. Local Public Interest

The transfer will allow a local dairy to use water beneficially for stockwater and commercial purposes. The transfer will also allow the Applicant to improve efficiency in the water distribution system on Dairy #2. Finally, the transfer will not result in any significant drawdown on any of the Protestants' wells and will not be injurious to any existing water rights.

F.6. Beneficial Use/Conservation of Water Resources

The Idaho Department of Water Resources recognizes Stockwater and commercial uses as beneficial uses of water. The Applicant will meet all Idaho Department of Water Resources requirements for water use and conservation. The Dairy facility will utilize highly efficient practices to reduce water loss and excess energy use by recycling pumped ground water and utilizing multiple uses of the water such as milk cooling and then flushing milk-cooling water. The proposed uses within the dairy are consistent with the industry standard in southern Idaho and consistent with the conservation of water resources in the State of Idaho.

G. Ground Water Monitoring

When Transfer #79357 is approved, the Applicant will continue to record monthly water discharge from the wells and the data will be made available to the Idaho Department of Water Resources.

References

- Fowler, K.H., 1960
Preliminary Report on Ground Water in the Salmon Falls Area, Twin Falls County, Idaho. Geological Survey Circular 436
- Crosthwaite, E.G., 1969
Water Resource of the Salmon Falls Creek Basin Idaho-Nevada. Contributions to the hydrology of the United States. Geological Survey Water-Supply Paper 1879-D. U.S. Department of the Interior
- Young, Norman and Ralston, Dale R., 1971
Water Resources of the Twin Falls Tract, Twin Falls County, Idaho. Idaho Department of Water Administration. Water Information Bulletin No. 22
- Eakin, Thomas E. and Moore, Donald O., 1968
Water-Resources Appraisal of the Snake River Basin in Nevada. State of Nevada Department of Conservation and Natural Resources Division of Water Resources, Carson City. Water Resources-Reconnaissance Series Report 48
- Haskett, Gordon I. and Hampton, Loren D., 1979.
Groundwater Investigations for Salmon Falls, Division, Idaho and Aspects of Pumping from the Snake Plain Aquifer, U.S. Bureau of Reclamation Pacific Northwest Region Boise, Idaho
- Cosgrove, Donna M., Johnson, Gary S., Brockway, Charles E. and Robison, Clarence W. (1997).
Geohydrology and Development of a Steady State Ground-Water Model for the Twin Falls, Idaho Area. Idaho Water Resources Research Institute. University of Idaho Moscow, Idaho
- Cosgrove, Donna M., Johnson, Gary S., Brockway, Charles E. and Robison, Clarence W. (1998).
Development of a Transient Ground-Water Model for the Twin Falls Area, Idaho. Idaho Water Resources Research Institute. University of Idaho Moscow, Idaho

Appendix

Appendix A:

Water Source

Water right 47-7106 is a ground water right. The well for 47-7106 was drilled in 1972. The well has a diameter of 8 inches and was drilled to a depth of 1080 feet. The well is located at Township 16 South Range 16 East Section 32 NWNW.

Water Right History

Due to the isolated location of water right 47-7106, power to the well has historically been provided by a diesel powered generator. Crops have been irrigated by ground water on the farm since 1972. Affidavits from Thomas Leno Senior, Thomas Leno Junior and Vern Buss have been signed and notarized.

Water right 47-7106 was stacked with water rights 47-7287, 47-2118, 47-2048 and 47-14285 that utilize water from Mule Creek. Water right 47-7287 provides storage water and irrigation water. Water right 47-2118 provides stockwater and irrigation water. Water right 47-2048 provides stockwater and irrigation water. Water right 47-14285 provides irrigation water.

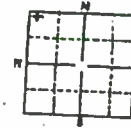
Water right 47-7106 has a December 25, 1970 priority date and is allowed to pump 1.85 cfs for a total volume of 465 acre feet annually on 155 acres.

USE TYPEWRITER OR
BALL POINT PEN

State of Idaho
Department of Water Administration
WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer
within 30 days after completion or abandonment of the well.

RECEIVED

1. WELL OWNER Name <u>Tom Leroy</u> Address <u>2225 Castberry Lane</u> Los Vegas, Nevada Owner's Permit No. _____		7. WATER LEVEL Static water level <u>17</u> feet below land surface Flooding? ☐ Yes ☒ No G.P.M. flow _____ Temperature <u>64</u> °F. Quality _____ Artesian closed-in pressure _____ p.s.i. Controlled by ☐ Valve ☐ Cap ☐ Plug																																																																																																																																																													
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Replacement ☐ Abandoned (describe method of abandonment) _____		8. WELL TEST DATA ☒ Pump ☐ Sucker ☐ Other <table border="1"> <tr> <th>Discharge GPM</th> <th>Draw Down</th> <th>Hours Pumped</th> </tr> <tr> <td><u>60</u></td> <td><u>5'</u></td> <td><u>2</u></td> </tr> </table>		Discharge GPM	Draw Down	Hours Pumped	<u>60</u>	<u>5'</u>	<u>2</u>																																																																																																																																																						
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3. PROPOSED USE ☐ Domestic ☒ Irrigation ☐ Test ☐ Municipal ☐ Industrial ☐ Stock		9. LITHOLOGIC LOG <u>046197</u> <table border="1"> <thead> <tr> <th>Feet</th> <th>Depth</th> <th>Material</th> <th>Water</th> </tr> <tr> <th>From</th> <th>To</th> <th></th> <th>Yes No</th> </tr> </thead> <tbody> <tr><td>0</td><td>14</td><td>Rock hard sandstone clay</td><td>X</td></tr> <tr><td>14</td><td>18</td><td>tan clay / fine clay</td><td>X</td></tr> <tr><td>18</td><td>27</td><td>brown sandy clay</td><td>X</td></tr> <tr><td>27</td><td>198</td><td>gray sand stone</td><td>X</td></tr> <tr><td>198</td><td>154</td><td>brown sandstone</td><td>X</td></tr> <tr><td>154</td><td>273</td><td>brown sandy clay / shale</td><td>X</td></tr> <tr><td>273</td><td>247</td><td>gray sandy clay / shale</td><td>X</td></tr> <tr><td>247</td><td>269</td><td>brown clay</td><td>X</td></tr> <tr><td>269</td><td>278</td><td>gray sand stone</td><td>X</td></tr> <tr><td>278</td><td>290</td><td>brown sandy clay</td><td>X</td></tr> <tr><td>290</td><td>302</td><td>gray sand stone</td><td>X</td></tr> <tr><td>302</td><td>336</td><td>brown clay</td><td>X</td></tr> <tr><td>336</td><td>350</td><td>gray sand stone</td><td>X</td></tr> <tr><td>350</td><td>399</td><td>brown sand stone / clay</td><td>X</td></tr> <tr><td>399</td><td>428</td><td>light gray clay</td><td>X</td></tr> <tr><td>428</td><td>443</td><td>gray sand stone</td><td>X</td></tr> <tr><td>443</td><td>457</td><td>brown sandy clay / shale</td><td>X</td></tr> <tr><td>457</td><td>482</td><td>concreted sand / chert</td><td>X</td></tr> <tr><td>482</td><td>504</td><td>light gray shale (stick)</td><td>X</td></tr> <tr><td>504</td><td>567</td><td>tan / light gray shale</td><td>X</td></tr> <tr><td>567</td><td>585</td><td>yellow shale</td><td>X</td></tr> <tr><td>585</td><td>588</td><td>light gray shale (stick)</td><td>X</td></tr> <tr><td>588</td><td>604</td><td>tan shale (stick)</td><td>X</td></tr> <tr><td>604</td><td>608</td><td>Rock</td><td>X</td></tr> <tr><td>608</td><td>621</td><td>light gray shale (stick)</td><td>X</td></tr> <tr><td>621</td><td>718</td><td>dark gray shale (stick)</td><td>X</td></tr> <tr><td>718</td><td>758</td><td>light gray shale (stick)</td><td>X</td></tr> <tr><td>758</td><td>760</td><td>black rock</td><td>X</td></tr> <tr><td>760</td><td>781</td><td>light gray shale (stick)</td><td>X</td></tr> <tr><td>781</td><td>809</td><td>light gray shale</td><td>X</td></tr> <tr><td>809</td><td>813</td><td>dark gray shale (stick)</td><td>X</td></tr> <tr><td>813</td><td>820</td><td>dark gray sandy clay</td><td>X</td></tr> <tr><td>820</td><td>843</td><td>dark gray clay / shale</td><td>X</td></tr> <tr><td>843</td><td>885</td><td>light gray shale (stick)</td><td>X</td></tr> <tr><td>885</td><td>894</td><td>gray shale / high magnesia</td><td>X</td></tr> <tr><td>894</td><td>1001</td><td>black shale</td><td>X</td></tr> <tr><td>1001</td><td>1090</td><td>black shale / gray / tan / light gray / clay / f + f +</td><td>X</td></tr> </tbody> </table>		Feet	Depth	Material	Water	From	To		Yes No	0	14	Rock hard sandstone clay	X	14	18	tan clay / fine clay	X	18	27	brown sandy clay	X	27	198	gray sand stone	X	198	154	brown sandstone	X	154	273	brown sandy clay / shale	X	273	247	gray sandy clay / shale	X	247	269	brown clay	X	269	278	gray sand stone	X	278	290	brown sandy clay	X	290	302	gray sand stone	X	302	336	brown clay	X	336	350	gray sand stone	X	350	399	brown sand stone / clay	X	399	428	light gray clay	X	428	443	gray sand stone	X	443	457	brown sandy clay / shale	X	457	482	concreted sand / chert	X	482	504	light gray shale (stick)	X	504	567	tan / light gray shale	X	567	585	yellow shale	X	585	588	light gray shale (stick)	X	588	604	tan shale (stick)	X	604	608	Rock	X	608	621	light gray shale (stick)	X	621	718	dark gray shale (stick)	X	718	758	light gray shale (stick)	X	758	760	black rock	X	760	781	light gray shale (stick)	X	781	809	light gray shale	X	809	813	dark gray shale (stick)	X	813	820	dark gray sandy clay	X	820	843	dark gray clay / shale	X	843	885	light gray shale (stick)	X	885	894	gray shale / high magnesia	X	894	1001	black shale	X	1001	1090	black shale / gray / tan / light gray / clay / f + f +	X
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4. METHOD DRILLED ☒ Cable ☐ Rotary ☐ Dug ☐ Other		10. DRILLER'S CERTIFICATION This well was drilled under my supervision and this report is true to the best of my knowledge. Driller's or Firm's Name <u>Boley & Henry</u> Number <u>86</u> Address <u>Mullanbach, Idaho</u> Signed By <u>Blaine Boley</u> Date _____																																																																																																																																																													
5. WELL CONSTRUCTION Diameter of hole <u>8</u> inches Total depth <u>1080</u> feet Casing schedule ☒ Steel ☐ Concrete <table border="1"> <thead> <tr> <th>Thickness</th> <th>Diameter</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td><u>2.50</u> inches</td> <td><u>8.75</u> inches</td> <td><u>+1</u> feet</td> <td><u>19</u> feet</td> </tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table> Was a packer or seal used? ☐ Yes ☒ No Perforated? ☐ Yes ☒ No How perforated? ☐ Factory ☐ Knife ☐ Torch Size of perforation _____ inches by _____ inches <table border="1"> <thead> <tr> <th>Number</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table> Well screen installed? ☐ Yes ☒ No Manufacturer's name _____ Model No. _____ Diameter _____ Slot size _____ Set from _____ feet to _____ feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? ☐ Yes ☒ No Size of gravel _____ Placed from _____ feet to _____ feet Surface seal? ☒ Yes ☐ No To what depth <u>18</u> feet Material used in seal ☐ Cement grout ☒ Mudfilling clay		Thickness	Diameter	From	To	<u>2.50</u> inches	<u>8.75</u> inches	<u>+1</u> feet	<u>19</u> feet	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	Number	From	To	_____	_____	_____	_____	_____	_____	_____	_____	_____	6. LOCATION OF WELL Sketch map location must agree with written location.  County <u>Twin Falls</u> <u>NW 1/4 NW 1/4 Sec 32 T. 16 N. R. 16 E.</u>																																																																																																																									
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USE ADDITIONAL SHEETS IF NECESSARY

FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

BEFORE THE IDAHO DEPARTMENT OF WATER RESOURCES

IN THE MATTER OF WATER RIGHT	)	COMMENTS AND
NO. 47-7106, 47-7287 & 47-14285	)	EVIDENCE OF
FOR IRRIGATION	)	THOMAS LENO JR.
	)	

CCMES NOW, Thomas Leno Sr., and provides the following comments and evidence in this matter:

1. I am familiar with the property located in Section 20 and 29, T. 16 S., R. 16 E., B.M. hereafter known as the "Property." The Property is located in Twin Falls County close to the City of Jackpot, Nevada and is known as the Leno Farm.
2. My involvement/Title associated with Property is/was Owner/Manager.
3. I am knowledgeable of the irrigation system, and crops that were irrigated during the time outlined in the affidavit signed by Vern Buss on December 12, 2010 (see attached affidavit).
4. It is my understanding that the affidavit signed by Vern Buss was not entirely clear as to the amount of irrigation that occurred on the Leno Farm for the years indicated in his affidavit.

In an effort to clarify Vern Buss's affidavit, additional information has been gathered and is now being presented to IDWR. This information includes aerial imagery and rain and snow precipitation data for Magic Mountain and Wilson Creek.

In 1999, irrigation water from Mule Creek and the ground water well was applied on the farm. The ground water well provided 155 acres of irrigation water. We used all of the water available from Mule Creek and applied it to the remaining farmable acres. A 1999 aerial infrared image of the Leno Farm provided by IDWR indicates that an estimated 217.2 acres were irrigated in 1999.

In 2000, irrigation water for the farm was provided exclusively by the ground water well due to insufficient flow of water in Mule Creek.

In 2001, irrigation water for the farm was provided exclusively by the ground water well due to insufficient flow of water in Mule Creek.

In 2002, irrigation water for the farm was provided exclusively by the ground water well due to insufficient flow of water in Mule Creek.

In 2003, irrigation water for the farm was provided exclusively by the ground water well due to insufficient flow of water in Mule Creek.

In 2004, irrigation water was supplied by ground water well and Mule Creek. My recollection is that the ground water well and the Mule Creek water was utilized fully for this year. The analysis of the 2004 aerial shows that the water rights were utilized to their full potential for irrigation purposes. The ground water well was used to irrigate 155 acres and water from Mule Creek was used to irrigate the rest of the farm when it was available. This was the last year that irrigation occurred on this farm.

DATED this 24 day of February, 2012.

Thomas Leno Jr.
Thomas Leno Jr.

SUBSCRIBED and SWORN to before me

this 24 day of February, 2012.

M. Ann Pool
NOTARY PUBLIC
Residing at : Swain Falls
My Commission Expires: April 5, 2016



BEFORE THE IDAHO DEPARTMENT OF WATER RESOURCES

IN THE MATTER OF WATER RIGHT
NO. 47-7106, 47-7287 & 47-14285
FOR IRRIGATION

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COMMENTS AND
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3. I am knowledgeable of the irrigation system, and crops that were irrigated during the time outlined in the affidavit signed by Vern Buss on December 12, 2010 (see attached affidavit).
4. It is my understanding that the affidavit signed by Vern Buss was not entirely clear as to the amount of irrigation that occurred on the Leno Farm for the years indicated in his affidavit.

In an effort to clarify Vern Buss's affidavit, additional information has been gathered and is now being presented to IDWR. This information includes aerial imagery and rain and snow precipitation data for Magic Mountain and Wilson Creek.

In 1999, irrigation water from Mule Creek and the ground water well was applied on the farm. The ground water well provided 155 acres of irrigation water. We used all of the water available from Mule Creek and applied it to the remaining farmable acres. A 1999 aerial infrared image of the Leno Farm provided by IDWR indicates that an estimated 217.2 acres were irrigated in 1999.

In 2000, irrigation water for the farm was provided exclusively by the ground water well due to insufficient flow of water in Mule Creek.

In 2001, irrigation water for the farm was provided exclusively by the ground water well due to insufficient flow of water in Mule Creek.

In 2002, irrigation water for the farm was provided exclusively by the ground water well due to insufficient flow of water in Mule Creek.

In 2003, irrigation water for the farm was provided exclusively by the ground water well due to insufficient flow of water in Mule Creek.

In 2004, irrigation water was supplied by ground water well and Mule Creek. My recollection is that the ground water well and the Mule Creek water was utilized fully for this year. The analysis of the 2004 aerial shows that the water rights were utilized to their full potential for irrigation purposes. The ground water well was used to irrigate 155 acres and water from Mule Creek was used to irrigate the rest of the farm when it was available. This was the last year that irrigation occurred on this farm.

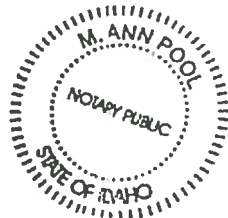
DATED this 24 day of February, 2012.

Thomas Leno
Thomas Leno Sr.

SUBSCRIBED and SWORN to before me

this 24 day of February, 2012.

M. Ann Pool
NOTARY PUBLIC
Residing at: Swain Falls
My Commission Expires: April 5, 2016



BEFORE THE IDAHO DEPARTMENT OF WATER RESOURCES

IN THE MATTER OF WATER RIGHT)
NO. 47-7106, 47-7287 & 47-14285) COMMENTS AND
FOR IRRIGATION) EVIDENCE OF
) Vern Buss
)

COMES NOW, Vern Buss, and provides the following comments and evidence in this matter:

1. I am familiar with the property located in Section 20 and 29, T. 16 S., R. 16 E., B.M. hereafter known as the "Property." The Property is located in Twin Falls County close to the City of Jackpot, Nevada and is known as the Leno Farm.
2. My involvement/Title associated with Property is/was Farm Manager.
3. I am knowledgeable of the irrigation system, and crops that were irrigated during the time outlined in Item 4.
4. The year, crop type and water source on the Property have consisted of

Year	Crop	Water Source (%)	
		Ground Water	Mule Creek
1999	Grian, Hay, Beans	90%	10%
2000	Grian, Hay	100%	
2001	Grian, Hay	100%	
2002	Grian, Hay	100%	
2003	Grian, Hay	80%	20%

5. Explanation of how irrigation water is diverted and delivered on the Property:

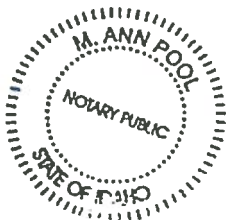
Water was delivered by wheel lines, hand lines and pivots. Pressurized systems utilized a diesel powered pump to provide irrigation water from the well and storage pond.

DATED this 17 day of December, 20 10.

Vern Buss
Vern Buss

SUBSCRIBED and SWORN to before me

this 17 day of December, 20 10.



M. Ann Pool
NOTARY PUBLIC
Residing at: Turn Falls County Idaho
My Commission Expires: 4-5-2016

IN THE DISTRICT COURT OF THE FIFTH JUDICIAL DISTRICT OF THE
STATE OF IDAHO, IN AND FOR THE COUNTY OF TWIN FALLS

In Re SRBA)
) PARTIAL DECREE PURSUANT TO
) I.R.C.P. 54(b) FOR
Case No. 20576)
) Water Right 47-07106

DISTRICT COURT - SRBA
Fifth Judicial District
County of Twin Falls - State of Idaho

JUN - 1 2010

By _____ Clerk
Deputy Clerk

NAME AND ADDRESS: DOROTHY LENO
THOMAS LENO
4336 N 1900 E
TWIN, ID 83116

SOURCE: GROUND WATER

QUANTITY: 1.95 CFS
469.00 AFTY

This right when combined with all other rights shall provide more than 0.02 cfs per acre not more than 1.0 cfs per acre the field headgate for irrigation of the lands below.

PRIORITY DATE: 12/15/1970

POINT OF DIVERSION: T169 R16E S20 NWSEW Within Twin Falls County

PURPOSE AND PERIOD OF USE	PURPOSE OF USE	PERIOD OF USE	QUANTITY
Irrigation		04-01 TO 11-01	1.95 CFS 469.00 AFTY

PLACE OF USE:	Irrigation	Within Twin Falls County
T169 R16E S20	SWSW 40.0	SWSW 12.0
S20	NENW 23.0	NENW 40.0
	SWNW 26.0	SWNW 15.0
155.0 Acres Total		

OTHER PROVISIONS NECESSARY FOR DEFINITION OR ADMINISTRATION OF THIS WATER RIGHT:

THIS PARTIAL DECREE IS SUBJECT TO SUCH GENERAL PROVISIONS NECESSARY FOR THE DEFINITION OF THE RIGHTS OR FOR THE EFFICIENT ADMINISTRATION OF THE WATER RIGHTS AS MAY BE ULTIMATELY DETERMINED BY THE COURT AT A POINT IN TIME NO LATER THAN THE ENTRY OF A FINAL UNIFIED DECREE. I.R.C. SECTION 42-1412(6).

RULE 54(b) CERTIFICATE

With respect to the issues determined by the above judgment or order, it is hereby CERTIFIED, in accordance with Rule 54(b), I.R.C.P., that the court has determined that there is no just reason for delay of the entry of a final judgment and that the court has and does hereby direct that the above judgment or order shall be a final judgment upon which execution may issue and an appeal may be taken as provided by the Idaho Appellate Rules.

Eric J. Nelson
Presiding Judge of the
Snake River Basin Adjudication

Appendix B:

ADMINISTRATOR'S MEMORANDUM

Multiple Programs Memo No. 2

To: Regional Offices
Water Allocation Bureau

From: Gary Spackman 

Re: FORFEITURE REVIEW PERIOD

Date: March 5, 2012

Idaho Code § 42-222(2) provides that all rights to the use of water shall be lost and forfeited by a failure for the term of five years to apply it to the beneficial use for which it was appropriated. Idaho Code § 42-222(3&4) provides that the Department may grant an extension for an additional five years for good cause shown if an application for extension is made before the end of the five year period. Idaho Code § 42-223 provides for exceptions or defenses to forfeiture. Experience in the Snake River Basin Adjudication (SRBA) and other court cases have provided additional guidance on the subject of forfeiture. In general, forfeiture is not favored; however, the Department has a responsibility to review water rights to determine if forfeiture has occurred prior to approving (or denying) certain applications affecting existing water rights.

In 1999, the SRBA court issued a decision tolling the forfeiture period for a water right during the time period that a claim is pending in the adjudication. The Department has presumed that water rights are not forfeited for non-use during the five-year period following issuance of a partial decree. For many water rights decreed in the SRBA, the initial five-year period has ended or will end soon, and Department employees are increasingly faced with questions regarding a cut-off date to determine if forfeiture has occurred and when action must be taken to protect a water right from forfeiture. For example, if a partial decree is issued during the middle of the irrigation season, is it appropriate to assume that five full irrigation seasons of non-use (in addition to the first partial season) must pass before the right is considered to be forfeited? If so, would the right holder need to initiate some action to protect the right from forfeiture prior to the end of the five full seasons, or prior to the beginning of the sixth irrigation season, or some other time? In the past, the Department has presumed that resumption at the beginning of the sixth season would prevent forfeiture on the basis that junior irrigation rights would not have had opportunity to establish some reliance on the unused water during the non-irrigation season. What if the need for irrigation water is further delayed in the sixth season due to a wet spring?

The purpose of this memo is to address the timing questions that arise during forfeiture review by providing Department employees with a simple and uniform forfeiture review period. This memo applies to forfeiture review associated with applications to lease a water right to the Water Supply Bank, applications for extension of time to avoid forfeiture, and applications for transfer of a water right. This memo applies to both irrigation and non-irrigation water rights.

The Department will presume that beneficial use under a water right during a portion of a calendar year or any defense or protection from forfeiture applicable during a portion of a calendar year will apply to the entire calendar year. For example, if an irrigation right is used to establish a cover crop at the beginning of an irrigation season and is not used during the remainder of the irrigation season; the right will be considered protected from forfeiture through December 31 of that calendar year. Likewise, if an irrigation right is decreed at the beginning of a calendar year (prior to the beginning of the irrigation season) and is not used at any time during the irrigation season, the right will still be considered protected from forfeiture for that entire calendar year.

The Department will also presume that resumption of beneficial use under a water right for a portion of a calendar year or any defense or protection initiated during a calendar year will apply to the entire calendar year. For example, if an irrigation right is used to establish a fall crop at the end of an irrigation season, even if the right was not used earlier during the irrigation season, the right will be considered protected from forfeiture for that calendar year. Likewise, if an application for lease to the Water Supply Bank is submitted before the end of a calendar year and eventually approved and the right is not used at any time during that calendar year, the right will be considered protected from forfeiture for that calendar year.

Strict application of Idaho Code § 42-222(4) would require an application for extension of time to avoid forfeiture to be submitted prior to the end of the fifth unprotected year of non-use. However, the Department wishes to avoid questions and conflicts surrounding the timing of resumption during an irrigation season and to maintain simple and uniform guidance to Department employees. Therefore, the Department will presume that resumption of beneficial use or any defense or protection, including filing an extension of time to avoid forfeiture, initiated before the end of the sixth calendar year will prevent a finding of forfeiture by the Department.

