

2013 ANNUAL ICR AND TRR WELL FIELD REPORT

Prepared for

ICR WATER USERS ASSOCIATION

Prepared

By

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ICR WATER USERS ASSOCIATION

The ICR Water Users Association (ICRWUA) is a private member owned non-profit water company that provides water to the Inscription Canyon Ranch, Whispering Canyons, Preserve at the Ranch and Talking Rock subdivisions. The company also provides water to the Talking Rock golf course.

Water for the first three subdivisions comes from the ICR well field while water for the Talking Rock subdivision and golf course comes from the TRR well field. The combined demand for all uses from both well fields for 2013 was 133,895,000 gallons, table 1. Of this amount some 26,375,000 gallons came from the ICR well field and another 107,520,000 gallons came from the TRR well field. The golf course use was approximately 96,138,000 gallons, or about 89 percent of the total pumpage from the TRR well field and 72 percent of the combined pumpage from both well fields.

Total monthly demand at the two well fields for 2013 ranged from a low of 2,136,000 gallons per month in February to a high of 19,133,000 gallons in June. Average daily demand for both well fields combined was 366,835 gallons or about 255 gallons per minute (gpm).

Table 1.

Combined 2008 - 2013 ICR and TRR Well Field Pumpage, in gallons						
Month	2008	2009	2010	2011	2012	2013
Jan	1,919,000	1,973,000	3,941,500	5,500,000	4,660,000	7,972,000
Feb	1,710,000	1,744,800	6,495,000	1,977,980	4,922,000	2,136,000
March	10,751,000	10,438,200	8,630,800	6,149,000	6,786,000	8,358,000
April	16,652,000	11,904,000	15,152,000	12,268,000	11,677,000	14,556,000
May	17,084,400	17,504,500	17,502,000	13,855,000	15,533,000	17,720,000
June	26,130,500	19,327,000	14,457,000	18,999,000	17,806,000	19,133,000
July	14,447,300	16,980,500	17,439,000	16,976,000	20,887,000	13,711,000
August	17,559,700	21,475,200	12,063,000	18,652,000	14,198,000	15,016,000
Sept	15,500,500	15,479,300	16,356,000	15,659,000	10,267,000	9,619,000
Oct	13,185,000	12,150,000	12,594,000	9,500,000	9,481,000	13,231,000
Nov	6,688,900	7,538,500	9,105,000	8,123,000	9,289,000	8,174,000
Dec	1,893,000	1,696,000	6,833,000	4,125,000	6,119,000	4,269,000
Total	143,521,300	138,211,000	140,568,300	131,783,980	131,625,000	133,895,000

THE ICR WELL FIELD

There are two wells in the Inscription Canyon Ranch (ICR) well field about 30 feet apart; ICR 1 and ICR 2. The latter well is often referred to as Whispering Canyon 1 (WC 1). ICR 1 is the original well constructed by the developer of the ICR subdivision to serve the subdivision as initially planned. Whispering Canyons L.L.C constructed ICR 2 and paid all other cost associated with bringing this well on line. The well field provides water to the Inscription Canyon Ranch (ICR), Whispering Canyon (WC), and Preserve at the Ranch sub-divisions.

The wells are located in Section 17, Township 16 North, Range 3 West. They are situated in the Mint Wash floodplain about one-half mile west of Williamson Valley road where the road crosses the wash. Construction of ICR 1 began on June 24, 1994 and was completed on August 5, 1994. Construction of ICR 2 began March 30, 2002 and was completed April 10, 2002.

The wells are owned by the Pierce Properties Ltd. and are on land owned by Pierce Brothers Ltd. ICRWUA has an agreement dated August 1, 1995 that gives the Association the right to operate and use ICR 1 as a water supply for the ICR and Preserve at the Ranch subdivisions for 100 years subject to renewal every 25 years. The purpose of this agreement is to satisfy the Arizona Department of Water Resources 100 year Water Adequacy Requirement. An amendment to the agreement (Amendment 1) dated July 24, 2001 adds Whispering Canyon. It is the responsibility of ICRWUA to operate and maintain the two wells and pay all cost associated with operation and maintenance. Per contract with Pierce Properties, the Association is permitted to withdraw 164,518,498 gallons per year for servicing the ICR, WC, and Preserve at the Ranch subdivisions.

The yield of ICR 1 was initially stated to be in excess of 450 gpm, sufficient to supply the 800 residential lots and a golf course planned for at that time. No estimate of yield was made for ICR 2.

The aquifer tapped by the well consists of a mixture of unconsolidated sediments ranging in size from clay, silt, sand, and gravel. In places the sediment has been cemented to form a conglomerate. The base of the aquifer is formed by granitic and metamorphic rocks occurring at depth of about 253 ft. at ICR1 and about 220 ft. at well 2. The pumps at both wells are at a depth of about 165 ft. below land surface with the actual water intake at about 172 feet.