As an example, if an irrigation right is decreed in the SRBA in January, 2004 and water is not used during 2004, 2005, 2006, 2007, 2008 and 2009, then resumption or action initiating a defense or protection from forfeiture must occur prior to the end of the calendar year in 2010. The 2004 calendar year is considered protected since the decree was issued during that year. The years 2005 through 2009 represent the five year period of non-use. The Department would not find forfeiture if use resumed before the end of calendar year 2010. An application to lease the water right to the Water Supply Bank or other action initiating a defense or protection from forfeiture would apply similarly¹.

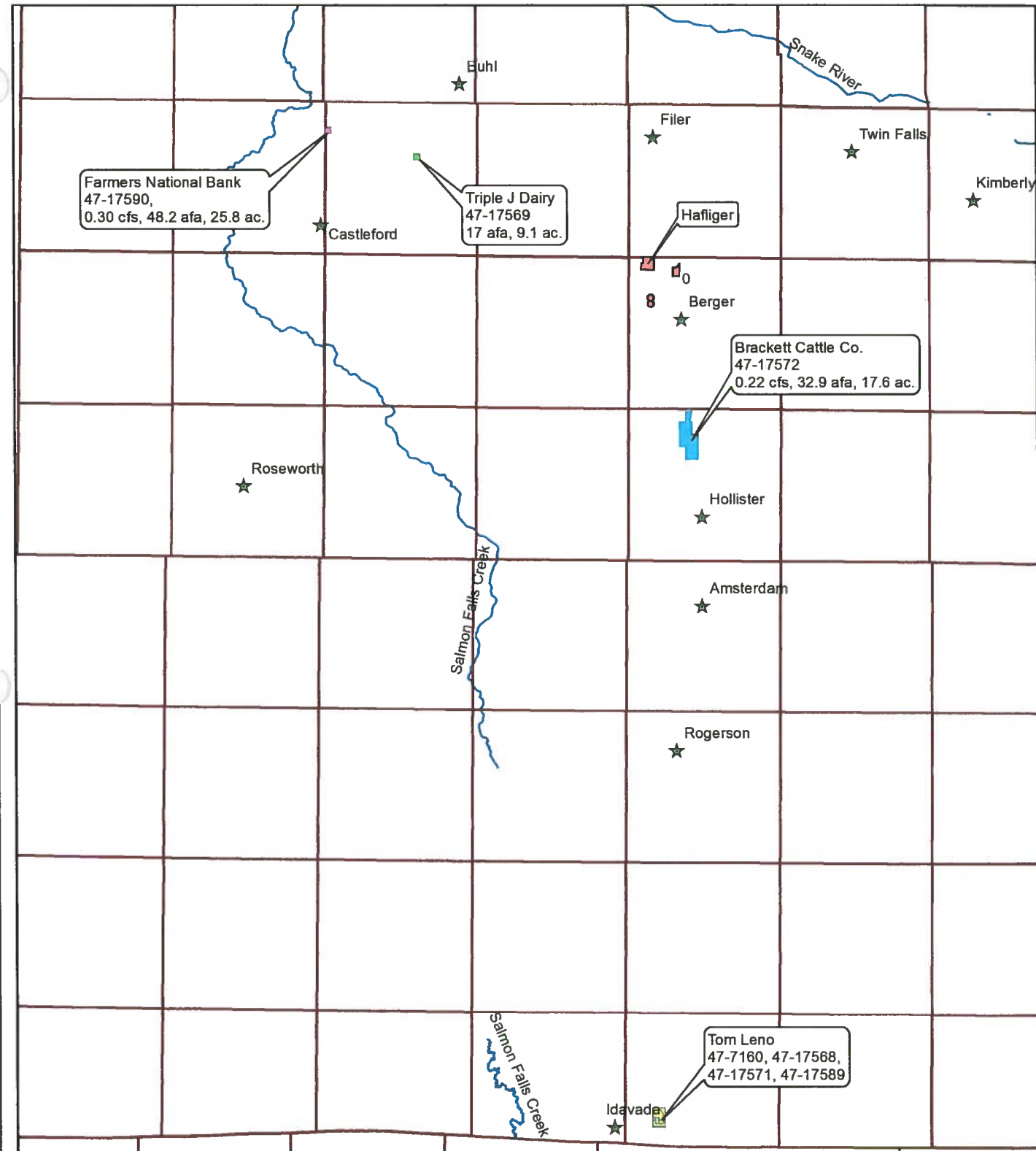
As another example, if an extension of time to avoid forfeiture is granted for five years, the Department will presume that resumption of beneficial use or any defense or protection initiated before the end of the sixth calendar year will prevent a finding of forfeiture by the Department. Continuing with the example above, if an application for extension of time to avoid forfeiture was submitted in 2010 and the Department granted an extension for the years 2010, 2011, 2012, 2013 and 2014, then resumption or other action initiating a defense or protection from forfeiture must occur prior to the end of calendar year 2015. Note that, pursuant to Idaho Code § 42-222(4), the Department would still be required to provide notice at least 60 days prior to the end of 2014 that resumption and a report is due by December 31, 2014. However, the Department would not find forfeiture if resumption of beneficial use or

¹ Filing an application for transfer does not toll the statutory period for forfeiture of a water right due to non-use.

other action initiating a defense or protection from forfeiture occurred prior to the end of calendar year 2015.

This memo does not change Department policy on partial forfeiture. Forfeiture of a portion of a water right may occur if beneficial use is reduced for the statutory period as applied under the guidance of this memo. When discussing forfeiture issues, Department employees and water users should be mindful that any Department decision or action where forfeiture may be an issue can be contested and certain facts may lead to a different conclusion in an administrative hearing, or judicial review.

Appendix C:



0 3 6 12 Miles

HAFLIGER, HANK LENO WATER RIGHTS TRANSFERS NAIP 2013 AERIAL

Legend

— Rivers

Leno_WR_Transfers

— C E BRACKETT CATTLE CO

— DOROTHY LENO

— FARMERS NATIONAL BANK

— LENO

— TRIPLE J DAIRY

— DOROTHY LENO

— Hafliger_Transfer_POU

— twnshp

★ cities



MEMORANDUM

Date: July 25, 2011
To: Transfer 77406 File
From: Corey Skinner
Re: Evaluation of Sufficiency of Information Submitted

Application proposes transferring a 9.1 acre (0.12 cfs & 17.0 afa) portion of a groundwater irrigation right, 47-7106, appurtenant to a farm located approximately 14.5 miles south and 1.0 mile west of Rogerson to stock water and commercial uses associated with an existing dairy operation located approximately 2.5 miles south and 2.0 miles west of the center of Buhl. The application also proposes to modify the described locations of the points of diversion on the existing water right (0.26 cfs & 16.0 afa) at the dairy to reflect the actual location of the wells at the dairy site. Two existing wells at the dairy site will be used to divert up to a total of 0.38 cfs and 34.2 afa) of water. Note that the place of use of groundwater right 47-7106 overlaps the place of use of two Mule Creek Rights, 47-7287 and 47-14285. The application includes a detailed supplemental analysis of the past use of right 47-7106. The application also includes a relinquishment form signed by the current owner of right 47-14285 relinquishing a 9.1 acre portion of right 47-14285. In addition, the application also includes a signed statement reducing the authorized place of use of right 47-7287 by 9.1 acres. However, note that the 47-7287 statement proposes to retain the full amount (actually a rather small amount) of irrigation storage volume and irrigation from storage volume authorized by right 47-7287.

- **Authority to File:**
The application includes purchase and sale documents that give the applicant (Idaho Water Company) authority to file a transfer involving rights 47-7106 and 47-13694. Documents signed by the current owner address overlapping rights 47-7287 and 47-14285.
- **Water Right Validity:** All the rights involved with the transfer were decreed in the SRBA in 2010.
- **Injury to Other Water Rights:**
The current point of diversion for right 47-7106 and the proposed points of diversion at the dairy site are located approximately 39 miles away from each other. However, both locations are located within IDWR administrative basin 47. In addition, the application includes copies of published reports relating to studies of the groundwater within the Salmon Falls Creek Basin in an attempt to show the interconnection of the aquifer between the current point of diversion for right 47-7106 and the dairy site.

- **Enlargement of Use:**
None anticipated. Conversion from irrigation to stock water and commercial use (based on consumptive use of irrigation right) will result in a net decrease in the allowable annual diversion volume.
- **Local Public Interest:**
No issues anticipated, but application will be subject to public notice and protest.
- **Beneficial Use/Conservation of Water Resources:**
Proposed uses are recognized as beneficial uses of water.

Review of the application finds there is no clear inconsistency with criteria set forth in Section 42-222 Idaho Code preventing processing of this application.



State of Idaho

DEPARTMENT OF WATER RESOURCES

Southern Region, 1341 Fillmore Street, Suite 200 • Twin Falls, Idaho 83301-3380

Phone: (208) 736-3033 • Fax: (208) 736-3037 • Web Site: www.idwr.idaho.gov

C. L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Interim Director

November 2, 2011

IDAHO WATER CO LLC
1135 VALLEY RD S
EDEN ID 83325

THOMAS LENO
DOROTHY LENO
4236 N 1900 E
BUHL ID 83316

DUFF JACOBSON
FLINT JACOBSON
1291 E 3900 N
BUHL ID 83316

TRIPLE J DAIRY
C/O FLINT JACOBSON
1291 E 3900 N
BUHL ID 83316

RE: Transfer No.: 77406
 Water Right No(s): 47-13694 47-7106 47-7287 47-14285

Transfer Approval Notice

Dear Water Right Holder and other Interested Persons:

The Department of Water Resources has issued the enclosed approved Transfer of Water Right(s). Please be sure to thoroughly review the conditions of approval and remarks listed on the approval document.

The Transfer of Water Right(s) is a PRELIMINARY ORDER issued by the Department pursuant to section 67-5243, Idaho Code. It can and will become a final order without further action by the Department unless the APPLICANT petitions for reconsideration or files an exception and/or brief within fourteen (14) days of the service date as described in the enclosed information sheet.

ANY PERSON aggrieved by any decision, determination, order or action of the Department and who has not previously been afforded an opportunity for a hearing on the matter may request a hearing pursuant to section 42-1701A(3), Idaho Code. A written petition contesting the action of the Department and requesting a hearing shall be filed within fifteen (15) days after receipt of the denial or conditional approval.

If the transfer approval includes a condition requiring measuring and recording devices, such devices shall comply with specifications established by the Department. Detailed specifications are available on the Department's homepage on the Internet, or you can request a copy by contacting any office of the Department. Please be sure to thoroughly review the specifications to avoid unnecessary costs for reinstallation or modification due to non-conforming or improperly installed devices.

Please note that water right owners are required to report any change of water right ownership and/or mailing address to the Department within 120 days of the change. Failure to report these changes could result in a \$100 late filing fee. Contact any office of the Department or visit the Department's homepage on the Internet to obtain the proper forms and instructions.

If you have any questions, please contact me at 208-736-3033.

Sincerely,

A handwritten signature in cursive script, appearing to read "Allen Merritt".

Allen Merritt
Southern Regional Manager

Enclosure(s)

cc:

BROCKWAY ENGINEERING PLLC

CERTIFICATE OF SERVICE

I hereby certify that on November 2, 2011 I mailed a true and correct copy, postage prepaid, of the foregoing TRANSFER APPROVAL to the person(s) listed below:

RE: TRANSFER NO. 77406
WATER RIGHTS NOS. 47-13694 47-7106 47-7287 47-14285

IDAHO WATER CO LLC
1135 VALLEY RD S
EDEN ID 83325

THOMAS LENO
DOROTHY LENO
4236 N 1900 E
BUHL ID 83316

DUFF JACOBSON
FLINT JACOBSON
1291 E 3900 N
BUHL ID 83316

TRIPLE J DAIRY
C/O FLINT JACOBSON
1291 E 3900 N
BUHL ID 83316

BROCKWAY ENGINEERING PLLC
C/O GREG SULLIVAN
2016 N WASHINGTON ST STE 4
TWIN FALLS ID 83301



Denise Buffington
Administrative Assistant

EXPLANATORY INFORMATION TO ACCOMPANY A PRELIMINARY ORDER

(To be used in connection with actions when a hearing was **not** held)

(Required by Rule of Procedure 730.02)

The accompanying order or approved document is a "Preliminary Order" issued by the department pursuant to section 67-5243, Idaho Code. It can and will become a final order without further action of the Department of Water Resources ("department") unless a party petitions for reconsideration, files an exception and brief, or requests a hearing as further described below:

PETITION FOR RECONSIDERATION

Any party may file a petition for reconsideration of a preliminary order with the department within fourteen (14) days of the service date of this order. **Note: the petition must be received by the department within this fourteen (14) day period.** The department will act on a petition for reconsideration within twenty-one (21) days of its receipt, or the petition will be considered denied by operation of law. See Section 67-5243(3) Idaho Code.

EXCEPTIONS AND BRIEFS

Within fourteen (14) days after: (a) the service date of a preliminary order, (b) the service date of a denial of a petition for reconsideration from this preliminary order, or (c) the failure within twenty-one (21) days to grant or deny a petition for reconsideration from this preliminary order, any party may in writing support or take exceptions to any part of a preliminary order and may file briefs in support of the party's position on any issue in the proceeding with the Director. Otherwise, this preliminary order will become a final order of the agency.

REQUEST FOR HEARING

Unless a right to a hearing before the Department or the Water Resource Board is otherwise provided by statute, any person aggrieved by any final decision, determination, order or action of the Director of the Department and who has not previously been afforded an opportunity for a hearing on the matter may request a hearing pursuant to section 42-1701A(3), Idaho Code. A written petition contesting the action of the Director and requesting a hearing shall be filed within fifteen (15) days after receipt of the denial or conditional approval.

ORAL ARGUMENT

If the Director grants a petition to review the preliminary order, the Director shall allow all parties an opportunity to file briefs in support of or taking exceptions to the preliminary order and may schedule oral argument in the matter before issuing a final order. If oral arguments are to be heard, the Director will within a reasonable time period notify each party of the place, date and hour for the argument of the case. Unless the Director orders otherwise, all oral arguments will be heard in Boise, Idaho.

CERTIFICATE OF SERVICE

All exceptions, briefs, requests for oral argument and any other matters filed with the Director in connection with the preliminary order shall be served on all other parties to the proceedings in accordance with IDAPA Rules 37.01.01302 and 37.01.01303 (Rules of Procedure 302 and 303).

FINAL ORDER

The Director will issue a final order within fifty-six (56) days of receipt of the written briefs, oral argument or response to briefs, whichever is later, unless waived by the parties or for good cause shown. The Director may remand the matter for further evidentiary hearings if further factual development of the record is necessary before issuing a final order. The department will serve a copy of the final order on all parties of record.

Section 67-5246(5), Idaho Code, provides as follows:

Unless a different date is stated in a final order, the order is effective fourteen (14) days after its service date if a party has not filed a petition for reconsideration. If a party has filed a petition for reconsideration with the agency head, the final order becomes effective when:

- (a) The petition for reconsideration is disposed of; or
- (b) The petition is deemed denied because the agency head did not dispose of the petition within twenty-one (21) days.

APPEAL OF FINAL ORDER TO DISTRICT COURT

Pursuant to sections 67-5270 and 67-5272, Idaho Code, if this preliminary order becomes final, any party aggrieved by the final order or orders previously issued in this case may appeal the final order and all previously issued orders in this case to district court by filing a petition in the district court of the county in which:

- i. A hearing was held,
- ii. The final agency action was taken,
- iii. The party seeking review of the order resides, or
- iv. The real property or personal property that was the subject of the agency action is located.

The appeal must be filed within twenty-eight (28) days of this preliminary order becoming final. See section 67-5273, Idaho Code. The filing of an appeal to district court does not itself stay the effectiveness or enforcement of the order under appeal.

MEMORANDUM

Date: January 30, 2012
To: Transfer 77669 File
From: Corey Skinner
Re: Evaluation of Sufficiency of Information Submitted

Application proposes transferring a 17.6 acre (0.22 cfs & 32.9 afa) portion of a groundwater irrigation right, 47-17568, from a farm located approximately 14.5 miles south and 1.0 mile west of Rogerson to stockwater and commercial uses associated with a proposed cattle facility located approximately 2.5 – 4.5 miles north and 0.25 – 1.0 mile west of Hollister. The application also proposes to modify the authorized place of use of the existing domestic and stockwater right, 47-17509, (0.04 cfs & 14.6 afa) at the site of the cattle facility to reflect the entire proposed site of the cattle facility. One existing well at the cattle facility will be used to divert up to a total of 0.26 cfs and 47.5 afa of water. Note that the place of use of groundwater right 47-17568 overlaps the place of use of two Mule Creek Rights, 47-7287 and 47-14285. The application includes a detailed supplemental analysis of the past use of right 47-17568. The application also includes a relinquishment form signed by the current owner of right 47-14285 relinquishing a 17.6 acre portion of right 47-14285. In addition, the application also includes a signed statement reducing the authorized place of use of right 47-7287 by 17.6 acres. However, note that the 47-7287 statement proposes to retain the full amount (actually a rather small amount) of irrigation storage volume and irrigation from storage volume authorized by right 47-7287.

- **Authority to File:**
The application includes purchase and sale documents that give the applicant (Idaho Water Company) authority to file a transfer involving right 47-17568. Documents signed by the current owner address overlapping rights 47-7287 and 47-14285. An authorization form signed by the current owner of right 47-17509 authorizes the applicant to modify right 47-17509 via the transfer.
- **Water Right Validity:**
All the rights involved with the transfer were decreed in the SRBA in 2010 or 2011.
- **Injury to Other Water Rights:**
The current point of diversion for right 47-17568 and the proposed point of diversion at the cattle facility are located approximately 27 miles away from each other. However, both locations are located within IDWR administrative basin 47. In addition, the application includes copies of published reports relating to studies of the groundwater within the Salmon Falls Creek Basin in an attempt to show the interconnection of the aquifer between the current point of diversion for right 47-17568 and the cattle facility site.
- **Enlargement of Use:**
None anticipated. Conversion from irrigation to stock water and commercial use (based on consumptive use of irrigation right) will result in a net decrease in the allowable annual diversion volume.
- **Local Public Interest:**
No issues anticipated. The application will be subject to public notice and protest.
- **Beneficial Use/Conservation of Water Resources:**
Proposed uses are recognized as beneficial uses of water.

Review of the application finds there is no clear inconsistency with criteria set forth in Section 42-222 Idaho Code preventing processing of this application.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
TRANSFER OF WATER RIGHT
TRANSFER NO. 77669

This is to certify that: IDAHO WATER CO LLC
1135 VALLEY RD S
EDEN ID 83325
(208) 312-1135

has requested a change to the water right(s) listed below. This change in water right(s) is authorized pursuant to the provisions of Section 42-222, Idaho Code. A summary of the changes is also listed below. The authorized change for each affected water right, including conditions of approval, is shown on the following pages of this document.

Summary of Water Rights Before the Proposed Change

<u>Right</u>	<u>Origin/Basis</u>	<u>Priority</u>	<u>Rate</u>	<u>Volume</u>	<u>Acre Limit</u>	<u>Total Acres</u>	<u>Source</u>
47-17509	WR/Decreed	06/30/1959	0.04 cfs	N/A	N/A	N/A	GROUND WATER
47-17568	WR/Decreed	12/25/1970	1.73 cfs	437.7 af	N/A	145.9	GROUND WATER

Associated Water Rights Included in Transfer Approval (POU Reduction and Conditions Updated)

<u>Right</u>	<u>Origin/Basis</u>	<u>Priority</u>	<u>Rate</u>	<u>Volume</u>	<u>Acre Limit</u>	<u>Total Acres</u>	<u>Source</u>
47-7287	WR/Decreed	11/04/1974	N/A	24.8 af	N/A	145.9	MULE CREEK
47-14285	WR/Decreed	12/31/1969	4.26 cfs	N/A	N/A	212.9	MULE CREEK

Purpose of Transfer (Changes Proposed)

<u>Current Number</u>	<u>Split</u>	<u>POD</u>	<u>POU</u>	<u>Add POD</u>	<u>Period of Use</u>	<u>Nature of Use</u>
47-17509	NO	NO	YES	NO	NO	NO
47-17568	YES	YES	YES	NO	YES	YES

Summary of Water Rights After the Approved Change

<u>Existing Right</u>	<u>New No. (changed portion)</u>	<u>Transfer Rate</u>	<u>Transfer Volume</u>	<u>Acre Limit</u>	<u>Total Acres</u>	<u>New No. (remaining portion)</u>	<u>Remaining Rate</u>	<u>Remaining Volume</u>	<u>Remaining Acre Limit</u>	<u>Remaining Total Acres</u>
47-17509	47-17509	0.04 cfs	14.6 af	N/A	N/A		N/A	N/A	N/A	N/A
47-17568	47-17572	0.22 cfs	32.9 af	N/A	N/A	47-17571	1.51 cfs	384.9 af	N/A	128.3
COMBINED										
TOTALS		0.26 cfs	47.5 af	N/A	N/A		N/A	N/A	N/A	N/A

Detailed Water Right Description(s) attached

Dated this 13th day of March, 2012

SUPPORT DATA

IN FILE # 47-17509


Southern Region Manager

WATER RIGHT NO. 47-17571
As Modified by Transfer No. 77669

In accordance with the approval of Transfer No. 77669, Water Right No. 47-17571 is now described as follows.

Right Holder: THOMAS Or DOROTHY LENO
4236 N 1900 E
BUHL ID 83316

Priority Date: December 25, 1970

Source: GROUND WATER

<u>BENEFICIAL USE</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	04/01	to 11/01	1.51 CFS	384.9 AF
			1.51 CFS	384.9 AF

LOCATION OF POINT(S) OF DIVERSION:
GROUND WATER NWSWSW Sec. 20 Twp 16S Rge 16E TWIN FALLS
County

PLACE OF USE: IRRIGATION

[illegible]

Total Acres: 128.3

CONDITIONS OF APPROVAL

1. This right when combined with all other rights shall provide no more than 0.02 cfs per acre nor more than 3.0 afa per acre at the field headgate for irrigation of the lands below.
2. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

This water right is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources.

Dated this 13th day of March, 2012

Southern Region Manager

WATER RIGHT NO. 47-17572

As Modified by Transfer No. 77669

In accordance with the approval of Transfer No. 77669, Water Right No. 47-17572 is now described as follows.

Right Holder: THOMAS Or DOROTHY LENO
4236 N 1900 E
BUHL ID 83316

Priority Date: December 25, 1970

Source: GROUND WATER

<u>BENEFICIAL USE</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
STOCKWATER	01/01	to 12/31	0.22 CFS	32.9 AF
COMMERCIAL	01/01	to 12/31	0.22 CFS	32.9 AF
			0.22 CFS	32.9 AF

LOCATION OF POINT(S) OF DIVERSION:
GROUND WATER SESENW Sec. 9 Twp 12S Rge 16E TWIN FALLS
County

PLACE OF USE: STOCKWATER

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
12S	16E	4					X			X			X						
							L3												
12S	16E	9		X	X		X	X	X	X			X			X	X		

PLACE OF USE: COMMERCIAL

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
12S	16E	4					X			X			X						
							L 3												
12S	16E	9		X	X		X	X	X	X				X		X	X		

WATER RIGHT NO. 47-17572

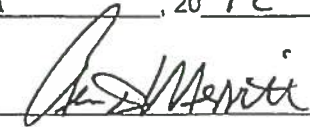
As Modified by Transfer No. 77669

CONDITIONS OF APPROVAL

1. Rights 47-17509 and 47-17572 when combined shall not exceed a total diversion rate of 0.26 cfs and a total annual maximum diversion volume of 47.5 af.
2. After specific notification by the Department, the right holder shall install a suitable measuring device or shall enter into an agreement with the Department to use power records to determine the amount of water diverted and shall annually report the information to the Department.
3. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable county zoning and use ordinances.
4. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable water quality permitting requirements administered by the Department of Environmental Quality or the Department of Agriculture.
5. The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
6. Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
7. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

This water right is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources.

Dated this 13th day of March, 20 12



Southern Region Manager

Right Holder: THOMAS Or DOROTHY LENO
4236 N 1900 E
BUHL ID 83316

Tributary: SHOSHONE CREEK

<u>From</u>	<u>To</u>	<u>Volume</u>
01/01 to 12/31		24.8 AF
03/15 to 11/15		24.8 AF
		24.8 AF

MULE CREEK SESWSW Sec. 17 Twp 16S Rge 16E TWIN FALLS
County

Twp Rge Sec			NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
16S	16E	20											40.0	12.0					52.0
16S	16E	29					28.0	32.3	1.0	15.0									76.3

1. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.
2. The approval of this transfer redefines all of the elements of this water right, and the new use of water authorized by this approval shall constitute the full extent of the right.

Dated this 13th day of March, 20 12

Southern Region Manager

WATER RIGHT NO. 47-14285

As Modified by Transfer No. 77669

In accordance with the approval of Transfer No. 77669, Water Right No. 47-14285 is now described as follows.

Right Holder: THOMAS Or DOROTHY LENO
4236 N 1900 E
BUHL ID 83316

Priority Date: December 31, 1969

Source: MULE CREEK

Tributary: SHOSHONE CREEK

BENEFICIAL USE

From To
04/01 to 10/31

Diversion Rate

3.91 CFS
3.91 CFS

LOCATION OF POINT(S) OF DIVERSION:

MULE CREEK SESWSW Sec. 17 Twp 16S Rge 16E TWIN FALLS
County

MULE CREEK SESWSW Sec. 17 Twp 16S Rge 16E TWIN FALLS
County

(Injection)

MULE CREEK NESWNW Sec. 20 Twp 16S Rge 16E TWIN FALLS
County

(Rediversion)

PLACE OF USE: IRRIGATION

Twp Rge Sec			NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
16S	16E	20											37.0	6.0					43.0
16S	16E	29					24.0	32.3	21.0	29.0	12.0	34.0							152.3

Total Acres: 195.3

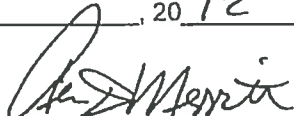
WATER RIGHT NO. 47-14285
As Modified by Transfer No. 77669

CONDITIONS OF APPROVAL

1. Right includes accomplished change in point of diversion pursuant to Section 42-1425, Idaho Code.
2. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.
3. This right when combined with all other rights shall provide no more than 0.02 cfs per acre for irrigation of the place of use.
4. The approval of this transfer redefines all of the elements of this water right, and the new use of water authorized by this approval shall constitute the full extent of the right.

This water right is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources.

Dated this 13th day of March, 2012



Southern Region Manager

WATER RIGHT NO. 47-17509
As Modified by Transfer No. 77669

In accordance with the approval of Transfer No. 77669, Water Right No. 47-17509 is now described as follows.

Right Holder: C E BRACKETT CATTLE CO
PO BOX 111
ROGERSON ID 83302

Priority Date: June 30, 1959

Source: GROUND WATER

<u>BENEFICIAL USE</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
STOCKWATER	01/01	to 12/31	0.04 CFS	13.4 AF
DOMESTIC	01/01	to 12/31	0.04 CFS	1.2 AF
			0.04 CFS	14.6 AF

LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER SESENW Sec. 9 Twp 12S Rge 16E TWIN FALLS
County

PLACE OF USE: STOCKWATER

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
12S	16E	4					X			X			X	X					
12S	16E	9		X	X		X	X	X	X					X	X			

PLACE OF USE: DOMESTIC

[illegible]

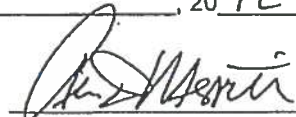
WATER RIGHT NO. 47-17509
As Modified by Transfer No. 77669

CONDITIONS OF APPROVAL

1. The quantity of water under this right shall not exceed 13,000 gallons per day.
2. Rights 47-17509 and 47-17572 when combined shall not exceed a total diversion rate of 0.26 cfs and a total annual maximum diversion volume of 47.5 af.
3. Domestic use is for 1 home.
4. After specific notification by the Department, the right holder shall install a suitable measuring device or shall enter into an agreement with the Department to use power records to determine the amount of water diverted and shall annually report the information to the Department.
5. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable county zoning and use ordinances.
6. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable water quality permitting requirements administered by the Department of Environmental Quality or the Department of Agriculture.
7. The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
8. Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
9. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

This water right is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources.

Dated this 13th day of March, 20 12



Southern Region Manager

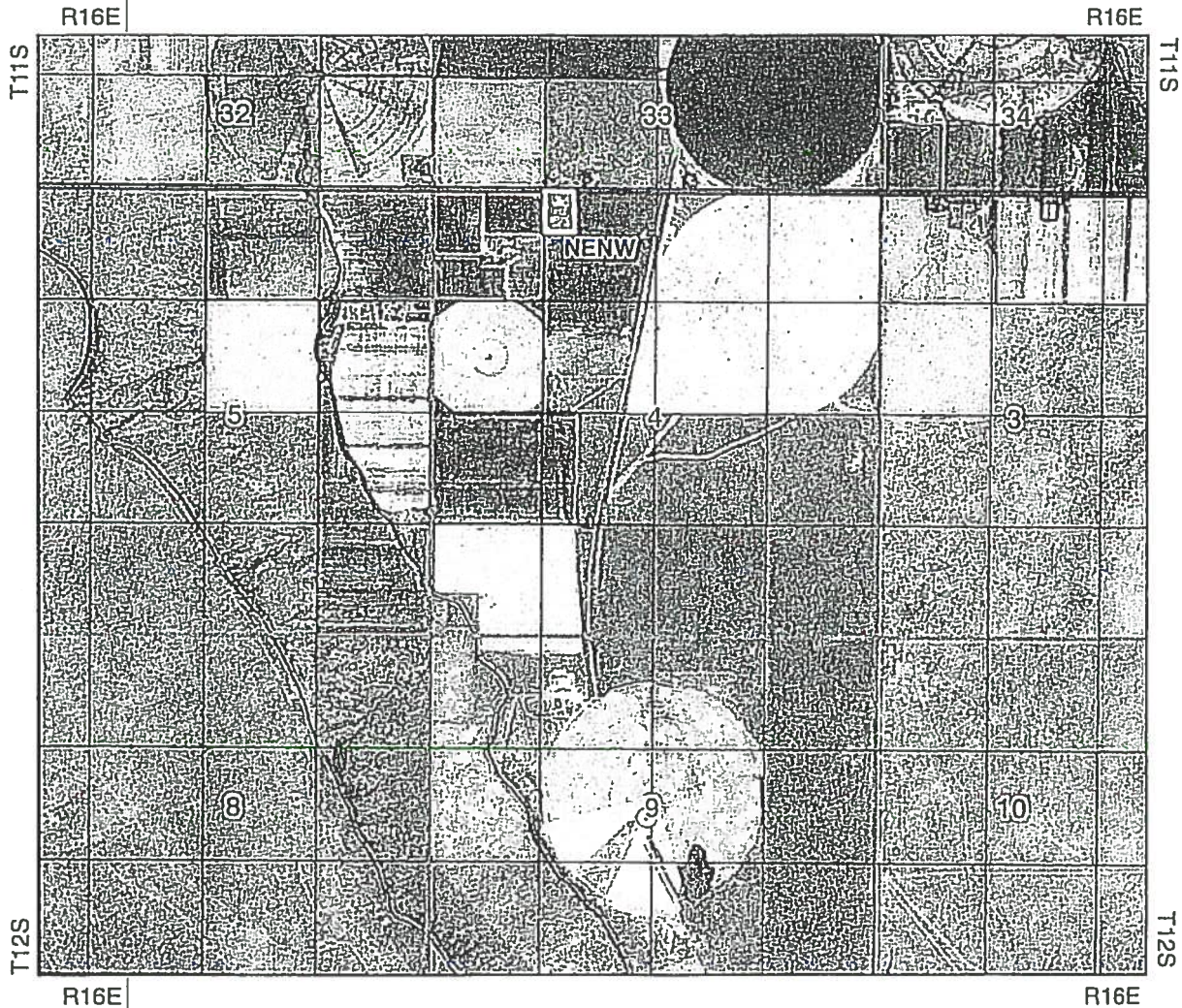
State of Idaho
Department of Water Resources

Attachment To Transfer Of Water Right

Transfer No. 77669

Rights: 47-17509

This map depicts the DOMESTIC place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



0 0.25 0.5 1 Miles

- ⊙ Point of Diversion
- Place Of Use Boundary

- ▭ Townships
- ▭ PLS Sections
- ▭ Quarter Quarters



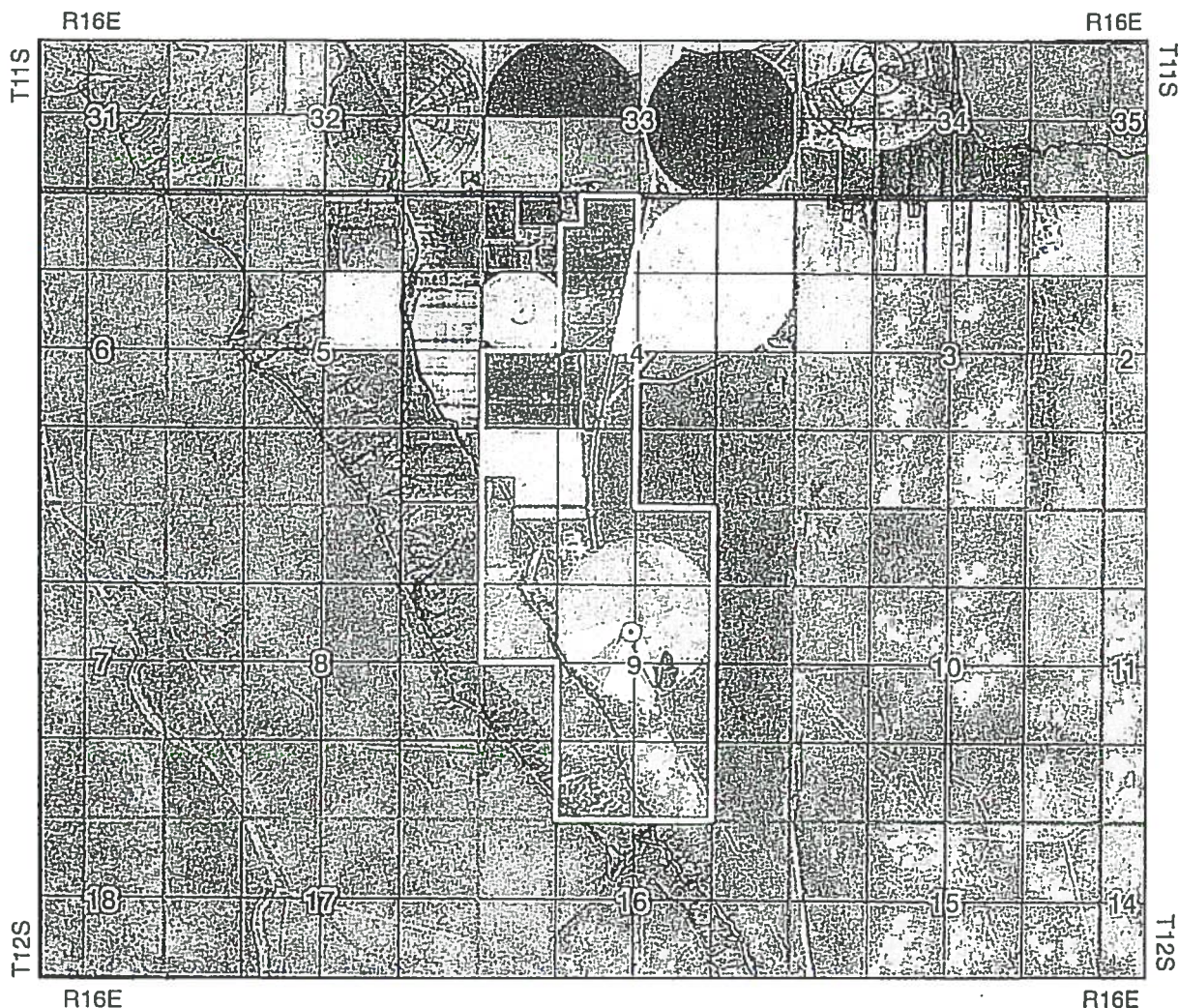
State of Idaho
Department of Water Resources

Attachment To Transfer Of Water Right

Transfer No. 77669

Rights: 47-17509, 47-17572

This map depicts the STOCKWATER & COMMERCIAL place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



0 0.35 0.7 1.4 Miles

- ⊙ Point of Diversion
- Place Of Use Boundary
- ▭ Townships
- ▭ PLS Sections
- ▭ Quarter Quarters



MEMORANDUM

Date: December 5, 2012
To: Transfer 78127 File
From: Corey Skinner
Re: Evaluation of Sufficiency of Information Submitted

Application proposes transferring a 25.8 acre (0.30 cfs & 48.2 afa) portion of a groundwater irrigation right, 47-17571, from a farm located approximately 14.5 miles south and 1.0 mile west of Rogerson to stockwater and commercial uses associated with a dairy facility located approximately 1.4-1.7 miles south and 5.2-5.6 miles west of Buhl. The application also proposes to modify the authorized place of use of the existing domestic and stockwater right, 47-8251, (0.11 cfs & 16.9 afa) at the site of the dairy facility to reflect the entire proposed site of the dairy facility. Two existing wells at the dairy facility will be used to divert up to a total of 0.41 cfs and 65.1 afa of water. Note that the place of use of groundwater right 47-17571 overlaps the place of use of two Mule Creek Rights, 47-7287 and 47-14285. The application includes a detailed supplemental analysis of the past use of right 47-17571. This analysis indicates that for each acre of right 47-17571 that is transferred, 1.87 AFA of consumptive use would be available to be transferred. The application also includes a relinquishment form signed by the current owner of right 47-14285 relinquishing a 25.8 acre portion of right 47-14285. In addition, the application also includes a signed statement reducing the authorized place of use of right 47-7287 by 25.8 acres. However, note that the 47-7287 statement proposes to retain the full amount (actually a rather small amount) of irrigation storage volume and irrigation from storage volume authorized by right 47-7287. Note that rights 47-17571, 47-7287, and 47-14285, in the name of Thomas or Dorothy Leno, resulted from previous similar approved transfers # 77406 (approved 11/1/2011) and # 77669 (approved 3/13/2012).

- **Authority to File:**

The application includes purchase and sale documents that give the applicant (Idaho Water Company) authority to file a transfer involving right 47-17571. Documents signed by the current owner address overlapping rights 47-7287 and 47-14285. Note that the 25.8 acres are described by three separate purchase and sale documents from Leno to Idaho Water Company. A 10/8/2011 agreement describes 10 acres, a 4/6/2011 agreement describes 17 acres, and an 8/14/2012 agreement describes 25.5 acres. These three agreements describe a total of 52.5 total acres. Of these 52.5 total acres, 26.7 acres were transferred away via approved transfer # 77406 (9.1 acres) and transfer # 77669 (17.6 acres) leaving 25.8 acres available for this transfer (#78127). An authorization form signed by the current owner (Farmers National Bank) of right 47-8251 authorizes the applicant to modify right 47-8251 via the transfer. Note that the ownership of right 47-8251 is also being updated in this transfer (based on enclosed Certificate of Sale/Sheriff Sale) to Farmers National Bank.

- **Water Right Validity:**
All the rights involved with the transfer were decreed in the SRBA in 2010 or 2011.
- **Injury to Other Water Rights:**
The current point of diversion for right 47-17571 and the proposed points of diversion at the dairy facility are located approximately 41 miles away from each other. However, both locations are located within IDWR administrative basin 47. In addition, the application includes copies of published reports relating to studies of the groundwater within the Salmon Falls Creek Basin in an attempt to show the interconnection of the aquifer between the current point of diversion for right 47-17571 and the dairy site. In addition, IDWR has approved a couple of transfers # 77406 (approved 11/1/2011) and # 77669 (approved 3/13/2012) involving these same rights, with transfer # 77406 moving the Leno groundwater right to the Buhl area.
- **Enlargement of Use:**
None anticipated. Conversion from irrigation to stock water and commercial use (based on consumptive use of irrigation right) will result in a net decrease in the allowable annual diversion volume.
- **Local Public Interest:**
No issues anticipated. The application has been subject to public notice and protest with no protests received.
- **Beneficial Use/Conservation of Water Resources:**
Proposed uses are recognized as beneficial uses of water.

Review of the application finds there is no clear inconsistency with criteria set forth in Section 42-222 Idaho Code preventing processing of this application.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
TRANSFER OF WATER RIGHT
TRANSFER NO. 78127

This is to certify that: IDAHO WATER CO LLC
1135 VALLEY RD S
EDEN ID 83325
(208) 312-1135

has requested a change to the water right(s) listed below. This change in water right(s) is authorized pursuant to the provisions of Section 42-222, Idaho Code. A summary of the changes is also listed below. The authorized change for each affected water right, including conditions of approval, is shown on the following pages of this document.

Summary of Water Rights Before the Proposed Change

<u>Right</u>	<u>Origin/Basis</u>	<u>Priority</u>	<u>Rate</u>	<u>Volume</u>	<u>Acre Limit</u>	<u>Total Acres</u>	<u>Source</u>
47-8251	WR/License	09/04/1990	0.11 cfs	16.9 af	N/A	N/A	GROUND WATER
47-17571	WR/Decreed	12/25/1970	1.51 cfs	384.9 af	N/A	128.3	GROUND WATER

Associated Water Rights Included in Transfer Approval (POU Reduction and Conditions Updated)

<u>Right</u>	<u>Origin/Basis</u>	<u>Priority</u>	<u>Rate</u>	<u>Volume</u>	<u>Acre Limit</u>	<u>Total Acres</u>	<u>Source</u>
47-7287	WR/Decreed	11/04/1974	N/A	24.8 af	N/A	128.3	MULE CREEK
47-14285	WR/Decreed	12/31/1969	3.91 cfs	N/A	N/A	195.3	MULE CREEK

Purpose of Transfer (Changes Proposed)

<u>Current Number</u>	<u>Split</u>	<u>POD</u>	<u>POU</u>	<u>Add POD</u>	<u>Period of Use</u>	<u>Nature of Use</u>
47-8251	NO	NO	YES	YES	NO	NO
47-17571	YES	YES	YES	NO	YES	YES

Summary of Water Rights After the Approved Change

<u>Existing Right</u>	<u>New No. (changed portion)</u>	<u>Transfer Rate</u>	<u>Transfer Volume</u>	<u>Acre Limit</u>	<u>Total Acres</u>	<u>New No. (remaining portion)</u>	<u>Remaining Rate</u>	<u>Remaining Volume</u>	<u>Remaining Acre Limit</u>	<u>Remaining Total Acres</u>
47-8251	47-8251	0.11 cfs	16.9 af	N/A	N/A		N/A	N/A	N/A	N/A
47-17571	47-17590	0.30 cfs	48.2 af	N/A	N/A	47-17589	1.21 cfs	307.5 af	N/A	102.5
COMBINED TOTALS		0.41 cfs	65.1 af	N/A	N/A		N/A	N/A	N/A	N/A

Detailed Water Right Description(s) attached

Dated this 6th day of December, 2012

SUPPORT DATA

IN FILE # 47-8251


Southern Region Manager

SCANNED

DEC 11 2012

WATER RIGHT NO. 47-8251
As Modified by Transfer No. 78127

In accordance with the approval of Transfer No. 78127, Water Right No. 47-8251 is now described as follows.

Right Holder: FARMERS NATIONAL BANK
914 MAIN STREET
BUHL ID 83316

Priority Date: September 04, 1990

Source: GROUND WATER

<u>BENEFICIAL USE</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
STOCKWATER	01/01	to 12/31	0.10 CFS	16.0 AF
COMMERCIAL	01/01	to 12/31	0.01 CFS	0.9 AF
			0.11 CFS	16.9 AF

LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER L1 (NWNW) Sec. 7 Twp 10S Rge 14E TWIN FALLS
County

GROUND WATER L1 (NWNW) Sec. 7 Twp 10S Rge 14E TWIN FALLS
County

PLACE OF USE: STOCKWATER

[illegible]

PLACE OF USE: COMMERCIAL

[illegible]

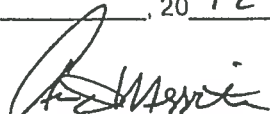
WATER RIGHT NO. 47-8251
As Modified by Transfer No. 78127

CONDITIONS OF APPROVAL

1. Rights 47-8251 and 47-17590 when combined shall not exceed a total diversion rate of 0.41 cfs or a total annual maximum diversion volume of 65.1 af.
2. After specific notification by the Department, the right holder shall install a suitable measuring device or shall enter into an agreement with the Department to use power records to determine the amount of water diverted and shall annually report the information to the Department.
3. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable county zoning and use ordinances.
4. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable water quality permitting requirements administered by the Department of Environmental Quality or the Department of Agriculture.
5. The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
6. Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.

This water right is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources.

Dated this 6th day of December, 2012



Southern Region Manager

WATER RIGHT NO. 47-17589
As Modified by Transfer No. 78127

In accordance with the approval of Transfer No. 78127, Water Right No. 47-17589 is now described as follows.

Right Holder: THOMAS Or DOROTHY LENO
4236 N 1900 E
BUHL ID 83316

Priority Date: December 25, 1970

Source: GROUND WATER

<u>BENEFICIAL USE</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	04/01	to 11/01	1.21 CFS	307.5 AF
			1.21 CFS	307.5 AF

LOCATION OF POINT(S) OF DIVERSION:

GROUND WATER NWSWSW Sec. 20 Twp 16S Rge 16E TWIN FALLS
County

PLACE OF USE: IRRIGATION

[illegible]

Total Acres: 102.5

CONDITIONS OF APPROVAL

1. This right when combined with all other rights shall provide no more than 0.02 cfs per acre nor more than 3.0 afa per acre at the field headgate for irrigation of the lands below.
2. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

This water right is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources.

Dated this 6th day of December, 20 12

Southern Region Manager

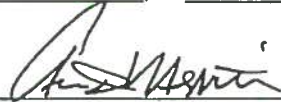
WATER RIGHT NO. 47-17590
As Modified by Transfer No. 78127

CONDITIONS OF APPROVAL

1. Rights 47-8251 and 47-17590 when combined shall not exceed a total diversion rate of 0.41 cfs or a total annual maximum diversion volume of 65.1 af.
2. After specific notification by the Department, the right holder shall install a suitable measuring device or shall enter into an agreement with the Department to use power records to determine the amount of water diverted and shall annually report the information to the Department.
3. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable county zoning and use ordinances.
4. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable water quality permitting requirements administered by the Department of Environmental Quality or the Department of Agriculture.
5. The right holder shall accomplish the change authorized by this transfer within one year of the date of this approval.
6. Failure of the right holder to comply with the conditions of this transfer is cause for the Director to rescind approval of the transfer.
7. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

This water right is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources.

Dated this 6th day of December, 2012



Southern Region Manager


Southern Region Manager

WATER RIGHT NO. 47-14285
As Modified by Transfer No. 78127

In accordance with the approval of Transfer No. 78127, Water Right No. 47-14285 is now described as follows.

Right Holder: THOMAS Or DOROTHY LENO
4236 N 1900 E
BUHL ID 83316

Priority Date: December 31, 1969

Source: MULE CREEK

Tributary: SHOSHONE CREEK

<u>BENEFICIAL USE</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>
IRRIGATION	04/01	to 10/31	3.39 CFS
			3.39 CFS

LOCATION OF POINT(S) OF DIVERSION:

MULE CREEK SESWSW Sec. 17 Twp 16S Rge 16E TWIN FALLS
County

MULE CREEK SESWSW Sec. 17 Twp 16S Rge 16E TWIN FALLS
County

(Injection)

MULE CREEK NESWNW Sec. 20 Twp 16S Rge 16E TWIN FALLS
County

(Rediversion)

PLACE OF USE: IRRIGATION

Twp Rge Sec			NE				NW				SW				SE				Totals
			<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	<u>NE</u>	<u>NW</u>	<u>SW</u>	<u>SE</u>	
16S	16E	20											37.0	6.0					43.0
16S	16E	29					24.0	22.5	20.0	14.0	12.0	34.0							126.5

Total Acres: 169.5

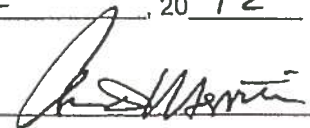
WATER RIGHT NO. 47-14285
As Modified by Transfer No. 78127

CONDITIONS OF APPROVAL

1. The approval of this transfer redefines all of the elements of this water right, and the new use of water authorized by this approval shall constitute the full extent of the right.
2. Right includes accomplished change in point of diversion pursuant to Section 42-1425, Idaho Code.
3. This right when combined with all other rights shall provide no more than 0.02 cfs per acre for irrigation of the place of use.
4. Pursuant to Section 42-1412(6), Idaho Code, this water right is subject to such general provisions necessary for the definition of the rights or for the efficient administration of water rights as may be determined by the Snake River Basin Adjudication court at a point in time no later than the entry of the final unified decree.

This water right is subject to all prior water rights and shall be administered in accordance with Idaho law and applicable rules of the Department of Water Resources.