The altitude of the water table varies naturally in accordance with the seasonal pattern of precipitation. At the time ICR 1 was completed the regional water table was at a depth of about 18 ft. below land surface. At ICR 2, which is slightly higher in elevation than well 1, the initial depth to water was 19 ft.

The well field is managed so that ICR 1 is the main source of water. Well 2 serves as a backup well and is used in a manner to preserve its operational efficiency. Only one well is used on a given day and it is in service, on average for about 3.2 hours or less.

Owing to a gradual decline in pumping water levels and yield from ICR 1, ICR well 2 became the lead well from March thru most of September with ICR 1 being held in reserve. ICR 1 was rehabilitated in late September after which it was used as the main well with ICR 2 being held in reserve.

Demand

The demand at the ICR well field in 2013 was 26,375,000 gallons compared to 27,012,000 gallons in 2012. Average 2013 daily demand was 72,260 gallons compared to 74,000 gallons in 2012. As shown in table 2, annual demand at the well field from 2008 through 2013 has ranged from a high of 29,988,500 gallons in 2009 to a low of 24,476,500 gallons in 2010.

Table 2

ICR Well Field Pumpage 2008-2013, in gallons						
Month	2008	2,009	2,010	2,011	2,012	2,013
Jan	1,177,000	1,216,000	1,250,000	1,237,000	1,161,000	1,418,000
Feb	1,078,000	1,098,700	747,300	1,172,980	1,172,000	1,006,000
March	1,737,000	1,825,300	1,438,200	1,441,000	1,423,000	1,710,000
April	2,770,000	2,628,000	1,862,000	2,088,000	2,036,000	2,480,000
May	3,081,000	3,577,500	2,577,000	2,572,000	2,973,000	3,046,000
June	3,915,000	3,195,000	3,170,000	2,981,000	3,464,000	3,700,000
July	3,048,000	3,632,000	3,295,000	2,889,000	3,274,000	2,985,000
August	3,194,000	3,613,000	2,552,000	3,327,000	2,995,000	2,817,000
Sept	2,721,000	3,070,000	3,050,000	2,674,000	2,727,000	2,172,000
Oct	2,450,000	3,044,000	1,838,000	2,234,000	2,621,000	2,304,000
Nov	1,918,000	1,892,000	1,493,000	1,389,000	1,764,000	1,495,000
Dec	1,381,000	1,197,000	1,204,000	1,121,000	1,402,000	1,242,000
Total	28,470,000	29,988,500	24,476,500	25,125,980	27,012,000	26,375,000

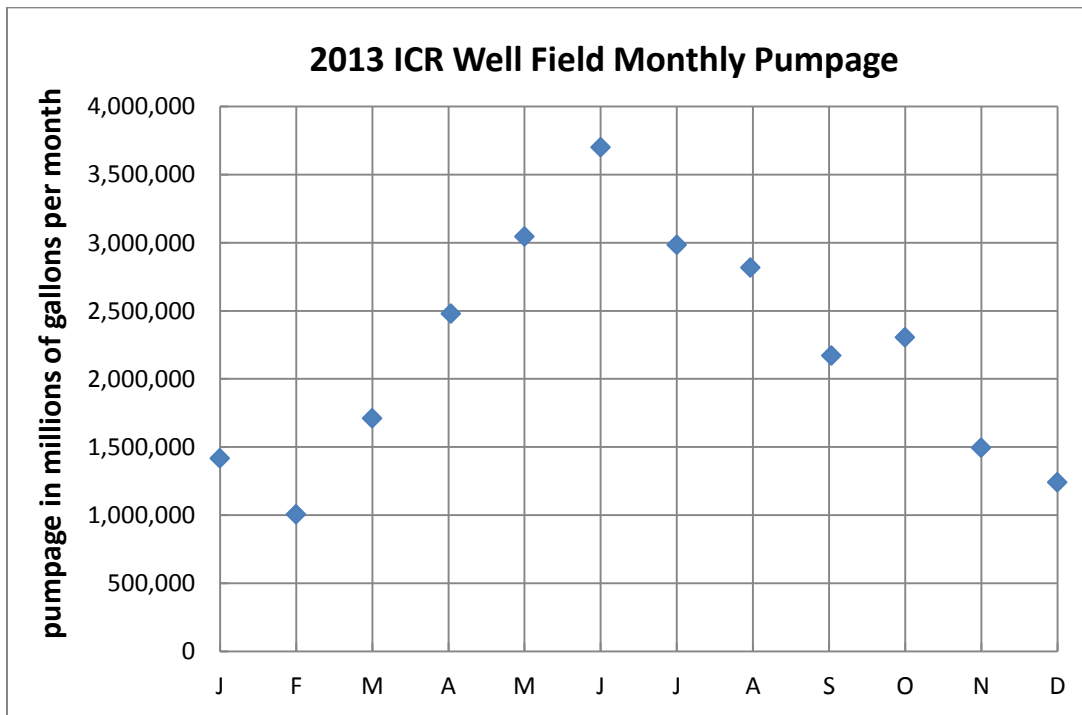
As discussed above ICR 2 became the source of supply from March through September after which ICR 1 became primary. Pumpage from well 2 was 20,606,000 gallons compared to 5,769,000 gallons at well 1, table 3. Demand varied significantly during the year, increasing from a low of 1,006,000 in February to a high of 3,700,000 in June when the greatest demand occurred, table 3 and figure 1. Pumpage remained high from April through October. Demand slowly decreased after October, falling to 1,242,000 gallons in December. The increased demand during the warmer, drier part of the year is mainly associated with landscape irrigation.