Dated this 6th day of December, 2012



Southern Region Manager

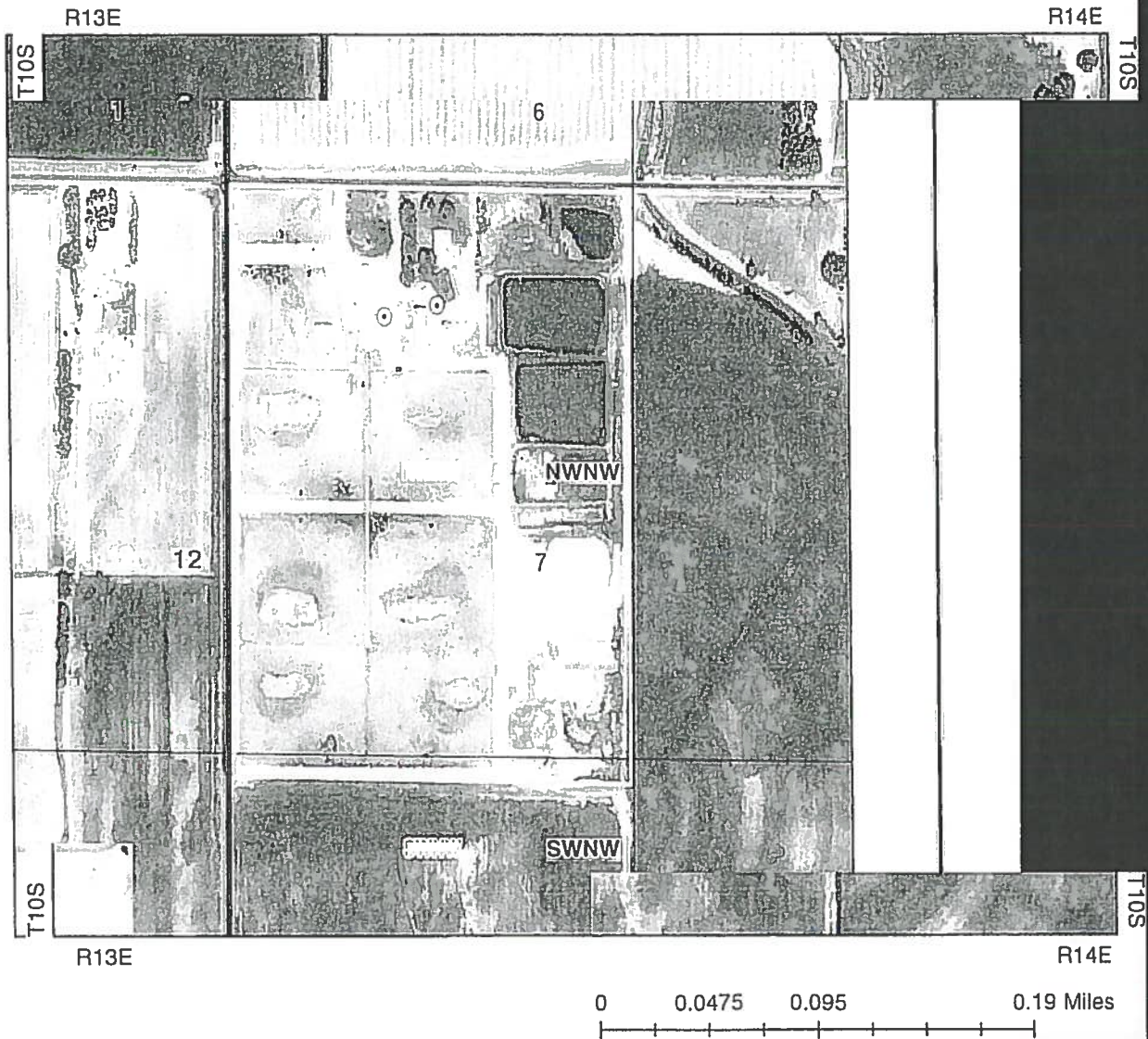
State of Idaho
Department of Water Resources

Attachment To Transfer Of Water Right

Transfer No. 78127

Rights: 47-8251, 47-17590

This map depicts the COMMERCIAL & STOCKWATER place of use boundary for these water rights at the time of this approval and is attached to the approval document solely for illustrative purposes.



-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters



State of Idaho
Department of Water Resources

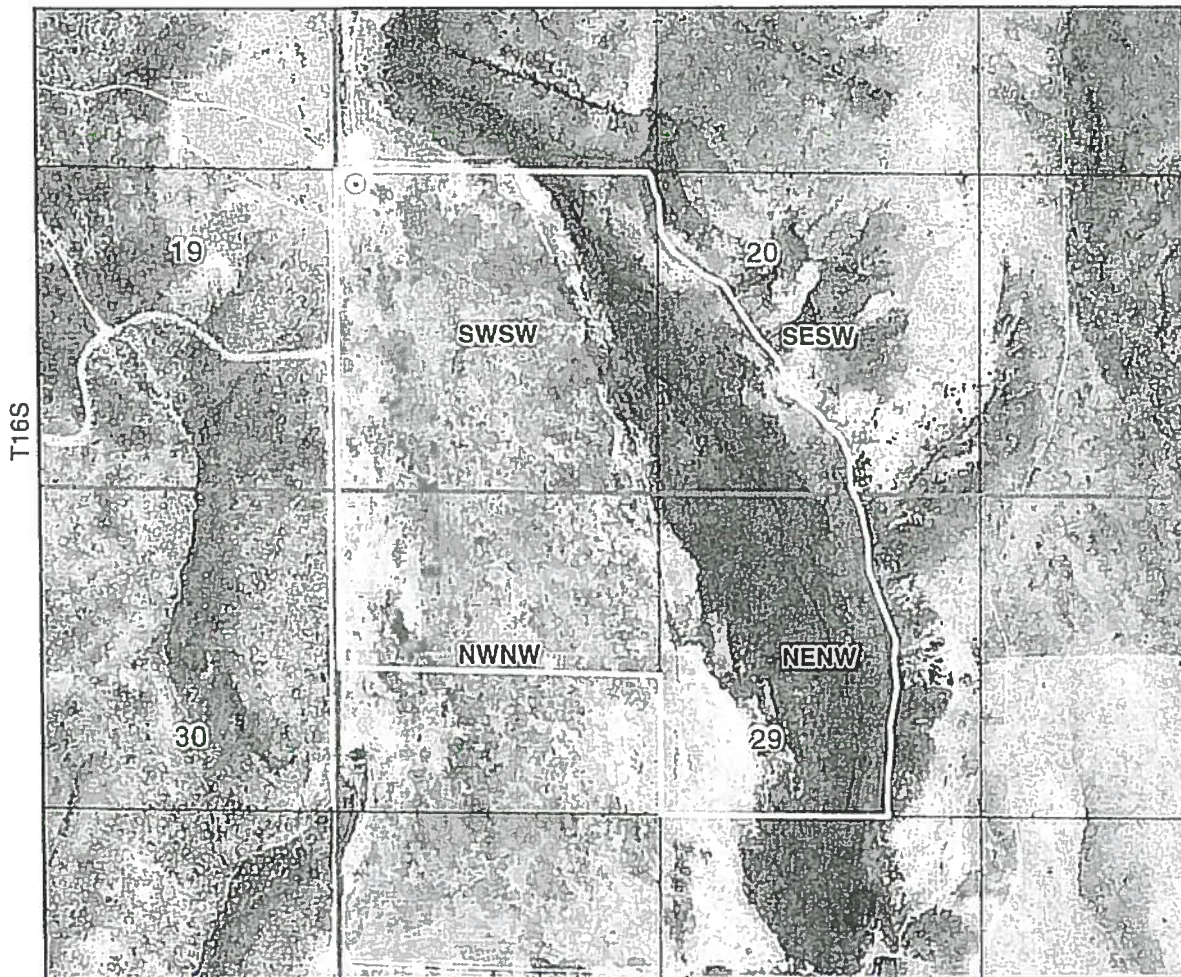
Attachment To Transfer Of Water Right

Transfer No. 78127

Rights: 47-17589

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.

R16E



0 0.075 0.15 0.3 Miles

-  Point of Diversion
-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters



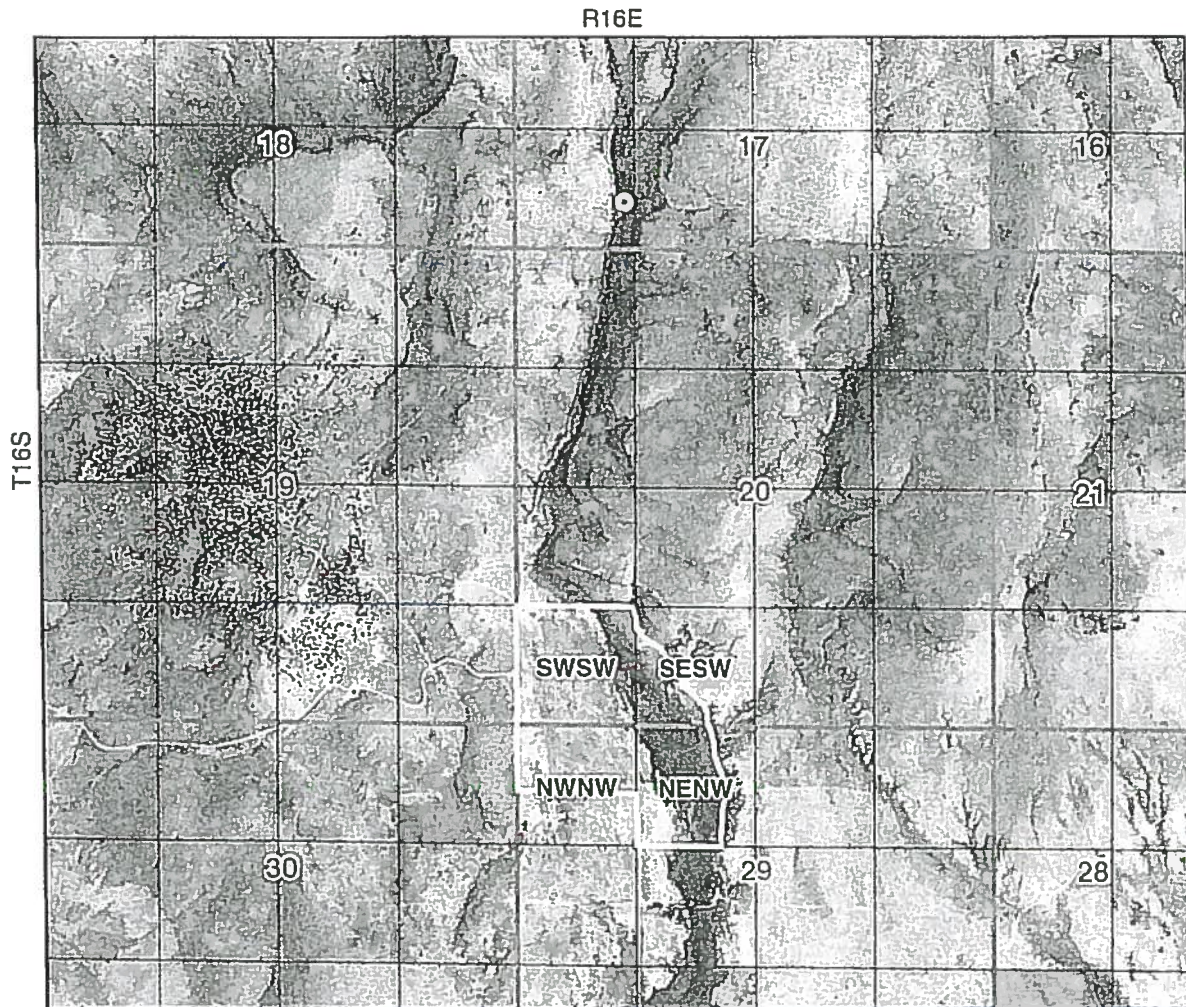
State of Idaho
Department of Water Resources

Attachment To Transfer Of Water Right

Transfer No. 78127

Rights: 47-7287

This map depicts the IRRIGATION FROM STORAGE place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



0 0.25 0.5 1 Miles

- Point of Diversion
- Place Of Use Boundary

- Townships
- PLS Sections
- Quarter Quarters



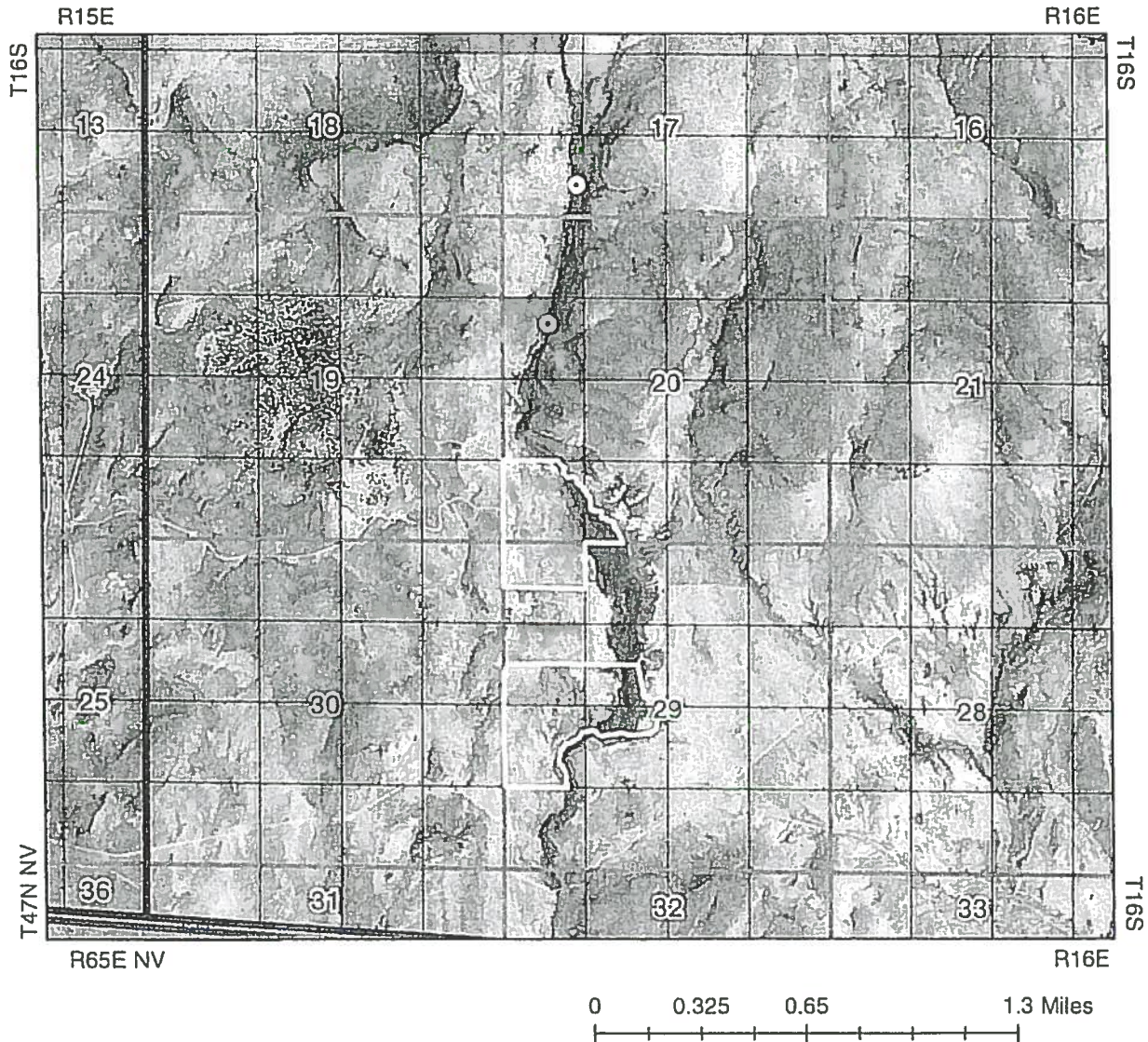
State of Idaho
Department of Water Resources

Attachment To Transfer Of Water Right

Transfer No. 78127

Rights: 47-14285

This map depicts the IRRIGATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



- Point of Diversion
- Place Of Use Boundary

- Townships
- PLS Sections
- Quarter Quarters

Appendix D:

Historical Water Use Analysis on Parent Water Right 47-7106

Thomas Leno
Diesel Powered Pump Analysis
Brockway Engineering
GWS

Irrigated Acres	155	
Volume	465	
Engine HP	111	
Efficiency of Engine	40%	
Pump Efficiency	75%	
Water Pumping Depth	100	Based on well log
Irrigation Pressure	50 psi	
Irrigation Pressure Head	115	
Total Required Head	215	
γ	62.42	
BTU/gal Diesel	138700	http://www.doi.gov/pam/enerplan.html
1 HP =	2545	BTU/hr
Irrigation Efficiency	75%	
Primary Ground Water	94%	

Date	Diesel (gal)	Monthly Average	Average	gal diesel/hr
8/21/1999	986.1			
5/23/2000	1501.4	1524		
6/20/2000	1439.3		1488	2.07
7/12/2000	1631.4			
5/12/2001	1538.7	1452		
6/7/2001	1300.8			
7/12/2001	1515.5			
7/10/2002	1675.3			
8/6/2002	1900			
7/14/2003	1687			
9/8/2003	841			

Theoretical Calculation				Actual Calculation					
gal diesel/hr	HP ¹	Shaft HP ²	CFS water/gal diesel ³	CFS ⁴	AF/day ⁵	Days/month	months	AFA ⁶	Acre-Feet ⁷
1	54.50	21.80	0.67	1.38	2.74	30	5	411	1.99

Irrigation to S/C	Consumptive AFA ⁸	Primary AFA ⁹	Acre-Feet ¹⁰
	308	290	1.87

Primary Acres @ 3.0 ft/acre	Primary Acres @ 4.0 ft/acre	Supplimental Acres @ 3.0 ft/acre	Supplimental Acres @ 4.0 ft/acre
145.7	109.3	9.3	7.0

- ¹ (gallon diesel/hr)*(BTU/gal diesel)/(1 HP)
- ² HP*Efficiency of Engine
- ³ Shaft HP*550/((γ *Total Required Head)*Pump Efficiency)
- ⁴ (CFS water/gal diesel)*(2.07 gal diesel/hr)
- ⁵ CFS*1.98347
- ⁶ (AF/day)*(Days/month)*months
- ⁷ (AFA*Irrigation Efficiency)/(Irrigated Acres)
- ⁸ AFA*Irrigation Efficiency
- ⁹ Consumptive AFA* % Primary Ground Water
- ¹⁰ Primary AFA/Irrigated Acres
- ¹¹ Irrigated Acres*Primary Ground Water
- ¹² Irrigated Acres*Primary Ground Water/(4 acre-feet)
- ¹³ Irrigated Acres-Primary Acres
- ¹⁴ (Supplimental acres*3.0 ft/acre)/(4 acre-feet)

Appendix E:



Memo

To: Hank Hafliger
From: Amy Runser
Cc:
Date: 12/10/2014
Re: Static Water Levels in the Aquifer Analysis

Two handwritten signatures are present. The first signature is on the left, and the second signature is on the right, appearing to be 'Runser'.

Contours generated were based on the National Elevation Data (NED), 10 meter 1999 elevation data. The National Elevation Data is the best available information for the area south of Filer, Idaho at this time that we know of. The NED data represents the ground surface.

Static water elevations were obtained by examining local well logs from wells that were drilled after 2000. The well drillers recorded the static water level in the wells when the drilling process was constructed.

The static water level contours of the aquifer were calculated by subtracting the depth of the static water level for an individual well from the elevation provided by the 1999 NED data.

The static water depth from the surface contours were calculated by subtracting the calculated static water level elevations from the surface elevation provided by the 1999 NED data. This procedure allows the static water elevation from individual wells to be analyzed based on elevation and not sole on depth from the ground surface.

Reference: National Elevation Dataset by United States Geological Survey, EROS data center, 1999

HAFUGER, HANK
WELLS ANALYSIS
BROCKWAY ENGINEERING, PLLC
12/10/2014

well #	MetalTag #	Construction		Owner	AppType	WellUse	Measurement							Production	SWL	Casing Diam	Casing Depth	Total Depth
		Date					T.	R.	Sec.	QQQ	QQ	Quarter	Date					
114	D0065005	10/14/2013	KIMBERLY CONSTRUCTION	Domestic	10S 15E 36	11S 15E 1	SE	NW	20.0	250	6	38	343					
113	D0062362	6/26/2013	DARREN DAUGHENBAUGH	Domestic	11S 15E 1	SE	NW	0.0	283	6	40	380						
112	D0060495	4/10/2012	TONY MARTINS	Domestic	10S 15E 36	SE	SW	30.0	294	6	279	360						
111	D0060420	5/16/2011	JEFF SKINNER	Domestic	11S 15E 1	NW	NE	0.0	260	6	38	380						
110	D0050798	7/10/2009	LEE BAKER	Domestic	10S 16E 32	SE	SW	40.0	227	6	375	375						
107	D0050472	10/7/2008	GREG SCOTT	Domestic	11S 16E 16	SW	NE	0.0	243	6	18	450						
104	D0050334	7/15/2008	DRAGT CONSTRUCTION	Domestic	10S 16E 32	SW	NW	0.0	212	6	19	284						
101	D0044496	6/25/2007	K2 RED	Domestic	10S 16E 32	SW	NW	0.0	212	6	18	295						
100	D0043538	4/9/2007	JAMES RAY CONSTRUCTION	Domestic	11S 16E 17	SW	SE	0.0	307	6	280	530						
99	D0043358	3/26/2007	TERRY HUMPHREY	Domestic	11S 15E 1	NW	NW	24.0	264	6	292	380						
98	D0043357	3/19/2007	GARY HOOLEY	Domestic	10S 16E 32	SE	NE	25.0	60	6	40	240						
97	D0037159	2/9/2006	TRACO BUILDERS	Domestic	10S 15E 36	SE	SE	0.0	260	6	18	360						
95	D0036839	12/21/2005	LYNN WILLIAMSON	Domestic	11S 16E 16	NE	NW	0.0	235	6	19	455						
93	D0037064	11/21/2005	DAVE SLOTTEN	Domestic	10S 15E 35	SE	SE	0.0	248	6	18	355						
94	D0037096	11/21/2005	JACK WHITE	Domestic	10S 15E 35	SE	NE	0.0	198	6	18	305						
92		4/22/2005	WAYNE LINCOLN	Domestic	10S 16E 32	NW	NE	NW	0.0	0	4	0						
91	D0034682	3/29/2005	WAYNE LINCOLN	Domestic	10S 16E 32	NW	NE	NW	0.0	182	6	19	240					
82	D0034694	2/18/2005	HANK HAFUGER	Commercial	11S 16E 6	SE	NE	0.0	262	8	0	450						
83	D0034700	2/17/2005	HANK HAFUGER	Domestic	11S 16E 6	NW	NE	0.0	282	6	0	424						
81	D0034693	2/16/2005	HANK HAFUGER	Commercial	11S 16E 6	SE	NE	0.0	262	6	0	448						
79	D0034502	1/18/2005	TYSON COOK	Domestic	11S 16E 16	NW	SW	0.0	236	6	319	370						
60	D0023640	5/15/2003	BRIAN TUBBS	Domestic	11S 15E 1	SE	SE	0.0	280	8	338	405						
58	D0016383	6/14/2001	DAVID HIGBEE		11S 15E 1	SE	NW	0.0	287	8	405	405						
57	D0016377	6/12/2001	HANK HAFUGER		11S 16E 6	NW	NW	0.0	280	8	19	345						
56	D0008627	1/21/2000	ERIC CLAR	Domestic	11S 16E 17	NW	NW	40.0	256	8	19	460						
		5/16/1957	Hank Hafliager	Irrigation	11S 16E 6	NW	SE	5/19/2014	290	20			975					
			Dairy #3 (Hafliager)	Stock/Commercial	11S 16E 6	SE	NE	1/15/2014	288									
			Hank Hafliager	Domestic	11S 16E 8	SW	SW	10/7/2014	247	8								
			Dairy #2 (Hafliager)	Stock/Commercial	11S 16E 5	NE	SE	3/1/2014	232									
			Dairy #1 (Hafliager)	Stock/Commercial	11S 16E 4	SW	SW	4/10/2014	271									

Well #	Protestant	Estimated Depth to Water (feet)
1	Elizabeth B. Slifer	no estimation
2	Margaret Winsryg	250-260
3	Martin F Hackard	250-260
4	Scott R Houtz	250-260
5	Richard Parrott and Eric Parrott	270-280
6	Pam Ritter	250-260
7	Louis m Rice	250-260
8	Victoria B Henson	
9	Jeanie McCreary	250-260
10	William D Hamby	no estimation
11	Lynn & Barbara Stephens	240-250
12	Leslie Ellsworth	no estimation
13	Ed Smith	no estimation
14	Mike Humphries	no estimation
15	Jimmie LeConder	no estimation
16	Delea C Miller	250-260

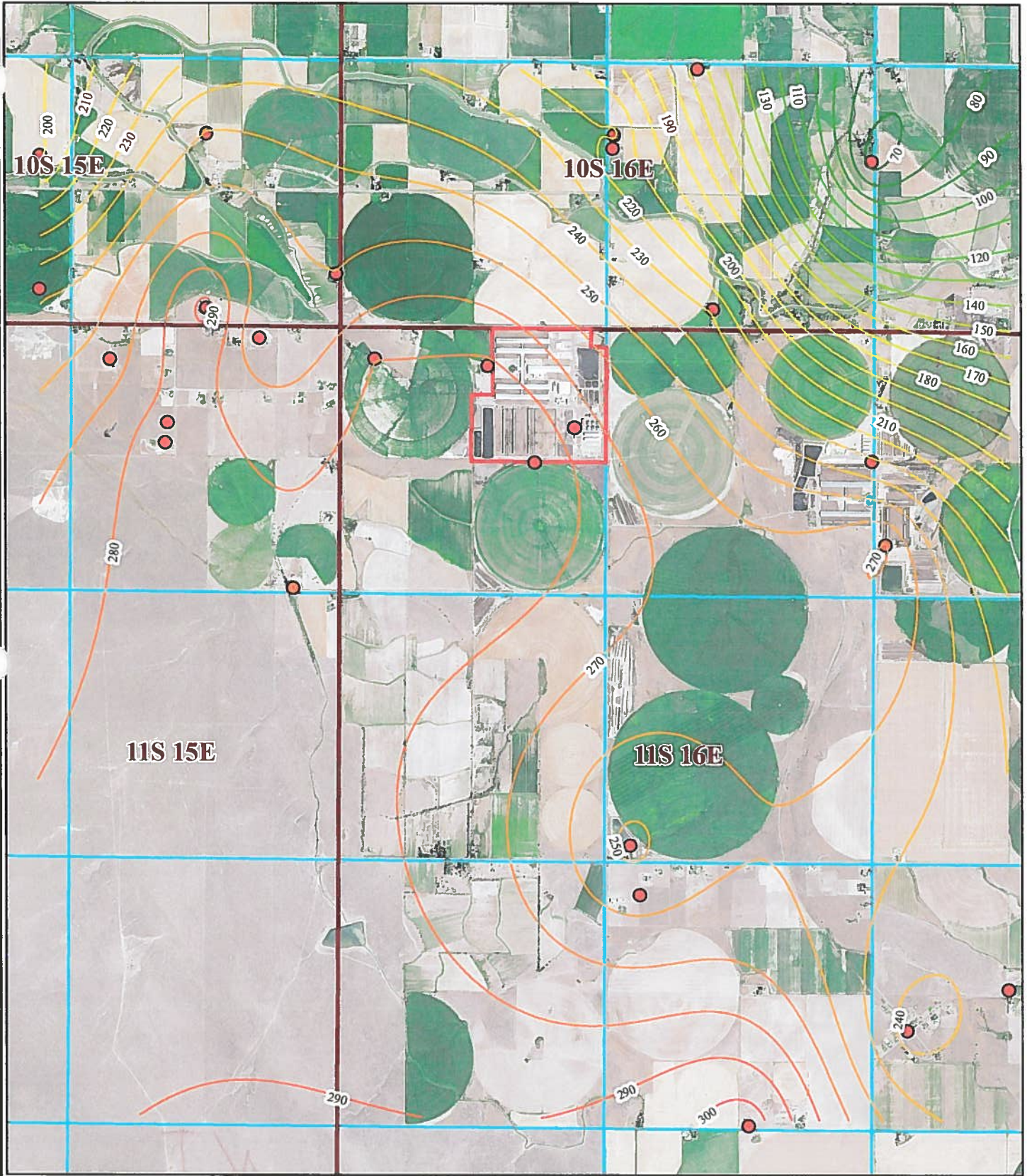
Well #	Protestant	Well Driller Log Static Water Level and Year of Log	Static Water Level Provided by Protestant and Year of Measurment
1	Elizabeth B. Slifer	no well log	none
2	Margaret Winsryg	256 (2000)	257 (2014)
3	Martin F Hackard	260 (1996)	none
		290 (2002)	none
4	Scott R Houtz	274	none
5	Richard Parrott and Eric Parrott (Well 1)	no well log	400 (1972)
	Richard Parrott and Eric Parrott (Well 1)	no well log	280 (2014)
	Richard Parrott and Eric Parrott (Well 2)	no well log	300 (2014)
6	Pam Ritter	145 (1972)	378
7	Louis m Rice	225 (1995)	none
8	Victoria B Henson		
9	Jeanie McCreary	310 (1995)	none
10	William D Hamby	no well log	280 (recent)
11	Lynn & Barbara Stephens	no well log	none
12	Leslie Ellsworth	115 (1984)	none
13	Ed Smith	147 (1997)	none
14	Mike Humphries	no well log	none
15	Jimmie LeConder	215 (1973)	220
16	Delea C Miller	246 (1998)	none



**GROUND SURFACE CONTOURS
WELL LOGS 2000 THROUGH 2013
NAIP 2013 AERIAL**

Legend

- Well Drilled 2000-2014
- Dairy #3 POU
- township
- Sections

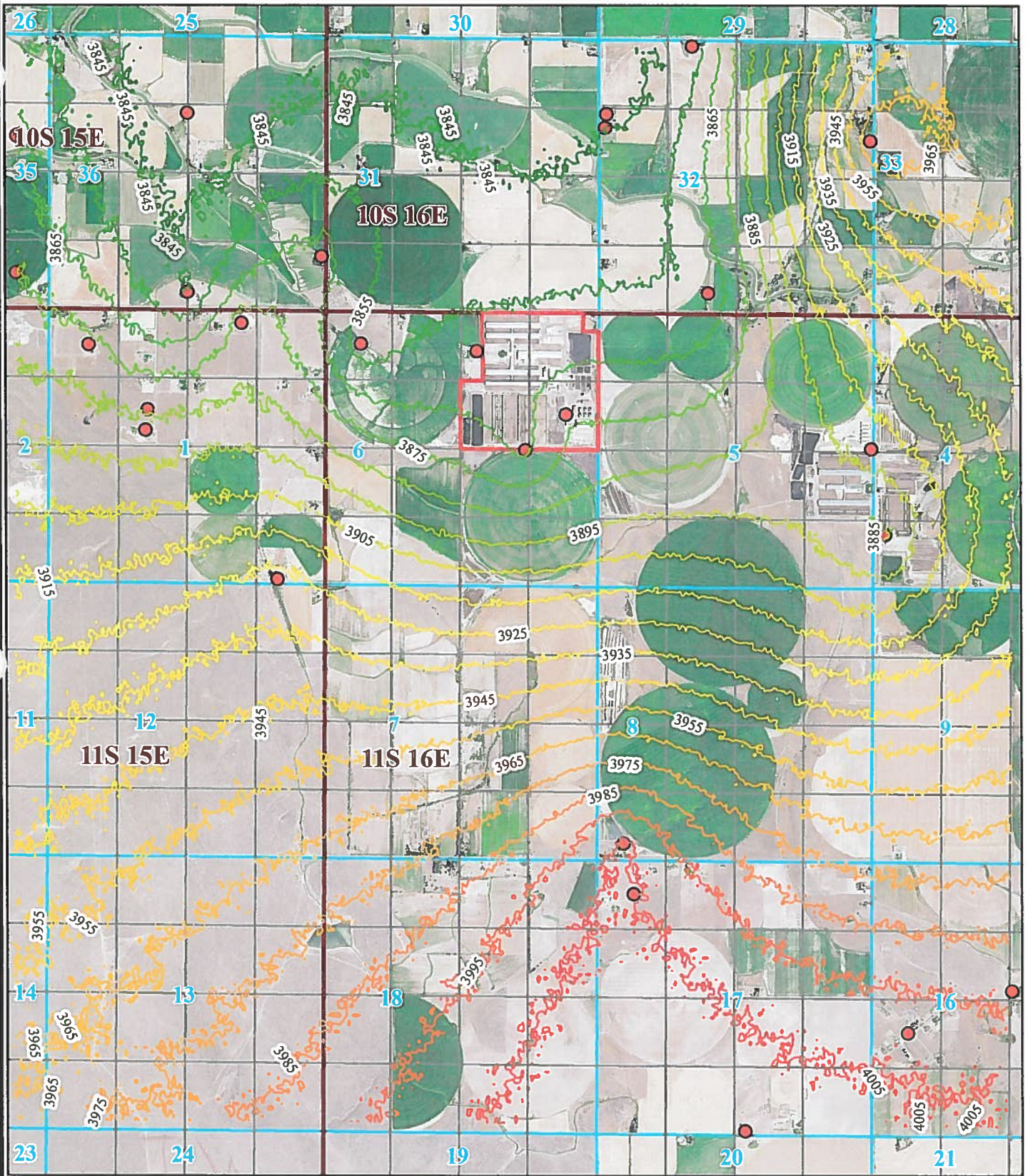


0 1,000 2,000 4,000 Feet

DEPTH TO STATIC WATER LEVEL WELL LOGS 2000 THROUGH 2013 NAIP 2013 AERIAL

- Legend**
- Well Drilled 2000-2014
 - Dairy #3 POU
 - twship
 - Sections





0 950 1,900 3,800 Feet

STATIC WATER LEVELS OF AQUIFER WELL LOGS 2000 THROUGH 2013 NAIP 2013 AERIAL

- Legend**
- Well Drilled 2000-2014
 - Dairy #3 POU
 - twshp
 - Sections
 - QQ Lines



Appendix F:

Monthly flows for groundwater model - Dairy #2 Transfer

Hafliger project

Dairy #2: 0.19 cfs / 30.5 afa increase, annual use, summer peak 50% more than

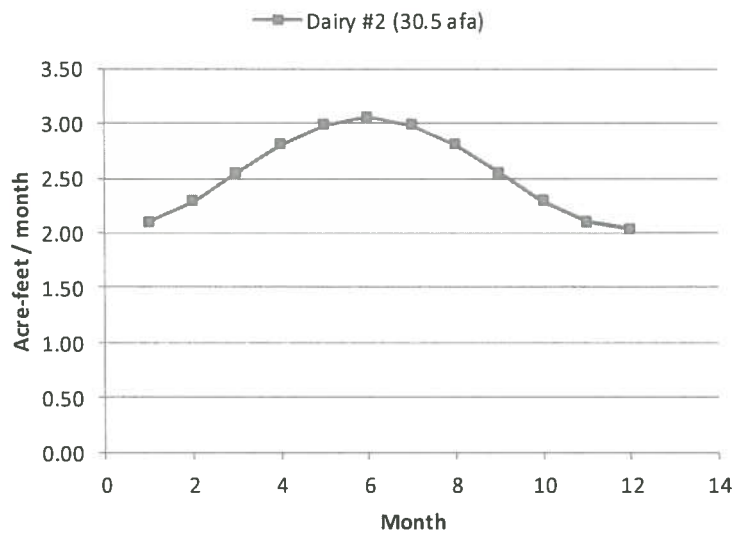
Model time step: 30.1667 days

Average monthly flow 5.5 af/mo

Peak water right flow 0.42 cfs = 25.13 af/mo

Dairy #2				
Month	No. Days		AF	GPM
January	1	31	2.10	15.3
February	2	28	2.29	18.5
March	3	31	2.54	18.6
April	4	30	2.80	21.1
May	5	31	2.98	21.8
June	6	30	3.05	23.0
July	7	31	2.98	21.8
August	8	31	2.80	20.4
September	9	30	2.54	19.2
October	10	31	2.29	16.7
November	11	30	2.10	15.8
December	12	31	2.03	14.8
Total:			30.5	

Monthly Distribution of Annual Volume



Haffliger Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30.4	0	0	1E-04	1E-04	0	1E-04	0.0001	0	0	0	0	0	0	0	1E-04
60.8	0	0.0004	0.001	0.0008	0.0002	0.0007	0.0012	0.0007	0.0005	0.0002	0	0.0003	0.0007	0	0.0008
91.3	0	0.0011	0.0023	0.002	0.0008	0.0018	0.0026	0.0018	0.0013	0.0008	0.0003	0.0009	0.0018	0	0.0021
121.7	1E-04	0.0021	0.0038	0.0034	0.0016	0.0031	0.0042	0.003	0.0024	0.0015	0.0008	0.0016	0.0031	0.0001	0.0034
152.1	0.0003	0.0032	0.0053	0.0048	0.0025	0.0045	0.0058	0.0043	0.0035	0.0024	0.0014	0.0026	0.0044	0.0002	0.0048
182.5	0.0005	0.0043	0.0068	0.0062	0.0034	0.0058	0.0074	0.0057	0.0047	0.0034	0.0021	0.0035	0.0058	0.0003	0.0063
212.9	0.0008	0.0055	0.0083	0.0076	0.0044	0.0072	0.0089	0.007	0.0059	0.0044	0.0029	0.0045	0.0071	0.0006	0.0077
243.3	0.0012	0.0066	0.0096	0.0089	0.0054	0.0084	0.0103	0.0083	0.0071	0.0053	0.0036	0.0055	0.0084	0.0008	0.009
273.8	0.0015	0.0076	0.0108	0.01	0.0063	0.0094	0.0115	0.0094	0.0081	0.0063	0.0044	0.0065	0.0095	0.0011	0.0101
304.2	0.0019	0.0085	0.0117	0.0109	0.0071	0.0104	0.0124	0.0103	0.009	0.0071	0.0051	0.0073	0.0104	0.0015	0.011
334.6	0.0023	0.0092	0.0124	0.0116	0.0079	0.0112	0.0131	0.011	0.0097	0.0078	0.0058	0.008	0.0111	0.0018	0.0117
365	0.0027	0.0098	0.0129	0.0122	0.0084	0.0117	0.0136	0.0116	0.0103	0.0084	0.0063	0.0086	0.0117	0.0022	0.0123
395.4	0.0031	0.0103	0.0133	0.0126	0.0089	0.0122	0.014	0.012	0.0108	0.0089	0.0068	0.0091	0.0121	0.0025	0.0127
425.8	0.0035	0.0107	0.0138	0.013	0.0094	0.0126	0.0144	0.0124	0.0112	0.0093	0.0073	0.0095	0.0125	0.0028	0.0131
456.3	0.0038	0.0112	0.0143	0.0135	0.0098	0.0131	0.015	0.0129	0.0117	0.0098	0.0077	0.01	0.0131	0.0031	0.0137
486.7	0.0041	0.0117	0.015	0.0142	0.0103	0.0137	0.0157	0.0135	0.0122	0.0102	0.0081	0.0105	0.0136	0.0034	0.0143
517.1	0.0044	0.0123	0.0157	0.0149	0.0109	0.0144	0.0165	0.0142	0.0129	0.0108	0.0086	0.011	0.0143	0.0037	0.015
547.5	0.0048	0.013	0.0166	0.0157	0.0115	0.0152	0.0173	0.015	0.0135	0.0114	0.0091	0.0116	0.0151	0.004	0.0158
577.9	0.0051	0.0137	0.0174	0.0165	0.0121	0.016	0.0182	0.0158	0.0143	0.012	0.0096	0.0123	0.0159	0.0043	0.0166
608.3	0.0054	0.0144	0.0182	0.0173	0.0127	0.0167	0.019	0.0166	0.015	0.0127	0.0101	0.0129	0.0167	0.0046	0.0174
638.8	0.0058	0.015	0.0189	0.0179	0.0133	0.0174	0.0197	0.0172	0.0156	0.0132	0.0107	0.0135	0.0173	0.0049	0.0181
669.2	0.0062	0.0155	0.0194	0.0184	0.0139	0.0179	0.0202	0.0177	0.0162	0.0138	0.0112	0.0141	0.0178	0.0053	0.0186
699.6	0.0065	0.0159	0.0197	0.0188	0.0143	0.0183	0.0205	0.0181	0.0166	0.0142	0.0116	0.0145	0.0182	0.0056	0.0189
730	0.0068	0.0162	0.0199	0.019	0.0146	0.0185	0.0206	0.0183	0.0168	0.0145	0.012	0.0148	0.0184	0.0059	0.0191
760.4	0.0071	0.0165	0.02	0.0191	0.0149	0.0186	0.0207	0.0185	0.017	0.0148	0.0123	0.0151	0.0186	0.0062	0.0192
790.8	0.0074	0.0166	0.0201	0.0193	0.0151	0.0188	0.0208	0.0186	0.0172	0.015	0.0125	0.0153	0.0187	0.0065	0.0194
821.3	0.0077	0.0169	0.0204	0.0195	0.0153	0.0191	0.0211	0.0189	0.0175	0.0152	0.0128	0.0155	0.019	0.0067	0.0197
851.7	0.0079	0.0172	0.0208	0.0199	0.0156	0.0194	0.0215	0.0192	0.0178	0.0155	0.013	0.0158	0.0194	0.007	0.02
882.1	0.0082	0.0176	0.0213	0.0204	0.016	0.0199	0.0221	0.0197	0.0182	0.0159	0.0133	0.0162	0.0198	0.0072	0.0205
912.5	0.0084	0.0181	0.022	0.021	0.0164	0.0205	0.0228	0.0203	0.0187	0.0163	0.0137	0.0166	0.0204	0.0074	0.0211
942.9	0.0087	0.0186	0.0226	0.0216	0.0169	0.0211	0.0235	0.0209	0.0193	0.0168	0.0141	0.0171	0.021	0.0077	0.0218
973.3	0.009	0.0192	0.0232	0.0222	0.0174	0.0217	0.0241	0.0215	0.0198	0.0173	0.0145	0.0176	0.0216	0.0079	0.0224
1003.8	0.0092	0.0196	0.0237	0.0227	0.0178	0.0222	0.0246	0.022	0.0203	0.0177	0.0149	0.018	0.0221	0.0082	0.0229
1034.2	0.0095	0.02	0.0241	0.0231	0.0182	0.0225	0.0249	0.0223	0.0207	0.0181	0.0153	0.0184	0.0225	0.0084	0.0232
1064.6	0.0098	0.0203	0.0242	0.0233	0.0185	0.0227	0.025	0.0226	0.0209	0.0184	0.0156	0.0187	0.0227	0.0087	0.0234

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
1095	0.0101	0.0205	0.0243	0.0234	0.0187	0.0228	0.0251	0.0227	0.0211	0.0187	0.0159	0.0189	0.0228	0.009	0.0235
1125.4	0.0103	0.0206	0.0242	0.0234	0.0189	0.0229	0.025	0.0227	0.0212	0.0188	0.0161	0.0191	0.0228	0.0092	0.0235
1155.8	0.0105	0.0206	0.0243	0.0234	0.019	0.0229	0.025	0.0227	0.0212	0.0189	0.0162	0.0192	0.0228	0.0094	0.0235
1186.3	0.0107	0.0208	0.0244	0.0236	0.0191	0.023	0.0252	0.0229	0.0214	0.019	0.0164	0.0193	0.023	0.0096	0.0237
1216.7	0.0109	0.021	0.0247	0.0238	0.0193	0.0233	0.0255	0.0229	0.0216	0.0192	0.0166	0.0195	0.0232	0.0098	0.0239
1247.1	0.0111	0.0213	0.0252	0.0242	0.0196	0.0237	0.026	0.0235	0.0219	0.0195	0.0168	0.0198	0.0236	0.01	0.0243
1277.5	0.0113	0.0217	0.0257	0.0247	0.0199	0.0241	0.0265	0.024	0.0223	0.0198	0.017	0.0201	0.0241	0.0102	0.0248
1307.9	0.0115	0.0221	0.0263	0.0253	0.0203	0.0247	0.0271	0.0245	0.0228	0.0202	0.0174	0.0205	0.0246	0.0104	0.0254
1338.3	0.0117	0.0226	0.0268	0.0258	0.0207	0.0252	0.0277	0.025	0.0233	0.0206	0.0177	0.0209	0.0251	0.0106	0.0259
1368.8	0.012	0.023	0.0272	0.0262	0.0211	0.0256	0.0281	0.0254	0.0237	0.021	0.018	0.0213	0.0255	0.0108	0.0263
1399.2	0.0122	0.0233	0.0275	0.0264	0.0214	0.0259	0.0283	0.0257	0.024	0.0213	0.0184	0.0216	0.0258	0.011	0.0266
1429.6	0.0124	0.0235	0.0275	0.0266	0.0217	0.026	0.0284	0.0258	0.0242	0.0216	0.0186	0.0219	0.0259	0.0112	0.0267
1460	0.0127	0.0236	0.0275	0.0266	0.0218	0.026	0.0283	0.0258	0.0242	0.0217	0.0188	0.022	0.026	0.0115	0.0267
1490.4	0.0129	0.0236	0.0274	0.0265	0.0219	0.026	0.0282	0.0258	0.0243	0.0218	0.019	0.0221	0.0259	0.0117	0.0266
1520.8	0.0131	0.0236	0.0273	0.0265	0.0219	0.0259	0.0281	0.0258	0.0242	0.0219	0.0191	0.0221	0.0259	0.0118	0.0266
1551.3	0.0132	0.0237	0.0275	0.0266	0.022	0.026	0.0282	0.0259	0.0243	0.0219	0.0192	0.0222	0.026	0.012	0.0267
1581.7	0.0134	0.0239	0.0277	0.0268	0.0222	0.0262	0.0285	0.0261	0.0245	0.0221	0.0193	0.0224	0.0262	0.0122	0.0269
1612.1	0.0135	0.0241	0.0281	0.0271	0.0224	0.0266	0.0289	0.0264	0.0248	0.0223	0.0195	0.0226	0.0265	0.0123	0.0272
1642.5	0.0137	0.0245	0.0285	0.0275	0.0227	0.027	0.0294	0.0268	0.0251	0.0226	0.0197	0.0229	0.0269	0.0125	0.0277
1672.9	0.0138	0.0248	0.0291	0.028	0.023	0.0274	0.0299	0.0272	0.0255	0.0229	0.02	0.0232	0.0274	0.0126	0.0282
1703.3	0.014	0.0253	0.0295	0.0285	0.0234	0.0279	0.0304	0.0277	0.0259	0.0233	0.0203	0.0236	0.0278	0.0128	0.0286
1733.8	0.0142	0.0256	0.0299	0.0288	0.0237	0.0282	0.0308	0.0281	0.0263	0.0236	0.0205	0.0239	0.0282	0.013	0.029
1764.2	0.0144	0.0259	0.0301	0.0291	0.024	0.0285	0.031	0.0283	0.0266	0.0239	0.0208	0.0242	0.0284	0.0132	0.0292
1794.6	0.0146	0.026	0.0301	0.0291	0.0242	0.0286	0.031	0.0284	0.0267	0.0241	0.021	0.0244	0.0285	0.0134	0.0293
1825	0.0148	0.0261	0.0301	0.0291	0.0243	0.0286	0.0309	0.0284	0.0267	0.0242	0.0212	0.0245	0.0285	0.0136	0.0292
1855.4	0.015	0.0261	0.0299	0.029	0.0243	0.0285	0.0307	0.0283	0.0267	0.0242	0.0213	0.0245	0.0284	0.0137	0.0291
1885.8	0.0151	0.026	0.0298	0.0289	0.0243	0.0284	0.0306	0.0282	0.0267	0.0242	0.0214	0.0245	0.0283	0.0139	0.029
1916.3	0.0153	0.0261	0.0299	0.029	0.0244	0.0284	0.0307	0.0283	0.0267	0.0243	0.0214	0.0245	0.0284	0.014	0.0291
1946.7	0.0154	0.0262	0.0301	0.0291	0.0245	0.0286	0.0309	0.0284	0.0268	0.0244	0.0215	0.0247	0.0285	0.0141	0.0293
1977.1	0.0155	0.0264	0.0304	0.0294	0.0246	0.0289	0.0312	0.0287	0.0271	0.0245	0.0217	0.0248	0.0288	0.0143	0.0296
2007.5	0.0156	0.0267	0.0308	0.0298	0.0249	0.0293	0.0317	0.0291	0.0274	0.0248	0.0219	0.0251	0.0292	0.0144	0.03
2037.9	0.0158	0.0271	0.0313	0.0303	0.0252	0.0297	0.0322	0.0295	0.0278	0.0251	0.0221	0.0254	0.0296	0.0145	0.0304
2068.3	0.0159	0.0274	0.0318	0.0307	0.0255	0.0301	0.0327	0.0299	0.0281	0.0254	0.0224	0.0257	0.03	0.0147	0.0309
2098.8	0.0161	0.0278	0.0321	0.031	0.0258	0.0304	0.033	0.0302	0.0285	0.0257	0.0226	0.026	0.0304	0.0148	0.0312
2129.2	0.0163	0.028	0.0323	0.0312	0.0261	0.0306	0.0331	0.0304	0.0287	0.026	0.0229	0.0263	0.0306	0.015	0.0314
2159.6	0.0165	0.0281	0.0323	0.0313	0.0262	0.0307	0.0331	0.0305	0.0288	0.0261	0.0231	0.0264	0.0306	0.0152	0.0314