Columns 2 and 3, table 3, show monthly pumpage from wells 1 and 2. Column 4 shows total monthly pumpage from both wells in gallons. Column 5 shows average daily pumpage in gallons per day, and column 6 shows average demand at the well field during the month in gallons per minute.

Table 3. Average 2013 Daily, Monthly and Annual ICR Well Field Pumpage, in Gallons

Month	ICR #1	ICR #2	Total	Daily	GPM
Jan	552,000	866,000	1,418,000	45,742	32
Feb	634,000	372,000	1,006,000	35,929	25
March	2,000	1,708,000	1,710,000	55,161	38
April	0	2,480,000	2,480,000	82,667	57
May	0	3,046,000	3,046,000	98,258	68
June	2,000	3,698,000	3,700,000	123,333	86
July	0	2,985,000	2,985,000	96,290	67
August	0	2,817,000	2,817,000	90,871	63
Sept	19,000	2,153,000	2,172,000	72,400	50
Oct	1,823,000	481,000	2,304,000	74,323	52
Nov	1,495,000	0	1,495,000	49,833	35
Dec	1,242,000	0	1,242,000	40,065	28
Total	5,769,000	20,606,000	26,375,000	72,260	50

Figure 1



Yield

ICR 1 was used for 256.5 hours during the year for an average daily use of about 0.7 hours. ICR 2 was used for 922 hours for an average daily use of 2.5 hours. Average yield from ICR 1 increased from about 338 gpm prior to rehabilitation to about 385 gpm after. Average yield from ICR 2 was 375 gpm.

Water Levels

There is a long-term decline in the water level of a pumped well until water in an amount equal to the rate the well is being pumped is diverted to the well from the aquifer's discharge area. Once this occurs, the long-term decline ceases. For the two ICR wells, this diversion would be expected to take decades if not longer to occur. If water levels fall too far before stabilizing, the wells will cease to be viable. It is important therefore to measure water levels through time in order to monitor the well field's status. There is also a short term, but significant, decline in the water level at a well that is being pumped intermittently, such as those at the ICR well field. Water levels fall while the well is being pumped and subsequently rise to an altitude equal to or near that existent before pumping.

For practical reasons it is best to maintain the pumping water level in the wells at about two-thirds of the original thickness of the aquifer at each well. This consideration maximizes production relative the decline in the pumping water level in the well and to pumping cost. For well 1, this suggests that the maximum depth to water should be about 155 ft. For well 2, the maximum depth should be about 133 ft.

ICR Well 1

Non-pumping depth to water below land surface at ICR 1 in 2013 ranged from about 40 ft. to 57 ft., with the latter depths occurring after late September, figure 2. Actually the depth did not change at this time; instead use of measurements before September were subject to error due to cascading water (water falling down the inside of the well from the aquifer owing to the fact that the water level in the aquifer is higher than the water level in the well).

As discussed above, ICR 1 was rehabilitated in late September due to a gradual decline in pumping water levels and yield from the well. Pumping water levels had declined to a depth of as much as 139 ft. below land surface and yield had declined from about 400 gpm to about 340 gpm. Given that the pump intakes are at 172 ft., a pumping depth of 139 ft. provided only 33 ft. of water above the intakes. Due to the this, ICR well 2 was used as the primary well until rehabilitation of well 1 was completed after which the latter once again became the primary well. Following rehabilitation, the pumping water level at well 1 rose from a depth of about 139 ft. to about 100 ft. and the yield increased from about 340 gpm to about 395 gpm.

As discussed above, the water level at ICR 1 was about 18 ft. below land surface when it was completed on August 5, 1994. The minimum water level at the well of 40 ft. below land surface is 22 ft. lower than that originally measured at completion of the well. This decline is within that which would be considered acceptable for long-term viability of the well.