Hoffiger Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
2190	0.0167	0.0281	0.0322	0.0312	0.0263	0.0307	0.033	0.0305	0.0288	0.0262	0.0232	0.0265	0.0306	0.0153	0.0313
2220.4	0.0168	0.0281	0.032	0.0311	0.0263	0.0305	0.0328	0.0303	0.0288	0.0262	0.0233	0.0265	0.0305	0.0155	0.0312
2250.8	0.0169	0.028	0.0319	0.0309	0.0263	0.0304	0.0326	0.0302	0.0287	0.0262	0.0233	0.0265	0.0304	0.0156	0.0311
2281.3	0.017	0.0281	0.0319	0.031	0.0263	0.0304	0.0327	0.0303	0.0287	0.0262	0.0234	0.0265	0.0304	0.0157	0.0311
2311.7	0.0171	0.0281	0.0321	0.0311	0.0264	0.0306	0.0329	0.0304	0.0288	0.0263	0.0234	0.0266	0.0305	0.0159	0.0312
2342.1	0.0172	0.0283	0.0324	0.0314	0.0265	0.0308	0.0332	0.0306	0.029	0.0264	0.0235	0.0267	0.0308	0.016	0.0315
2372.5	0.0173	0.0286	0.0328	0.0318	0.0268	0.0312	0.0336	0.031	0.0293	0.0267	0.0237	0.027	0.0311	0.0161	0.0319
2402.9	0.0175	0.029	0.0332	0.0322	0.0271	0.0316	0.0341	0.0314	0.0296	0.027	0.0239	0.0273	0.0315	0.0162	0.0323
2433.3	0.0176	0.0293	0.0337	0.0326	0.0274	0.032	0.0346	0.0318	0.03	0.0273	0.0242	0.0276	0.0319	0.0163	0.0327
2463.8	0.0178	0.0296	0.0339	0.0329	0.0276	0.0323	0.0348	0.0321	0.0303	0.0275	0.0244	0.0279	0.0322	0.0165	0.033
2494.2	0.0179	0.0298	0.0341	0.0331	0.0279	0.0325	0.035	0.0323	0.0305	0.0278	0.0246	0.0281	0.0324	0.0166	0.0332
2524.6	0.0181	0.0299	0.0341	0.0331	0.028	0.0325	0.0349	0.0323	0.0306	0.0279	0.0248	0.0282	0.0324	0.0168	0.0332
2555	0.0182	0.0299	0.034	0.033	0.0281	0.0324	0.0348	0.0322	0.0306	0.028	0.0249	0.0283	0.0324	0.0169	0.0331
2585.4	0.0184	0.0298	0.0338	0.0328	0.028	0.0323	0.0345	0.0321	0.0305	0.028	0.025	0.0283	0.0322	0.017	0.0333
2615.8	0.0185	0.0298	0.0336	0.0327	0.028	0.0322	0.0344	0.032	0.0304	0.0279	0.025	0.0282	0.0321	0.0173	0.0328
2646.3	0.0186	0.0298	0.0336	0.0327	0.028	0.0322	0.0344	0.032	0.0304	0.0279	0.025	0.0282	0.0321	0.0173	0.0329
2676.7	0.0187	0.0298	0.0338	0.0328	0.0281	0.0323	0.0346	0.0321	0.0305	0.028	0.0251	0.0283	0.0322	0.0174	0.0332
2707.1	0.0188	0.03	0.0341	0.0331	0.0282	0.0325	0.0349	0.0323	0.0307	0.0281	0.0252	0.0284	0.0324	0.0175	0.0336
2737.5	0.0188	0.0303	0.0344	0.0334	0.0284	0.0328	0.0353	0.0326	0.0309	0.0283	0.0253	0.0286	0.0328	0.0175	0.0336
2767.9	0.019	0.0306	0.0349	0.0338	0.0287	0.0332	0.0358	0.033	0.0313	0.0286	0.0255	0.0289	0.0332	0.0176	0.034
2798.3	0.0191	0.0309	0.0353	0.0342	0.029	0.0336	0.0362	0.0334	0.0316	0.0289	0.0257	0.0292	0.0335	0.0177	0.0344
2828.8	0.0192	0.0312	0.0356	0.0345	0.0292	0.0339	0.0365	0.0337	0.0319	0.0291	0.0259	0.0294	0.0338	0.0179	0.0346
2859.2	0.0194	0.0314	0.0357	0.0347	0.0294	0.0341	0.0366	0.0339	0.0321	0.0293	0.0262	0.0296	0.034	0.018	0.0348
2889.6	0.0195	0.0315	0.0357	0.0347	0.0295	0.0341	0.0365	0.0339	0.0322	0.0294	0.0263	0.0298	0.034	0.0182	0.0348
2920	0.0197	0.0315	0.0355	0.0345	0.0296	0.034	0.0363	0.0338	0.0321	0.0295	0.0264	0.0298	0.0339	0.0183	0.0347
2950.4	0.0198	0.0314	0.0353	0.0344	0.0296	0.0338	0.0361	0.0336	0.032	0.0295	0.0265	0.0298	0.0338	0.0184	0.0345
2980.8	0.0199	0.0313	0.0351	0.0342	0.0295	0.0337	0.0359	0.0335	0.0319	0.0294	0.0265	0.0297	0.0336	0.0185	0.0343
3011.3	0.02	0.0312	0.0351	0.0342	0.0295	0.0337	0.0359	0.0335	0.0319	0.0294	0.0265	0.0297	0.0336	0.0186	0.0343
3041.7	0.02	0.0313	0.0353	0.0343	0.0295	0.0338	0.0361	0.0336	0.032	0.0294	0.0265	0.0297	0.0337	0.0187	0.0344
3072.1	0.0201	0.0315	0.0355	0.0345	0.0296	0.034	0.0364	0.0338	0.0321	0.0295	0.0266	0.0298	0.0339	0.0188	0.0347
3102.5	0.0202	0.0317	0.0359	0.0349	0.0298	0.0343	0.0368	0.0341	0.0324	0.0297	0.0267	0.03	0.0342	0.0188	0.035
3132.9	0.0203	0.032	0.0363	0.0353	0.0301	0.0347	0.0372	0.0345	0.0327	0.03	0.0269	0.0303	0.0346	0.0189	0.0354
3163.3	0.0204	0.0323	0.0367	0.0357	0.0304	0.035	0.0376	0.0348	0.033	0.0303	0.0271	0.0306	0.035	0.019	0.0358
3193.8	0.0205	0.0326	0.037	0.0359	0.0306	0.0353	0.0379	0.0351	0.0333	0.0305	0.0273	0.0308	0.0352	0.0192	0.0361
3224.2	0.0207	0.0328	0.0371	0.0361	0.0308	0.0355	0.038	0.0353	0.0335	0.0307	0.0275	0.031	0.0354	0.0193	0.0362
3254.6	0.0208	0.0328	0.0371	0.036	0.0309	0.0355	0.0379	0.0353	0.0335	0.0308	0.0277	0.0311	0.0354	0.0194	0.0362

Haffiger Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
3285	0.0209	0.0328	0.0369	0.0359	0.0309	0.0354	0.0377	0.0352	0.0335	0.0308	0.0277	0.0312	0.0353	0.0195	0.0361
3315.4	0.021	0.0327	0.0367	0.0357	0.0309	0.0352	0.0375	0.035	0.0334	0.0308	0.0278	0.0311	0.0351	0.0196	0.0359
3345.8	0.0211	0.0326	0.0365	0.0356	0.0308	0.035	0.0373	0.0349	0.0333	0.0307	0.0278	0.031	0.035	0.0197	0.0357
3376.3	0.0212	0.0326	0.0365	0.0356	0.0308	0.035	0.0373	0.0348	0.0332	0.0307	0.0278	0.031	0.0349	0.0198	0.0357
3406.7	0.0213	0.0326	0.0366	0.0356	0.0308	0.0351	0.0374	0.0349	0.0333	0.0307	0.0278	0.031	0.035	0.0199	0.0358
3437.1	0.0213	0.0328	0.0369	0.0359	0.0309	0.0353	0.0377	0.0351	0.0334	0.0308	0.0279	0.0311	0.0352	0.02	0.036
3467.5	0.0214	0.033	0.0372	0.0362	0.0311	0.0356	0.0381	0.0354	0.0337	0.031	0.028	0.0313	0.0355	0.02	0.0363
3497.9	0.0215	0.0333	0.0376	0.0366	0.0314	0.036	0.0385	0.0358	0.034	0.0313	0.0281	0.0316	0.0359	0.0201	0.0367
3528.3	0.0216	0.0336	0.038	0.0369	0.0316	0.0363	0.0389	0.0361	0.0343	0.0315	0.0284	0.0318	0.0363	0.0202	0.0371
3558.8	0.0217	0.0338	0.0383	0.0372	0.0319	0.0366	0.0392	0.0364	0.0346	0.0318	0.0286	0.0321	0.0365	0.0203	0.0373
3589.2	0.0218	0.034	0.0384	0.0373	0.032	0.0367	0.0393	0.0365	0.0347	0.0319	0.0287	0.0323	0.0367	0.0204	0.0375
3619.6	0.022	0.0341	0.0383	0.0373	0.0321	0.0367	0.0393	0.0365	0.0348	0.032	0.0289	0.0324	0.0366	0.0206	0.0374
3650	0.0221	0.034	0.0381	0.0372	0.0322	0.0366	0.039	0.0364	0.0347	0.0321	0.0289	0.0324	0.0365	0.0207	0.0373
3680.4	0.0222	0.0339	0.0379	0.037	0.0321	0.0364	0.0387	0.0362	0.0346	0.032	0.029	0.0323	0.0364	0.0208	0.0371
3710.8	0.0222	0.0338	0.0377	0.0368	0.032	0.0362	0.0385	0.0361	0.0345	0.0319	0.029	0.0322	0.0362	0.0209	0.0369
3741.3	0.0223	0.0338	0.0377	0.0368	0.032	0.0362	0.0385	0.036	0.0344	0.0319	0.0289	0.0322	0.0362	0.0209	0.0369
3771.7	0.0224	0.0338	0.0378	0.0368	0.032	0.0363	0.0386	0.0361	0.0345	0.0319	0.029	0.0322	0.0362	0.021	0.037
3802.1	0.0224	0.0339	0.038	0.0371	0.0321	0.0365	0.0389	0.0363	0.0346	0.032	0.029	0.0323	0.0364	0.021	0.0372
3832.5	0.0225	0.0342	0.0384	0.0374	0.0323	0.0368	0.0393	0.0366	0.0349	0.0322	0.0291	0.0325	0.0367	0.0211	0.0375
3862.9	0.0226	0.0345	0.0388	0.0378	0.0325	0.0371	0.0397	0.0369	0.0352	0.0324	0.0293	0.0327	0.0371	0.0212	0.0379
3893.3	0.0227	0.0347	0.0392	0.0381	0.0326	0.0375	0.0401	0.0373	0.0355	0.0327	0.0295	0.033	0.0374	0.0213	0.0382
3923.8	0.0228	0.035	0.0394	0.0383	0.033	0.0377	0.0403	0.0375	0.0357	0.0329	0.0297	0.0332	0.0377	0.0214	0.0385
3954.2	0.0229	0.0351	0.0395	0.0385	0.0332	0.0379	0.0404	0.0377	0.0359	0.0331	0.0298	0.0334	0.0378	0.0215	0.0386
3984.6	0.023	0.0352	0.0394	0.0384	0.0333	0.0378	0.0403	0.0376	0.0359	0.0332	0.03	0.0335	0.0378	0.0216	0.0386
4015	0.0231	0.0352	0.0393	0.0383	0.0333	0.0377	0.0401	0.0375	0.0358	0.0332	0.03	0.0335	0.0377	0.0217	0.0384
4045.4	0.0232	0.035	0.039	0.0381	0.0332	0.0375	0.0398	0.0373	0.0357	0.0331	0.0301	0.0334	0.0375	0.0218	0.0382
4075.8	0.0233	0.0349	0.0388	0.0379	0.0331	0.0374	0.0396	0.0372	0.0356	0.033	0.03	0.0333	0.0373	0.0219	0.038
4106.3	0.0233	0.0349	0.0388	0.0379	0.0331	0.0373	0.0396	0.0371	0.0355	0.033	0.03	0.0333	0.0372	0.0219	0.038
4136.7	0.0234	0.0349	0.0389	0.0379	0.0331	0.0374	0.0397	0.0372	0.0356	0.033	0.03	0.0333	0.0373	0.022	0.0381
4167.1	0.0234	0.035	0.0391	0.0381	0.0332	0.0376	0.04	0.0374	0.0357	0.0331	0.0301	0.0334	0.0375	0.022	0.0383
4197.5	0.0235	0.0352	0.0395	0.0384	0.0333	0.0379	0.0404	0.0377	0.0359	0.0332	0.0302	0.0335	0.0378	0.0221	0.0386
4227.9	0.0236	0.0355	0.0399	0.0388	0.0336	0.0382	0.0408	0.038	0.0362	0.0335	0.0303	0.0338	0.0381	0.0222	0.039
4258.3	0.0236	0.0358	0.0402	0.0392	0.0338	0.0385	0.0412	0.0383	0.0365	0.0337	0.0305	0.034	0.0385	0.0222	0.0393
4288.8	0.0238	0.036	0.0405	0.0394	0.034	0.0388	0.0414	0.0386	0.0368	0.0339	0.0307	0.0343	0.0387	0.0223	0.0395
4319.2	0.0239	0.0362	0.0406	0.0395	0.0342	0.0389	0.0415	0.0387	0.0369	0.0341	0.0309	0.0344	0.0388	0.0224	0.0396
4349.6	0.024	0.0362	0.0405	0.0395	0.0343	0.0389	0.0413	0.0387	0.0369	0.0342	0.031	0.0345	0.0388	0.0226	0.0396

Hafflinger Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
4380	0.0241	0.0362	0.0403	0.0393	0.0343	0.0388	0.0411	0.0386	0.0369	0.0342	0.0311	0.0345	0.0387	0.0227	0.0394
4410.4	0.0242	0.0361	0.04	0.0391	0.0342	0.0386	0.0408	0.0384	0.0367	0.0341	0.0311	0.0344	0.0385	0.0227	0.0392
4440.8	0.0242	0.0359	0.0398	0.0389	0.0341	0.0384	0.0406	0.0382	0.0366	0.034	0.031	0.0343	0.0383	0.0228	0.039
4471.3	0.0243	0.0359	0.0398	0.0389	0.0341	0.0383	0.0406	0.0381	0.0365	0.034	0.031	0.0343	0.0383	0.0229	0.039
4501.7	0.0243	0.0359	0.0399	0.0389	0.0341	0.0384	0.0407	0.0382	0.0365	0.034	0.031	0.0343	0.0383	0.0229	0.0391
4532.1	0.0244	0.036	0.0401	0.0391	0.0342	0.0386	0.041	0.0384	0.0367	0.0341	0.031	0.0344	0.0385	0.023	0.0393
4562.5	0.0244	0.0362	0.0405	0.0394	0.0343	0.0388	0.0413	0.0386	0.0369	0.0342	0.0311	0.0345	0.0388	0.023	0.0396
4592.9	0.0245	0.0365	0.0409	0.0398	0.0345	0.0392	0.0418	0.039	0.0372	0.0344	0.0313	0.0347	0.0391	0.0231	0.0399
4623.3	0.0246	0.0368	0.0412	0.0401	0.0348	0.0395	0.0421	0.0393	0.0375	0.0347	0.0315	0.035	0.0394	0.0232	0.0403
4653.8	0.0247	0.037	0.0414	0.0404	0.035	0.0397	0.0423	0.0395	0.0377	0.0349	0.0316	0.0352	0.0397	0.0232	0.0405
4684.2	0.0248	0.0371	0.0415	0.0405	0.0352	0.0399	0.0424	0.0397	0.0379	0.035	0.0318	0.0354	0.0398	0.0233	0.0406
4714.6	0.0249	0.0372	0.0414	0.0404	0.0352	0.0398	0.0423	0.0396	0.0379	0.0351	0.0319	0.0354	0.0398	0.0234	0.0406
4745	0.025	0.0371	0.0412	0.0403	0.0352	0.0397	0.0421	0.0395	0.0378	0.0351	0.032	0.0354	0.0396	0.0235	0.0404
4775.4	0.0251	0.037	0.041	0.04	0.0352	0.0395	0.0418	0.0393	0.0377	0.0351	0.032	0.0354	0.0394	0.0236	0.0402
4805.8	0.0251	0.0369	0.0408	0.0398	0.035	0.0393	0.0416	0.0391	0.0375	0.035	0.0319	0.0353	0.0392	0.0237	0.04
4836.3	0.0252	0.0368	0.0407	0.0398	0.035	0.0392	0.0415	0.0391	0.0374	0.0349	0.0319	0.0352	0.0392	0.0238	0.04
4866.7	0.0252	0.0368	0.0408	0.0399	0.035	0.0393	0.0416	0.0391	0.0375	0.0349	0.0319	0.0352	0.0392	0.0238	0.04
4897.1	0.0252	0.0369	0.041	0.04	0.0351	0.0395	0.0419	0.0393	0.0376	0.035	0.0319	0.0353	0.0394	0.0238	0.0402
4927.5	0.0253	0.0371	0.0414	0.0403	0.0352	0.0398	0.0423	0.0396	0.0378	0.0351	0.032	0.0354	0.0397	0.0239	0.0405
4957.9	0.0253	0.0374	0.0418	0.0407	0.0354	0.0401	0.0427	0.0399	0.0381	0.0353	0.0322	0.0356	0.04	0.0239	0.0408
4988.3	0.0254	0.0377	0.0421	0.041	0.0357	0.0404	0.043	0.0402	0.0384	0.0356	0.0323	0.0359	0.0403	0.024	0.0412
5018.8	0.0255	0.0379	0.0423	0.0413	0.0359	0.0406	0.0432	0.0404	0.0386	0.0358	0.0325	0.0361	0.0406	0.0241	0.0414
5049.2	0.0256	0.038	0.0424	0.0414	0.036	0.0407	0.0433	0.0405	0.0387	0.0359	0.0327	0.0362	0.0407	0.0242	0.0415
5079.6	0.0257	0.0381	0.0423	0.0413	0.0361	0.0407	0.0432	0.0405	0.0388	0.036	0.0328	0.0363	0.0406	0.0243	0.0414
5110	0.0258	0.038	0.0421	0.0411	0.0361	0.0406	0.043	0.0404	0.0387	0.036	0.0328	0.0363	0.0405	0.0244	0.0413
5140.4	0.0259	0.0379	0.0419	0.0409	0.036	0.0404	0.0427	0.0402	0.0385	0.0359	0.0328	0.0362	0.0403	0.0244	0.041
5170.8	0.0259	0.0377	0.0416	0.0407	0.0359	0.0402	0.0424	0.04	0.0384	0.0358	0.0328	0.0361	0.0401	0.0245	0.0408
5201.3	0.026	0.0376	0.0416	0.0407	0.0358	0.0401	0.0424	0.0399	0.0383	0.0357	0.0327	0.036	0.04	0.0246	0.0408
5231.7	0.026	0.0377	0.0417	0.0407	0.0358	0.0402	0.0425	0.04	0.0383	0.0357	0.0327	0.036	0.0401	0.0246	0.0408
5262.1	0.026	0.0378	0.0419	0.0409	0.0359	0.0403	0.0428	0.0401	0.0384	0.0358	0.0328	0.0361	0.0401	0.0246	0.041
5292.5	0.0261	0.038	0.0422	0.0412	0.0361	0.0406	0.0431	0.0404	0.0387	0.036	0.0329	0.0363	0.0405	0.0247	0.0413
5322.9	0.0261	0.0382	0.0426	0.0415	0.0363	0.0409	0.0435	0.0407	0.0389	0.0362	0.033	0.0365	0.0409	0.0247	0.0417
5353.3	0.0262	0.0385	0.043	0.0419	0.0365	0.0412	0.0439	0.041	0.0392	0.0364	0.0332	0.0367	0.0412	0.0248	0.042
5383.8	0.0263	0.0387	0.0432	0.0421	0.0367	0.0415	0.0441	0.0413	0.0394	0.0366	0.0333	0.0369	0.0414	0.0249	0.0422
5414.2	0.0264	0.0388	0.0432	0.0422	0.0369	0.0416	0.0441	0.0414	0.0396	0.0367	0.0335	0.0371	0.0415	0.025	0.0423
5444.6	0.0265	0.0389	0.0432	0.0421	0.0369	0.0415	0.044	0.0413	0.0396	0.0368	0.0336	0.0371	0.0415	0.025	0.0423

Hafliker Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
5475	0.0266	0.0388	0.0429	0.042	0.0369	0.0414	0.0438	0.0412	0.0395	0.0368	0.0336	0.0371	0.0413	0.0251	0.0421
5505.4	0.0267	0.0387	0.0427	0.0417	0.0368	0.0412	0.0435	0.041	0.0393	0.0367	0.0336	0.037	0.0411	0.0252	0.0419
5535.8	0.0267	0.0385	0.0425	0.0415	0.0367	0.041	0.0432	0.0408	0.0392	0.0366	0.0336	0.0369	0.0409	0.0253	0.0416
5566.3	0.0267	0.0384	0.0424	0.0415	0.0366	0.0409	0.0432	0.0407	0.0391	0.0365	0.0335	0.0368	0.0408	0.0253	0.0416
5596.7	0.0268	0.0385	0.0425	0.0415	0.0366	0.041	0.0433	0.0408	0.0391	0.0365	0.0335	0.0368	0.0409	0.0253	0.0416
5627.1	0.0268	0.0386	0.0427	0.0417	0.0367	0.0411	0.0436	0.0409	0.0392	0.0366	0.0336	0.0369	0.0411	0.0254	0.0418
5657.5	0.0268	0.0387	0.043	0.042	0.0368	0.0414	0.0439	0.0412	0.0394	0.0367	0.0336	0.037	0.0413	0.0254	0.0421
5687.9	0.0269	0.039	0.0434	0.0423	0.037	0.0417	0.0443	0.0415	0.0397	0.0369	0.0338	0.0373	0.0417	0.0255	0.0425
5718.3	0.027	0.0393	0.0437	0.0427	0.0373	0.042	0.0447	0.0418	0.04	0.0372	0.0339	0.0375	0.042	0.0255	0.0428
5748.8	0.027	0.0395	0.0439	0.0429	0.0375	0.0422	0.0449	0.042	0.0402	0.0374	0.0341	0.0377	0.0422	0.0256	0.043
5779.2	0.0271	0.0396	0.044	0.043	0.0376	0.0424	0.0449	0.0421	0.0403	0.0375	0.0342	0.0378	0.0423	0.0257	0.0431
5809.6	0.0272	0.0396	0.0439	0.0429	0.0377	0.0423	0.0448	0.0421	0.0404	0.0376	0.0343	0.0379	0.0422	0.0258	0.043
5840	0.0273	0.0396	0.0437	0.0427	0.0377	0.0422	0.0445	0.042	0.0403	0.0376	0.0344	0.0379	0.0421	0.0259	0.0429
5870.4	0.0274	0.0394	0.0434	0.0425	0.0376	0.0419	0.0442	0.0418	0.0401	0.0375	0.0344	0.0378	0.0419	0.0259	0.0426
5900.8	0.0274	0.0393	0.0432	0.0423	0.0375	0.0417	0.044	0.0416	0.0399	0.0374	0.0343	0.0377	0.0417	0.026	0.0424
5931.3	0.0275	0.0392	0.0432	0.0422	0.0374	0.0417	0.044	0.0415	0.0399	0.0373	0.0343	0.0376	0.0416	0.026	0.0423
5961.7	0.0275	0.0392	0.0432	0.0423	0.0374	0.0417	0.0441	0.0415	0.0399	0.0373	0.0343	0.0376	0.0416	0.0261	0.0424
5992.1	0.0275	0.0393	0.0434	0.0424	0.0374	0.0419	0.0443	0.0417	0.04	0.0373	0.0343	0.0376	0.0418	0.0261	0.0426
6022.5	0.0275	0.0395	0.0438	0.0427	0.0376	0.0421	0.0447	0.0419	0.0402	0.0375	0.0344	0.0378	0.0421	0.0261	0.0429
6052.9	0.0276	0.0397	0.0441	0.0431	0.0378	0.0425	0.0451	0.0423	0.0405	0.0377	0.0345	0.038	0.0424	0.0262	0.0432
6083.3	0.0277	0.04	0.0445	0.0434	0.038	0.0428	0.0454	0.0426	0.0407	0.0379	0.0347	0.0382	0.0427	0.0262	0.0435
6113.8	0.0277	0.0402	0.0447	0.0436	0.0382	0.043	0.0456	0.0428	0.0409	0.0381	0.0348	0.0384	0.0429	0.0263	0.0437
6144.2	0.0278	0.0403	0.0447	0.0437	0.0383	0.0431	0.0456	0.0429	0.0411	0.0382	0.035	0.0386	0.043	0.0264	0.0438
6174.6	0.0279	0.0404	0.0447	0.0436	0.0384	0.043	0.0455	0.0428	0.0411	0.0383	0.0351	0.0386	0.043	0.0265	0.0438
6205	0.028	0.0403	0.0444	0.0435	0.0384	0.0429	0.0453	0.0427	0.041	0.0383	0.0351	0.0386	0.0428	0.0265	0.0436
6235.4	0.0281	0.0401	0.0442	0.0432	0.0383	0.0427	0.045	0.0425	0.0408	0.0382	0.0351	0.0385	0.0426	0.0266	0.0433
6265.8	0.0281	0.04	0.0439	0.043	0.0382	0.0425	0.0447	0.0423	0.0406	0.0381	0.035	0.0384	0.0424	0.0267	0.0431
6296.3	0.0281	0.0399	0.0439	0.0429	0.0381	0.0424	0.0447	0.0422	0.0406	0.038	0.035	0.0383	0.0423	0.0267	0.0431
6326.7	0.0282	0.0399	0.0439	0.043	0.0381	0.0424	0.0448	0.0422	0.0406	0.038	0.035	0.0383	0.0423	0.0267	0.0431
6357.1	0.0282	0.04	0.0442	0.0431	0.0381	0.0426	0.045	0.0424	0.0407	0.038	0.035	0.0383	0.0425	0.0268	0.0433
6387.5	0.0282	0.0402	0.0445	0.0434	0.0383	0.0428	0.0454	0.0426	0.0409	0.0382	0.0351	0.0385	0.0428	0.0268	0.0436
6417.9	0.0283	0.0404	0.0448	0.0438	0.0385	0.0432	0.0458	0.043	0.0412	0.0384	0.0352	0.0387	0.0431	0.0268	0.0439
6448.3	0.0283	0.0407	0.0452	0.0441	0.0387	0.0435	0.0461	0.0433	0.0414	0.0386	0.0353	0.0389	0.0434	0.0269	0.0442
6478.8	0.0284	0.0409	0.0454	0.0443	0.0389	0.0437	0.0463	0.0435	0.0416	0.0388	0.0355	0.0391	0.0436	0.027	0.0444
6509.2	0.0285	0.041	0.0454	0.0444	0.039	0.0438	0.0463	0.0436	0.0418	0.0389	0.0356	0.0392	0.0437	0.027	0.0445
6539.6	0.0286	0.041	0.0453	0.0443	0.0391	0.0437	0.0462	0.0435	0.0418	0.039	0.0357	0.0393	0.0436	0.0271	0.0444

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
6570	0.0287	0.041	0.0451	0.0441	0.0391	0.0436	0.046	0.0434	0.0417	0.039	0.0358	0.0393	0.0435	0.0272	0.0443
6600.4	0.0287	0.0408	0.0448	0.0439	0.039	0.0433	0.0456	0.0431	0.0415	0.0389	0.0358	0.0392	0.0433	0.0273	0.044
6630.8	0.0288	0.0407	0.0446	0.0437	0.0388	0.0431	0.0454	0.0429	0.0413	0.0387	0.0357	0.039	0.0431	0.0273	0.0438
6661.3	0.0288	0.0406	0.0445	0.0436	0.0388	0.043	0.0454	0.0429	0.0412	0.0387	0.0356	0.039	0.043	0.0273	0.0437
6691.7	0.0288	0.0406	0.0446	0.0436	0.0387	0.0431	0.0454	0.0429	0.0412	0.0386	0.0356	0.0389	0.043	0.0274	0.0438
6722.1	0.0288	0.0407	0.0448	0.0438	0.0388	0.0432	0.0457	0.043	0.0413	0.0387	0.0356	0.039	0.0432	0.0274	0.0439
6752.5	0.0288	0.0408	0.0451	0.0441	0.0389	0.0435	0.046	0.0433	0.0415	0.0388	0.0357	0.0391	0.0434	0.0274	0.0442
6782.9	0.0289	0.0411	0.0455	0.0444	0.0391	0.0438	0.0464	0.0436	0.0418	0.039	0.0358	0.0393	0.0437	0.0275	0.0446
6813.3	0.029	0.0413	0.0458	0.0447	0.0393	0.0441	0.0467	0.0439	0.0421	0.0392	0.036	0.0396	0.044	0.0275	0.0449
6843.8	0.029	0.0415	0.046	0.0449	0.0395	0.0443	0.0469	0.0441	0.0423	0.0394	0.0361	0.0398	0.0443	0.0276	0.0451
6874.2	0.0291	0.0417	0.0461	0.045	0.0397	0.0444	0.047	0.0442	0.0424	0.0396	0.0363	0.0399	0.0443	0.0277	0.0452
6904.6	0.0292	0.0417	0.046	0.045	0.0397	0.0444	0.0468	0.0442	0.0424	0.0396	0.0364	0.0399	0.0443	0.0277	0.0451
6935	0.0293	0.0416	0.0458	0.0448	0.0397	0.0442	0.0466	0.044	0.0423	0.0396	0.0364	0.0399	0.0441	0.0278	0.0449
6965.4	0.0293	0.0415	0.0455	0.0445	0.0396	0.044	0.0463	0.0438	0.0421	0.0395	0.0364	0.0398	0.0439	0.0279	0.0447
6995.8	0.0294	0.0413	0.0452	0.0443	0.0395	0.0438	0.046	0.0436	0.042	0.0394	0.0363	0.0397	0.0437	0.0279	0.0444
7026.3	0.0294	0.0412	0.0452	0.0442	0.0394	0.0437	0.046	0.0435	0.0419	0.0393	0.0363	0.0396	0.0436	0.0279	0.0444
7056.7	0.0294	0.0412	0.0452	0.0443	0.0394	0.0437	0.0461	0.0435	0.0419	0.0393	0.0362	0.0396	0.0436	0.028	0.0444
7087.1	0.0294	0.0413	0.0455	0.0444	0.0394	0.0439	0.0463	0.0437	0.042	0.0393	0.0363	0.0396	0.0438	0.028	0.0446
7117.5	0.0295	0.0415	0.0458	0.0447	0.0396	0.0441	0.0466	0.0439	0.0422	0.0395	0.0364	0.0398	0.0441	0.028	0.0449
7147.9	0.0295	0.0417	0.0461	0.0451	0.0397	0.0441	0.047	0.0442	0.0424	0.0396	0.0364	0.04	0.0444	0.0281	0.0452
7178.3	0.0296	0.042	0.0464	0.0454	0.04	0.0447	0.0474	0.0445	0.0427	0.0399	0.0365	0.0402	0.0447	0.0281	0.0455
7208.8	0.0296	0.0422	0.0466	0.0456	0.0401	0.0449	0.0476	0.0447	0.0429	0.04	0.0368	0.0404	0.0449	0.0282	0.0457
7239.2	0.0297	0.0423	0.0467	0.0456	0.0403	0.045	0.0476	0.0448	0.043	0.0402	0.0369	0.0405	0.0445	0.0282	0.0458
7269.6	0.0298	0.0423	0.0466	0.0456	0.0403	0.045	0.0475	0.0448	0.043	0.0402	0.037	0.0406	0.0449	0.0283	0.0457
7300	0.0299	0.0422	0.0464	0.0454	0.0403	0.0448	0.0472	0.0445	0.0429	0.0402	0.037	0.0405	0.0448	0.0284	0.0455

Appendix G:

Haffiger Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91.3	0	0	0.0002	0.0002	0	1E-04	0.0003	1E-04	0.0001	0	0	0	0.0001	0	0.0002
121.7	0	0.0001	0.0007	0.0005	0.0001	0.0004	0.0009	0.0004	0.0002	0	0	0.0001	0.0004	0	0.0006
152.1	0	0.0004	0.0015	0.0012	0.0002	0.001	0.0019	0.0009	0.0006	0.0002	0	0.0003	0.001	0	0.0012
182.5	0	0.0009	0.0026	0.0021	0.0005	0.0018	0.0031	0.0017	0.0011	0.0005	1E-04	0.0005	0.0018	0	0.0021
212.9	0	0.0015	0.0039	0.0032	0.0009	0.0028	0.0046	0.0027	0.0018	0.0008	0.0003	0.001	0.0028	0	0.0033
243.3	0	0.0022	0.0054	0.0045	0.0014	0.004	0.0063	0.0038	0.0027	0.0014	0.0005	0.0015	0.0039	0	0.0046
273.8	1E-04	0.0031	0.007	0.0059	0.002	0.0053	0.008	0.0051	0.0037	0.002	0.0008	0.0022	0.0052	0	0.006
304.2	1E-04	0.0041	0.0086	0.0074	0.0028	0.0067	0.0098	0.0065	0.0047	0.0027	0.0012	0.0029	0.0066	0	0.0075
334.6	0.0002	0.0052	0.0103	0.0089	0.0036	0.0081	0.0116	0.0079	0.0059	0.0035	0.0017	0.0037	0.008	0.0001	0.009
365	0.0003	0.0063	0.0119	0.0103	0.0044	0.0095	0.0133	0.0092	0.007	0.0043	0.0022	0.0046	0.0094	0.0001	0.0105
395.4	0.0004	0.0074	0.0133	0.0117	0.0053	0.0108	0.0148	0.0106	0.0082	0.0052	0.0027	0.0055	0.0107	0.0002	0.0119
425.8	0.0005	0.0084	0.0147	0.013	0.0062	0.0121	0.0162	0.0118	0.0093	0.0061	0.0033	0.0064	0.012	0.0003	0.0132
456.3	0.0007	0.0094	0.016	0.0142	0.007	0.0133	0.0175	0.013	0.0104	0.0069	0.0039	0.0073	0.0132	0.0004	0.0144
486.7	0.0008	0.0104	0.0172	0.0154	0.0079	0.0144	0.0188	0.0141	0.0114	0.0078	0.0045	0.0081	0.0143	0.0005	0.0156
517.1	0.001	0.0114	0.0184	0.0165	0.0087	0.0155	0.0201	0.0152	0.0124	0.0086	0.0052	0.009	0.0154	0.0006	0.0168
547.5	0.0012	0.0123	0.0197	0.0177	0.0096	0.0167	0.0214	0.0163	0.0134	0.0094	0.0058	0.0098	0.0166	0.0008	0.018
577.9	0.0015	0.0133	0.021	0.0189	0.0104	0.0178	0.0228	0.0175	0.0144	0.0103	0.0064	0.0107	0.0177	0.001	0.0192
608.3	0.0017	0.0143	0.0224	0.0202	0.0113	0.0191	0.0242	0.0187	0.0155	0.0111	0.007	0.0116	0.0189	0.0011	0.0205
638.8	0.002	0.0153	0.0238	0.0215	0.0121	0.0203	0.0257	0.0212	0.0177	0.0129	0.0084	0.0125	0.0202	0.0013	0.0218
669.2	0.0022	0.0164	0.0251	0.0228	0.013	0.0216	0.0272	0.0212	0.0177	0.0129	0.0084	0.0134	0.0215	0.0015	0.0231
699.6	0.0025	0.0174	0.0265	0.0241	0.014	0.0228	0.0286	0.0236	0.0198	0.0147	0.0097	0.0152	0.0239	0.0018	0.0244
730	0.0028	0.0185	0.0277	0.0253	0.0149	0.024	0.0298	0.0236	0.0198	0.0147	0.0097	0.0152	0.0239	0.002	0.0256
760.4	0.0031	0.0195	0.0289	0.0264	0.0158	0.0251	0.031	0.0247	0.0209	0.0156	0.0104	0.0161	0.025	0.0022	0.0267
790.8	0.0034	0.0204	0.0299	0.0275	0.0166	0.0261	0.032	0.0257	0.0218	0.0165	0.0111	0.017	0.026	0.0025	0.0278
821.3	0.0037	0.0213	0.0309	0.0284	0.0175	0.027	0.033	0.0266	0.0227	0.0173	0.0118	0.0178	0.0269	0.0027	0.0287
851.7	0.0041	0.0222	0.0318	0.0293	0.0183	0.0279	0.0339	0.0275	0.0236	0.0181	0.0125	0.0186	0.0278	0.003	0.0296
882.1	0.0044	0.023	0.0327	0.0302	0.019	0.0288	0.0348	0.0284	0.0244	0.0188	0.0132	0.0194	0.0287	0.0033	0.0305
912.5	0.0047	0.0238	0.0336	0.0311	0.0198	0.0297	0.0358	0.0293	0.0252	0.0196	0.0138	0.0201	0.0295	0.0035	0.0314
942.9	0.0051	0.0246	0.0346	0.032	0.0205	0.0306	0.0368	0.0302	0.0261	0.0203	0.0144	0.0209	0.0305	0.0038	0.0323
973.3	0.0054	0.0254	0.0356	0.033	0.0213	0.0315	0.0379	0.0311	0.0269	0.0211	0.015	0.0217	0.0314	0.0041	0.0333
1003.8	0.0058	0.0263	0.0368	0.034	0.022	0.0326	0.0391	0.0321	0.0278	0.0218	0.0157	0.0224	0.0324	0.0044	0.0344
1034.2	0.0061	0.0272	0.0379	0.0351	0.0228	0.0336	0.0402	0.0331	0.0288	0.0226	0.0163	0.0232	0.0334	0.0047	0.0354
1064.6	0.0065	0.0281	0.0389	0.0361	0.0236	0.0346	0.0413	0.0341	0.0297	0.0234	0.017	0.024	0.0344	0.005	0.0365

Hafliger Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:																
Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16	
1095	0.0069	0.0289	0.0399	0.0371	0.0244	0.0355	0.0423	0.0351	0.0306	0.0242	0.0176	0.0248	0.0354	0.0053	0.0375	
1125.4	0.0072	0.0298	0.0408	0.038	0.0252	0.0364	0.0432	0.036	0.0314	0.025	0.0182	0.0256	0.0363	0.0056	0.0383	
1155.8	0.0076	0.0305	0.0416	0.0388	0.0259	0.0372	0.044	0.0368	0.0322	0.0257	0.0189	0.0264	0.0371	0.0059	0.0391	
1186.3	0.0079	0.0313	0.0423	0.0395	0.0266	0.0379	0.0447	0.0375	0.0329	0.0264	0.0195	0.0271	0.0378	0.0063	0.0398	
1216.7	0.0083	0.0319	0.043	0.0402	0.0273	0.0386	0.0453	0.0382	0.0336	0.0271	0.0201	0.0277	0.0385	0.0066	0.0405	
1247.1	0.0087	0.0326	0.0436	0.0408	0.0279	0.0393	0.046	0.0388	0.0343	0.0277	0.0207	0.0284	0.0392	0.0069	0.0412	
1277.5	0.0091	0.0332	0.0444	0.0415	0.0285	0.04	0.0468	0.0395	0.0349	0.0283	0.0213	0.029	0.0398	0.0072	0.0419	
1307.9	0.0094	0.0339	0.0452	0.0423	0.0292	0.0407	0.0476	0.0403	0.0356	0.0289	0.0218	0.0296	0.0406	0.0075	0.0427	
1338.3	0.0098	0.0346	0.046	0.0431	0.0298	0.0415	0.0485	0.041	0.0363	0.0296	0.0224	0.0303	0.0414	0.0079	0.0435	
1368.8	0.0102	0.0353	0.0469	0.044	0.0305	0.0423	0.0494	0.0419	0.0371	0.0302	0.0229	0.0309	0.0422	0.0082	0.0443	
1399.2	0.0105	0.0361	0.0478	0.0448	0.0311	0.0432	0.0504	0.0427	0.0378	0.0309	0.0235	0.0316	0.043	0.0085	0.0452	
1429.6	0.0109	0.0368	0.0487	0.0457	0.0318	0.044	0.0513	0.0435	0.0386	0.0316	0.0241	0.0323	0.0439	0.0088	0.0461	
1460	0.0113	0.0376	0.0496	0.0465	0.0325	0.0448	0.0521	0.0443	0.0394	0.0323	0.0247	0.033	0.0447	0.0092	0.0469	
1490.4	0.0116	0.0383	0.0503	0.0472	0.0332	0.0455	0.0528	0.0451	0.0401	0.0329	0.0252	0.0336	0.0454	0.0095	0.0476	
1520.8	0.012	0.0389	0.0509	0.0479	0.0338	0.0462	0.0534	0.0457	0.0407	0.0336	0.0258	0.0343	0.046	0.0098	0.0483	
1551.3	0.0124	0.0395	0.0514	0.0484	0.0344	0.0468	0.054	0.0463	0.0413	0.0342	0.0264	0.0349	0.0466	0.0101	0.0488	
1581.7	0.0127	0.0401	0.052	0.049	0.035	0.0473	0.0545	0.0468	0.0419	0.0347	0.0269	0.0354	0.0472	0.0105	0.0493	
1612.1	0.0131	0.0406	0.0525	0.0495	0.0355	0.0478	0.055	0.0474	0.0424	0.0353	0.0274	0.036	0.0477	0.0108	0.0499	
1642.5	0.0134	0.0412	0.0531	0.0501	0.036	0.0484	0.0556	0.0479	0.043	0.0358	0.0279	0.0365	0.0483	0.0111	0.0504	
1672.9	0.0138	0.0417	0.0537	0.0507	0.0365	0.049	0.0563	0.0485	0.0435	0.0363	0.0284	0.037	0.0489	0.0114	0.0511	
1703.3	0.0142	0.0423	0.0544	0.0514	0.0371	0.0497	0.057	0.0492	0.0441	0.0368	0.0289	0.0376	0.0495	0.0118	0.0518	
1733.8	0.0145	0.0429	0.0552	0.0521	0.0376	0.0504	0.0579	0.0499	0.0448	0.0374	0.0294	0.0381	0.0502	0.0121	0.0525	
1764.2	0.0149	0.0436	0.056	0.0528	0.0382	0.0511	0.0587	0.0506	0.0454	0.038	0.0299	0.0387	0.051	0.0124	0.0533	
1794.6	0.0152	0.0442	0.0568	0.0536	0.0388	0.0518	0.0595	0.0513	0.0461	0.0386	0.0304	0.0393	0.0517	0.0127	0.054	
1825	0.0156	0.0448	0.0575	0.0543	0.0394	0.0525	0.0602	0.052	0.0468	0.0392	0.0309	0.0399	0.0524	0.013	0.0547	
1855.4	0.0159	0.0455	0.0581	0.0549	0.04	0.0531	0.0608	0.0526	0.0474	0.0397	0.0314	0.0405	0.053	0.0134	0.0553	
1885.8	0.0163	0.046	0.0586	0.0554	0.0405	0.0537	0.0613	0.0532	0.0479	0.0403	0.0319	0.0411	0.0535	0.0137	0.0558	
1916.3	0.0166	0.0465	0.059	0.0559	0.0411	0.0542	0.0617	0.0537	0.0484	0.0408	0.0324	0.0416	0.054	0.014	0.0563	
1946.7	0.017	0.047	0.0594	0.0563	0.0416	0.0546	0.0621	0.0541	0.0489	0.0413	0.0329	0.0421	0.0544	0.0143	0.0567	
1977.1	0.0173	0.0475	0.0599	0.0567	0.042	0.055	0.0625	0.0545	0.0494	0.0418	0.0333	0.0425	0.0549	0.0146	0.0571	
2007.5	0.0177	0.0479	0.0603	0.0572	0.0425	0.0555	0.063	0.055	0.0498	0.0422	0.0338	0.043	0.0553	0.0149	0.0576	
2037.9	0.018	0.0484	0.0609	0.0577	0.0429	0.056	0.0635	0.0555	0.0503	0.0427	0.0342	0.0434	0.0558	0.0152	0.0581	
2068.3	0.0183	0.0489	0.0615	0.0583	0.0434	0.0566	0.0642	0.0561	0.0508	0.0431	0.0346	0.0439	0.0564	0.0156	0.0587	
2098.8	0.0187	0.0494	0.0622	0.059	0.0439	0.0572	0.0649	0.0567	0.0514	0.0436	0.0351	0.0444	0.057	0.0159	0.0594	
2129.2	0.019	0.05	0.0629	0.0596	0.0444	0.0578	0.0657	0.0573	0.0519	0.0441	0.0355	0.0449	0.0577	0.0162	0.0601	
2159.6	0.0193	0.0506	0.0636	0.0603	0.0449	0.0585	0.0664	0.058	0.0525	0.0446	0.0359	0.0454	0.0583	0.0165	0.0607	

Hafliager Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
2190	0.0197	0.0511	0.0642	0.0609	0.0454	0.0591	0.067	0.0586	0.0531	0.0452	0.0364	0.046	0.0589	0.0168	0.0613
2220.4	0.02	0.0517	0.0647	0.0614	0.0459	0.0596	0.0675	0.0591	0.0537	0.0457	0.0369	0.0465	0.0595	0.0171	0.0619
2250.8	0.0203	0.0521	0.0652	0.0619	0.0464	0.0601	0.0679	0.0596	0.0541	0.0462	0.0373	0.047	0.0599	0.0174	0.0623
2281.3	0.0206	0.0526	0.0655	0.0623	0.0469	0.0605	0.0682	0.06	0.0546	0.0466	0.0378	0.0474	0.0603	0.0177	0.0627
2311.7	0.021	0.053	0.0658	0.0626	0.0473	0.0608	0.0685	0.0603	0.055	0.0471	0.0382	0.0479	0.0607	0.018	0.063
2342.1	0.0213	0.0534	0.0662	0.063	0.0477	0.0612	0.0689	0.0607	0.0554	0.0474	0.0386	0.0483	0.0611	0.0183	0.0634
2372.5	0.0216	0.0538	0.0666	0.0634	0.0481	0.0616	0.0693	0.0611	0.0557	0.0478	0.039	0.0486	0.0614	0.0186	0.0638
2402.9	0.0219	0.0542	0.0671	0.0638	0.0485	0.062	0.0698	0.0615	0.0561	0.0482	0.0394	0.049	0.0619	0.0189	0.0642
2433.3	0.0223	0.0546	0.0676	0.0643	0.0489	0.0625	0.0704	0.062	0.0566	0.0486	0.0397	0.0495	0.0624	0.0192	0.0648
2463.8	0.0226	0.0551	0.0683	0.0649	0.0493	0.0631	0.071	0.0626	0.0571	0.0491	0.0401	0.0499	0.0629	0.0195	0.0654
2494.2	0.0229	0.0556	0.0689	0.0655	0.0498	0.0637	0.0717	0.0631	0.0576	0.0495	0.0405	0.0503	0.0635	0.0198	0.066
2524.6	0.0232	0.0561	0.0695	0.0661	0.0503	0.0643	0.0723	0.0637	0.0582	0.05	0.0409	0.0508	0.0641	0.0201	0.0666
2555	0.0235	0.0566	0.07	0.0667	0.0507	0.0648	0.0729	0.0643	0.0587	0.0505	0.0413	0.0513	0.0646	0.0203	0.0671
2585.4	0.0238	0.0571	0.0705	0.0671	0.0512	0.0653	0.0733	0.0647	0.0592	0.0509	0.0418	0.0518	0.0651	0.0206	0.0676
2615.8	0.0241	0.0575	0.0709	0.0675	0.0516	0.0657	0.0736	0.0652	0.0596	0.0514	0.0422	0.0522	0.0655	0.0209	0.068
2646.3	0.0244	0.0579	0.0712	0.0679	0.0521	0.066	0.0739	0.0655	0.06	0.0518	0.0426	0.0526	0.0659	0.0212	0.0683
2676.7	0.0247	0.0583	0.0714	0.0681	0.0524	0.0663	0.0742	0.0658	0.0603	0.0522	0.0429	0.053	0.0662	0.0215	0.0686
2707.1	0.025	0.0586	0.0717	0.0684	0.0528	0.0666	0.0744	0.0661	0.0606	0.0525	0.0433	0.0533	0.0665	0.0218	0.0689
2737.5	0.0253	0.0589	0.0721	0.0688	0.0531	0.067	0.0748	0.0664	0.061	0.0528	0.0437	0.0537	0.0668	0.0221	0.0692
2767.9	0.0256	0.0593	0.0725	0.0692	0.0535	0.0674	0.0752	0.0668	0.0613	0.0532	0.044	0.054	0.0672	0.0223	0.0696
2798.3	0.0259	0.0597	0.073	0.0696	0.0538	0.0678	0.0758	0.0673	0.0617	0.0536	0.0443	0.0544	0.0676	0.0226	0.0701
2828.8	0.0262	0.0601	0.0736	0.0702	0.0542	0.0683	0.0764	0.0678	0.0622	0.0539	0.0447	0.0548	0.0681	0.0229	0.0706
2859.2	0.0265	0.0606	0.0741	0.0707	0.0546	0.0688	0.077	0.0683	0.0627	0.0544	0.0451	0.0552	0.0687	0.0232	0.0712
2889.6	0.0268	0.061	0.0747	0.0713	0.0551	0.0694	0.0776	0.0688	0.0631	0.0548	0.0454	0.0556	0.0692	0.0234	0.0717
2920	0.0271	0.0615	0.0752	0.0718	0.0555	0.0699	0.0781	0.0693	0.0636	0.0552	0.0458	0.0561	0.0697	0.0237	0.0722
2950.4	0.0274	0.0619	0.0756	0.0722	0.0559	0.0703	0.0784	0.0697	0.064	0.0556	0.0462	0.0565	0.0701	0.024	0.0726
2980.8	0.0276	0.0623	0.0759	0.0725	0.0563	0.0706	0.0787	0.0701	0.0644	0.056	0.0466	0.0569	0.0705	0.0242	0.073
3011.3	0.0279	0.0627	0.0762	0.0728	0.0567	0.0709	0.0789	0.0704	0.0648	0.0564	0.0469	0.0573	0.0708	0.0245	0.0732
3041.7	0.0282	0.063	0.0764	0.073	0.057	0.0712	0.0792	0.0707	0.0651	0.0567	0.0473	0.0576	0.071	0.0248	0.0735
3072.1	0.0285	0.0633	0.0766	0.0733	0.0573	0.0715	0.0794	0.0709	0.0654	0.057	0.0476	0.0579	0.0713	0.025	0.0737
3102.5	0.0288	0.0636	0.0769	0.0736	0.0576	0.0717	0.0797	0.0712	0.0656	0.0573	0.0479	0.0582	0.0716	0.0253	0.074
3132.9	0.0291	0.0639	0.0773	0.0739	0.0579	0.0721	0.0801	0.0716	0.066	0.0577	0.0482	0.0585	0.0719	0.0256	0.0744
3163.3	0.0293	0.0642	0.0778	0.0744	0.0583	0.0725	0.0806	0.072	0.0663	0.058	0.0485	0.0588	0.0723	0.0258	0.0748
3193.8	0.0296	0.0646	0.0783	0.0749	0.0586	0.073	0.0812	0.0724	0.0667	0.0583	0.0488	0.0592	0.0728	0.0261	0.0753
3224.2	0.0299	0.0651	0.0788	0.0754	0.059	0.0735	0.0817	0.0729	0.0672	0.0587	0.0492	0.0596	0.0733	0.0263	0.0758
3254.6	0.0301	0.0655	0.0793	0.0759	0.0594	0.0739	0.0823	0.0734	0.0676	0.0591	0.0495	0.06	0.0738	0.0266	0.0763

Haffiger Model Scenario: Dairy #2 increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
3285	0.0304	0.0659	0.0798	0.0763	0.0598	0.0744	0.0827	0.0738	0.068	0.0595	0.0499	0.0604	0.0742	0.0269	0.0768
3315.4	0.0307	0.0663	0.0802	0.0767	0.0602	0.0748	0.083	0.0742	0.0684	0.0599	0.0502	0.0608	0.0746	0.0271	0.0772
3345.8	0.031	0.0667	0.0804	0.077	0.0605	0.0751	0.0833	0.0746	0.0688	0.0602	0.0506	0.0611	0.0749	0.0274	0.0775
3376.3	0.0312	0.067	0.0806	0.0772	0.0609	0.0754	0.0835	0.0748	0.0691	0.0606	0.0509	0.0615	0.0752	0.0276	0.0777
3406.7	0.0315	0.0673	0.0808	0.0775	0.0612	0.0756	0.0836	0.075	0.0694	0.0609	0.0512	0.0617	0.0754	0.0279	0.0779
3437.1	0.0318	0.0675	0.081	0.0777	0.0614	0.0758	0.0838	0.0753	0.0696	0.0612	0.0515	0.062	0.0756	0.0281	0.0781
3467.5	0.032	0.0678	0.0813	0.0779	0.0617	0.0761	0.0841	0.0755	0.0699	0.0614	0.0518	0.0623	0.0759	0.0284	0.0784
3497.9	0.0323	0.0681	0.0816	0.0782	0.062	0.0764	0.0845	0.0758	0.0702	0.0617	0.0521	0.0626	0.0762	0.0286	0.0787
3528.3	0.0325	0.0684	0.0821	0.0786	0.0623	0.0767	0.0849	0.0762	0.0705	0.062	0.0524	0.0629	0.0766	0.0289	0.0791
3558.8	0.0328	0.0687	0.0826	0.0791	0.0626	0.0772	0.0855	0.0766	0.0709	0.0623	0.0526	0.0632	0.077	0.0291	0.0795
3589.2	0.033	0.0691	0.0831	0.0796	0.063	0.0776	0.086	0.0771	0.0713	0.0627	0.0529	0.0635	0.0775	0.0294	0.08
3619.6	0.0333	0.0695	0.0835	0.08	0.0633	0.0781	0.0865	0.0775	0.0717	0.063	0.0533	0.0639	0.0779	0.0296	0.0805
3650	0.0335	0.0699	0.084	0.0804	0.0637	0.0785	0.0869	0.0779	0.0721	0.0634	0.0536	0.0643	0.0783	0.0298	0.0809
3680.4	0.0338	0.0703	0.0843	0.0808	0.0641	0.0789	0.0872	0.0783	0.0725	0.0638	0.0539	0.0646	0.0787	0.0301	0.0813
3710.8	0.034	0.0706	0.0845	0.0811	0.0644	0.0792	0.0874	0.0786	0.0728	0.0641	0.0542	0.065	0.079	0.0303	0.0815
3741.3	0.0343	0.0709	0.0847	0.0813	0.0647	0.0794	0.0876	0.0788	0.073	0.0644	0.0545	0.0653	0.0792	0.0305	0.0817
3771.7	0.0345	0.0711	0.0849	0.0815	0.065	0.0796	0.0877	0.079	0.0733	0.0647	0.0548	0.0656	0.0794	0.0308	0.0819
3802.1	0.0348	0.0714	0.085	0.0817	0.0652	0.0798	0.0879	0.0792	0.0735	0.0649	0.0551	0.0658	0.0796	0.031	0.0821
3832.5	0.035	0.0716	0.0853	0.0819	0.0655	0.08	0.0881	0.0794	0.0737	0.0652	0.0554	0.066	0.0798	0.0313	0.0823
3862.9	0.0353	0.0719	0.0856	0.0822	0.0657	0.0803	0.0884	0.0797	0.074	0.0654	0.0556	0.0663	0.0801	0.0315	0.0826
3893.3	0.0355	0.0722	0.086	0.0825	0.066	0.0806	0.0889	0.0801	0.0743	0.0657	0.0559	0.0666	0.0805	0.0317	0.083
3923.8	0.0358	0.0725	0.0864	0.0829	0.0663	0.081	0.0894	0.0805	0.0746	0.066	0.0561	0.0669	0.0809	0.032	0.0834
3954.2	0.036	0.0728	0.0869	0.0834	0.0666	0.0814	0.0899	0.0809	0.075	0.0663	0.0564	0.0672	0.0813	0.0322	0.0838
3984.6	0.0362	0.0732	0.0874	0.0838	0.0669	0.0819	0.0903	0.0813	0.0754	0.0666	0.0567	0.0675	0.0817	0.0324	0.0843
4015	0.0365	0.0736	0.0878	0.0842	0.0673	0.0823	0.0907	0.0817	0.0758	0.067	0.057	0.0679	0.0821	0.0326	0.0847
4045.4	0.0367	0.0739	0.0881	0.0846	0.0676	0.0826	0.091	0.082	0.0761	0.0673	0.0573	0.0682	0.0824	0.0329	0.085
4075.8	0.0369	0.0742	0.0883	0.0848	0.0679	0.0829	0.0912	0.0823	0.0764	0.0676	0.0576	0.0685	0.0827	0.0331	0.0853
4106.3	0.0372	0.0745	0.0884	0.085	0.0682	0.0831	0.0913	0.0825	0.0767	0.0679	0.0579	0.0688	0.0829	0.0333	0.0854
4136.7	0.0374	0.0747	0.0886	0.0851	0.0685	0.0832	0.0914	0.0827	0.0769	0.0682	0.0582	0.0691	0.0831	0.0335	0.0856
4167.1	0.0377	0.0749	0.0887	0.0853	0.0687	0.0834	0.0916	0.0828	0.0771	0.0684	0.0584	0.0693	0.0832	0.0338	0.0857
4197.5	0.0379	0.0751	0.0889	0.0855	0.0689	0.0836	0.0918	0.083	0.0773	0.0686	0.0587	0.0695	0.0834	0.034	0.0859
4227.9	0.0381	0.0754	0.0892	0.0858	0.0691	0.0838	0.0921	0.0833	0.0775	0.0689	0.0589	0.0697	0.0837	0.0342	0.0862
4258.3	0.0384	0.0756	0.0896	0.0861	0.0694	0.0842	0.0925	0.0836	0.0778	0.0691	0.0591	0.07	0.084	0.0344	0.0865
4288.8	0.0386	0.0759	0.09	0.0865	0.0697	0.0845	0.093	0.084	0.0781	0.0694	0.0594	0.0703	0.0844	0.0346	0.0869
4319.2	0.0388	0.0763	0.0905	0.0869	0.07	0.0849	0.0934	0.0844	0.0785	0.0697	0.0596	0.0706	0.0848	0.0349	0.0874
4349.6	0.039	0.0766	0.0909	0.0873	0.0703	0.0854	0.0939	0.0848	0.0788	0.07	0.0599	0.0709	0.0852	0.0351	0.0878

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
4380	0.0392	0.077	0.0913	0.0877	0.0706	0.0857	0.0942	0.0852	0.0792	0.0703	0.0602	0.0712	0.0856	0.0353	0.0882
4410.4	0.0395	0.0773	0.0916	0.088	0.0709	0.086	0.0945	0.0855	0.0795	0.0706	0.0605	0.0715	0.0859	0.0355	0.0885
4440.8	0.0397	0.0776	0.0918	0.0882	0.0712	0.0863	0.0947	0.0857	0.0798	0.0709	0.0608	0.0718	0.0861	0.0357	0.0887
4471.3	0.0399	0.0778	0.0919	0.0884	0.0715	0.0865	0.0948	0.0859	0.08	0.0712	0.061	0.0721	0.0863	0.0359	0.0888
4501.7	0.0401	0.078	0.092	0.0885	0.0717	0.0866	0.0948	0.086	0.0802	0.0714	0.0613	0.0723	0.0864	0.0361	0.089
4532.1	0.0404	0.0782	0.0921	0.0887	0.0719	0.0867	0.095	0.0862	0.0804	0.0716	0.0615	0.0725	0.0866	0.0363	0.0891
4562.5	0.0406	0.0784	0.0923	0.0888	0.0721	0.0869	0.0952	0.0864	0.0805	0.0718	0.0617	0.0727	0.0868	0.0366	0.0893
4592.9	0.0408	0.0786	0.0926	0.0891	0.0723	0.0872	0.0955	0.0866	0.0808	0.072	0.062	0.0729	0.087	0.0368	0.0895
4623.3	0.041	0.0788	0.0929	0.0894	0.0726	0.0875	0.0958	0.0869	0.081	0.0723	0.0622	0.0732	0.0873	0.037	0.0899
4653.8	0.0412	0.0791	0.0933	0.0898	0.0728	0.0878	0.0963	0.0873	0.0813	0.0725	0.0624	0.0734	0.0876	0.0372	0.0902
4684.2	0.0414	0.0795	0.0938	0.0902	0.0731	0.0882	0.0967	0.0876	0.0817	0.0728	0.0627	0.0737	0.088	0.0374	0.0906
4714.6	0.0416	0.0798	0.0942	0.0906	0.0734	0.0886	0.0972	0.088	0.082	0.0731	0.0629	0.074	0.0884	0.0376	0.091
4745	0.0418	0.0801	0.0945	0.0909	0.0737	0.0889	0.0975	0.0884	0.0823	0.0734	0.0632	0.0743	0.0888	0.0378	0.0914
4775.4	0.0421	0.0804	0.0948	0.0912	0.074	0.0892	0.0977	0.0887	0.0826	0.0737	0.0634	0.0746	0.0891	0.038	0.0917
4805.8	0.0423	0.0807	0.095	0.0914	0.0743	0.0894	0.0979	0.0889	0.0829	0.074	0.0637	0.0749	0.0893	0.0382	0.0919
4836.3	0.0425	0.0809	0.0951	0.0915	0.0745	0.0896	0.098	0.089	0.0831	0.0742	0.0639	0.0751	0.0894	0.0384	0.092
4866.7	0.0427	0.0811	0.0951	0.0917	0.0747	0.0897	0.098	0.0892	0.0833	0.0744	0.0642	0.0753	0.0896	0.0386	0.0921
4897.1	0.0429	0.0813	0.0953	0.0918	0.0749	0.0899	0.0981	0.0893	0.0834	0.0746	0.0644	0.0755	0.0897	0.0388	0.0922
4927.5	0.0431	0.0814	0.0954	0.0919	0.0751	0.09	0.0983	0.0895	0.0836	0.0748	0.0646	0.0757	0.0899	0.039	0.0924
4957.9	0.0433	0.0816	0.0957	0.0922	0.0753	0.0902	0.0986	0.0897	0.0838	0.075	0.0648	0.0759	0.0901	0.0392	0.0926
4988.3	0.0435	0.0818	0.096	0.0925	0.0755	0.0905	0.0989	0.09	0.084	0.0752	0.065	0.0761	0.0903	0.0394	0.0929
5018.8	0.0437	0.0821	0.0964	0.0928	0.0757	0.0908	0.0994	0.0903	0.0843	0.0754	0.0652	0.0763	0.0907	0.0396	0.0933
5049.2	0.0439	0.0824	0.0968	0.0932	0.076	0.0912	0.0998	0.0907	0.0846	0.0757	0.0655	0.0766	0.0911	0.0398	0.0937
5079.6	0.0441	0.0827	0.0972	0.0936	0.0763	0.0916	0.1002	0.091	0.085	0.076	0.0657	0.0769	0.0914	0.04	0.0941
5110	0.0443	0.0831	0.0975	0.0939	0.0766	0.0919	0.1005	0.0913	0.0853	0.0763	0.066	0.0772	0.0918	0.0402	0.0944
5140.4	0.0445	0.0833	0.0978	0.0942	0.0769	0.0922	0.1008	0.0916	0.0856	0.0765	0.0662	0.0775	0.092	0.0404	0.0946
5170.8	0.0447	0.0836	0.0979	0.0944	0.0771	0.0924	0.1009	0.0918	0.0858	0.0768	0.0664	0.0777	0.0922	0.0406	0.0948
5201.3	0.0449	0.0838	0.098	0.0945	0.0773	0.0925	0.1009	0.092	0.086	0.077	0.0667	0.078	0.0924	0.0407	0.095
5231.7	0.0451	0.084	0.0981	0.0946	0.0775	0.0926	0.101	0.0921	0.0862	0.0772	0.0669	0.0782	0.0925	0.0409	0.095
5262.1	0.0453	0.0841	0.0982	0.0947	0.0777	0.0928	0.1011	0.0922	0.0863	0.0774	0.0671	0.0783	0.0926	0.0411	0.0951
5292.5	0.0455	0.0843	0.0983	0.0948	0.0779	0.0929	0.1012	0.0923	0.0865	0.0776	0.0673	0.0785	0.0927	0.0413	0.0953
5322.9	0.0457	0.0844	0.0986	0.0951	0.0781	0.0931	0.1015	0.0925	0.0866	0.0778	0.0675	0.0787	0.0929	0.0415	0.0955
5353.3	0.0459	0.0847	0.0989	0.0953	0.0783	0.0934	0.1018	0.0928	0.0869	0.078	0.0677	0.0789	0.0932	0.0417	0.0958
5383.8	0.0461	0.0849	0.0993	0.0957	0.0785	0.0937	0.1022	0.0931	0.0871	0.0782	0.0679	0.0791	0.0935	0.0419	0.0961
5414.2	0.0463	0.0852	0.0997	0.096	0.0787	0.094	0.1027	0.0935	0.0874	0.0784	0.0681	0.0794	0.0939	0.0421	0.0965
5444.6	0.0465	0.0855	0.1	0.0964	0.079	0.0944	0.1031	0.0938	0.0877	0.0787	0.0683	0.0796	0.0942	0.0422	0.0969

Haffliger Model Scenario: Dairy #2 Increased pumping

Modeled drawdown at well:

Time (d)	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16
5475	0.0466	0.0858	0.1004	0.0967	0.0793	0.0947	0.1034	0.0941	0.0881	0.079	0.0686	0.0799	0.0945	0.0424	0.0972
5505.4	0.0468	0.0861	0.1006	0.097	0.0795	0.095	0.1036	0.0944	0.0883	0.0792	0.0688	0.0802	0.0948	0.0426	0.0974
5535.8	0.047	0.0863	0.1007	0.0971	0.0798	0.0952	0.1037	0.0946	0.0885	0.0795	0.069	0.0804	0.095	0.0428	0.0976
5566.3	0.0472	0.0865	0.1008	0.0973	0.08	0.0953	0.1037	0.0947	0.0887	0.0797	0.0693	0.0806	0.0951	0.043	0.0977
5596.7	0.0474	0.0866	0.1009	0.0973	0.0802	0.0954	0.1038	0.0948	0.0889	0.0799	0.0695	0.0808	0.0952	0.0432	0.0978
5627.1	0.0476	0.0868	0.1009	0.0974	0.0804	0.0955	0.1038	0.0949	0.089	0.0801	0.0697	0.081	0.0953	0.0433	0.0979
5657.5	0.0478	0.0869	0.1011	0.0976	0.0805	0.0956	0.104	0.0951	0.0891	0.0802	0.0699	0.0811	0.0954	0.0435	0.098
5687.9	0.048	0.0871	0.1013	0.0978	0.0807	0.0958	0.1042	0.0952	0.0893	0.0804	0.07	0.0813	0.0956	0.0437	0.0982
5718.3	0.0482	0.0873	0.1016	0.098	0.0809	0.096	0.1045	0.0955	0.0895	0.0806	0.0702	0.0815	0.0959	0.0439	0.0985
5748.8	0.0483	0.0875	0.1019	0.0983	0.0811	0.0964	0.1049	0.0958	0.0898	0.0808	0.0704	0.0817	0.0962	0.0441	0.0988
5779.2	0.0485	0.0878	0.1023	0.0987	0.0813	0.0967	0.1054	0.0961	0.0901	0.081	0.0706	0.0819	0.0965	0.0442	0.0992
5809.6	0.0487	0.0881	0.1027	0.0991	0.0816	0.097	0.1057	0.0965	0.0904	0.0813	0.0708	0.0822	0.0969	0.0444	0.0995
5840	0.0489	0.0884	0.103	0.0994	0.0818	0.0973	0.106	0.0968	0.0906	0.0815	0.071	0.0825	0.0972	0.0446	0.0998
5870.4	0.049	0.0886	0.1032	0.0996	0.0821	0.0976	0.1062	0.097	0.0909	0.0818	0.0713	0.0827	0.0974	0.0448	0.1001
5900.8	0.0492	0.0889	0.1034	0.0998	0.0823	0.0978	0.1063	0.0972	0.0911	0.082	0.0715	0.0829	0.0976	0.0449	0.1002
5931.3	0.0494	0.089	0.1034	0.0999	0.0825	0.0979	0.1063	0.0973	0.0913	0.0822	0.0717	0.0831	0.0977	0.0451	0.1003
5961.7	0.0496	0.0892	0.1034	0.0999	0.0827	0.098	0.1064	0.0974	0.0914	0.0824	0.0719	0.0833	0.0978	0.0453	0.1004
5992.1	0.0498	0.0893	0.1035	0.1	0.0828	0.098	0.1064	0.0975	0.0915	0.0825	0.0721	0.0835	0.0979	0.0455	0.1005
6022.5	0.05	0.0894	0.1036	0.1001	0.083	0.0982	0.1066	0.0976	0.0916	0.0827	0.0723	0.0836	0.098	0.0456	0.1006
6052.9	0.0501	0.0896	0.1038	0.1003	0.0831	0.0983	0.1068	0.0978	0.0918	0.0828	0.0724	0.0838	0.0982	0.0458	0.1008
6083.3	0.0503	0.0898	0.1041	0.1006	0.0833	0.0986	0.1071	0.098	0.092	0.083	0.0726	0.0839	0.0984	0.046	0.101
6113.8	0.0505	0.09	0.1045	0.1009	0.0835	0.0989	0.1075	0.0983	0.0922	0.0832	0.0728	0.0841	0.0987	0.0461	0.1013
6144.2	0.0506	0.0903	0.1049	0.1012	0.0837	0.0992	0.1079	0.0986	0.0925	0.0834	0.073	0.0844	0.099	0.0463	0.1017
6174.6	0.0508	0.0906	0.1052	0.1016	0.084	0.0995	0.1082	0.0989	0.0928	0.0837	0.0732	0.0846	0.0994	0.0465	0.102
6205	0.051	0.0908	0.1055	0.1018	0.0842	0.0998	0.1085	0.0992	0.0931	0.0839	0.0734	0.0849	0.0997	0.0466	0.1023
6235.4	0.0512	0.0911	0.1057	0.1021	0.0845	0.1001	0.1087	0.0995	0.0933	0.0842	0.0736	0.0851	0.0999	0.0468	0.1025
6265.8	0.0513	0.0913	0.1058	0.1022	0.0847	0.1002	0.1088	0.0996	0.0935	0.0844	0.0738	0.0853	0.1001	0.047	0.1027
6296.3	0.0515	0.0915	0.1059	0.1023	0.0849	0.1003	0.1088	0.0998	0.0937	0.0846	0.074	0.0855	0.1002	0.0471	0.1028
6326.7	0.0517	0.0916	0.1059	0.1024	0.0851	0.1004	0.1088	0.0998	0.0938	0.0847	0.0742	0.0857	0.1002	0.0473	0.1028
6357.1	0.0519	0.0917	0.106	0.1024	0.0852	0.1005	0.1089	0.0999	0.0939	0.0849	0.0744	0.0858	0.1003	0.0475	0.1029
6387.5	0.052	0.0918	0.1061	0.1025	0.0853	0.1006	0.109	0.1	0.094	0.085	0.0745	0.0859	0.1004	0.0476	0.103
6417.9	0.0522	0.092	0.1063	0.1027	0.0855	0.1007	0.1092	0.1002	0.0942	0.0852	0.0747	0.0861	0.1006	0.0478	0.1032
6448.3	0.0524	0.0921	0.1065	0.103	0.0856	0.101	0.1095	0.1004	0.0944	0.0853	0.0749	0.0863	0.1008	0.048	0.1034
6478.8	0.0525	0.0924	0.1069	0.1033	0.0858	0.1012	0.1099	0.1007	0.0946	0.0855	0.075	0.0864	0.1011	0.0481	0.1037
6509.2	0.0527	0.0926	0.1072	0.1036	0.086	0.1016	0.1103	0.101	0.0949	0.0857	0.0752	0.0867	0.1014	0.0483	0.1041
6539.6	0.0528	0.0929	0.1076	0.1039	0.0863	0.1019	0.1106	0.1013	0.0951	0.086	0.0754	0.0869	0.1017	0.0484	0.1044

Haffliger Model Scenario: Dairy #2 increased pumping

Time (d)	Modeled drawdown at well:															
	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 9	Well 10	Well 11	Well 12	Well 13	Well 14	Well 15	Well 16	
6570	0.053	0.0931	0.1079	0.1042	0.0865	0.1022	0.1109	0.1016	0.0954	0.0862	0.0756	0.0872	0.102	0.0486	0.1047	
6600.4	0.0532	0.0934	0.1081	0.1044	0.0868	0.1024	0.1111	0.1018	0.0957	0.0864	0.0758	0.0874	0.1022	0.0488	0.1049	
6630.8	0.0533	0.0936	0.1082	0.1046	0.087	0.1025	0.1112	0.102	0.0958	0.0867	0.076	0.0876	0.1024	0.0489	0.105	
6661.3	0.0535	0.0937	0.1082	0.1046	0.0871	0.1026	0.1112	0.1021	0.096	0.0868	0.0762	0.0878	0.1025	0.0491	0.1051	
6691.7	0.0537	0.0939	0.1082	0.1047	0.0873	0.1027	0.1112	0.1021	0.0961	0.087	0.0764	0.0879	0.1025	0.0492	0.1051	
6722.1	0.0538	0.094	0.1083	0.1047	0.0874	0.1028	0.1112	0.1022	0.0962	0.0871	0.0766	0.0881	0.1026	0.0494	0.1052	
6752.5	0.054	0.0941	0.1084	0.1048	0.0876	0.1029	0.1113	0.1023	0.0963	0.0872	0.0767	0.0882	0.1027	0.0496	0.1053	
6782.9	0.0542	0.0942	0.1086	0.105	0.0877	0.103	0.1115	0.1024	0.0964	0.0874	0.0769	0.0883	0.1028	0.0497	0.1054	
6813.3	0.0543	0.0944	0.1088	0.1052	0.0878	0.1032	0.1118	0.1027	0.0966	0.0875	0.077	0.0885	0.1031	0.0499	0.1057	
6843.8	0.0545	0.0946	0.1091	0.1055	0.088	0.1035	0.1122	0.1029	0.0968	0.0877	0.0772	0.0886	0.1033	0.05	0.106	
6874.2	0.0546	0.0948	0.1095	0.1058	0.0882	0.1038	0.1125	0.1032	0.0971	0.0879	0.0773	0.0889	0.1036	0.0502	0.1063	
6904.6	0.0548	0.0951	0.1098	0.1062	0.0885	0.1041	0.1129	0.1035	0.0974	0.0881	0.0775	0.0891	0.1039	0.0503	0.1066	
6935	0.0549	0.0953	0.1101	0.1064	0.0887	0.1044	0.1132	0.1038	0.0976	0.0884	0.0777	0.0893	0.1042	0.0505	0.1069	
6965.4	0.0551	0.0956	0.1103	0.1066	0.0889	0.1046	0.1133	0.104	0.0979	0.0886	0.0779	0.0895	0.1044	0.0506	0.1071	
6995.8	0.0553	0.0958	0.1104	0.1068	0.0891	0.1048	0.1134	0.1042	0.098	0.0888	0.0781	0.0897	0.1046	0.0508	0.1072	
7026.3	0.0554	0.0959	0.1104	0.1068	0.0893	0.1048	0.1134	0.1043	0.0982	0.089	0.0783	0.0899	0.1047	0.0509	0.1073	
7056.7	0.0556	0.096	0.1104	0.1069	0.0894	0.1049	0.1134	0.1043	0.0983	0.0891	0.0785	0.0901	0.1047	0.0511	0.1073	
7087.1	0.0557	0.0961	0.1105	0.1069	0.0896	0.1049	0.1134	0.1044	0.0983	0.0892	0.0786	0.0902	0.1048	0.0513	0.1074	
7117.5	0.0559	0.0962	0.1106	0.107	0.0897	0.105	0.1135	0.1045	0.0984	0.0894	0.0788	0.0903	0.1049	0.0514	0.1075	
7147.9	0.056	0.0963	0.1107	0.1072	0.0898	0.1052	0.1137	0.1046	0.0986	0.0895	0.0789	0.0904	0.105	0.0516	0.1076	
7178.3	0.0562	0.0965	0.111	0.1074	0.0899	0.1054	0.114	0.1048	0.0987	0.0896	0.0791	0.0906	0.1052	0.0517	0.1078	
7208.8	0.0564	0.0967	0.1113	0.1077	0.0901	0.1056	0.1143	0.1051	0.099	0.0898	0.0792	0.0907	0.1055	0.0519	0.1081	
7239.2	0.0565	0.0969	0.1117	0.108	0.0903	0.1059	0.1147	0.1054	0.0992	0.09	0.0794	0.0909	0.1058	0.052	0.1085	
7269.6	0.0566	0.0972	0.112	0.1083	0.0905	0.1062	0.115	0.1057	0.0995	0.0902	0.0795	0.0912	0.1061	0.0522	0.1088	
7300	0.0568	0.0974	0.1122	0.1086	0.0908	0.1065	0.1153	0.1059	0.0997	0.0904	0.0797	0.0914	0.1063	0.0523	0.109	