2012 and 2013 water levels are shown in figure 3. As discussed above, the apparent decline in non-pumping water levels beginning late September 2013 is the result of negating the influence of cascading water on the water level measurement that had occurred previously. In essence there is virtually no difference in water levels between 2012 and 2013 as a result.

Figure 2

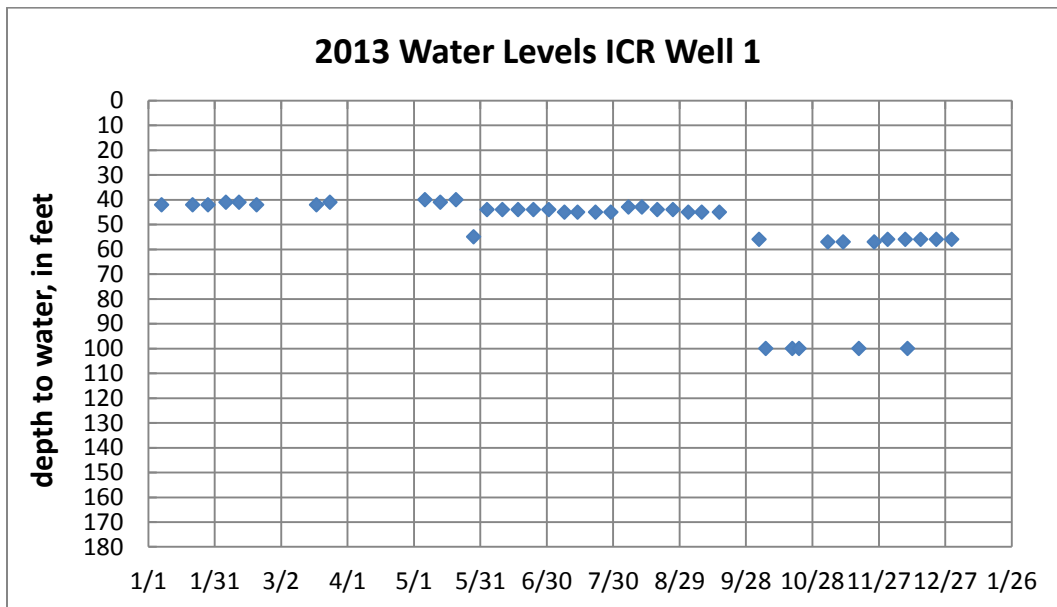
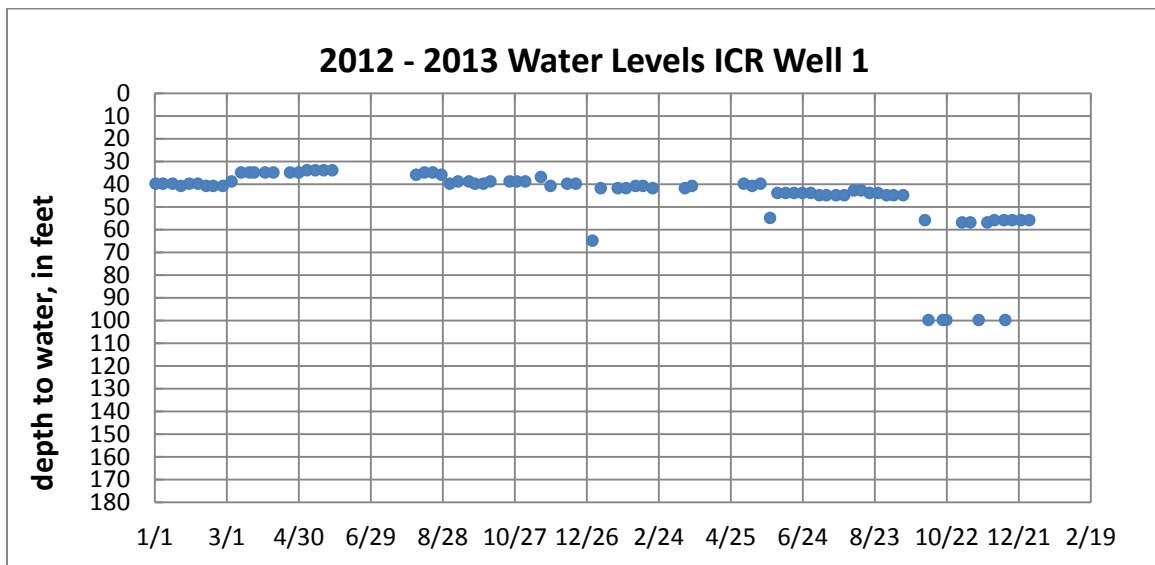


Figure 3



ICR Well 2

Depth to water below land surface at ICR 2 ranged from about 38 ft. to 89 ft., figure 4. Water levels above 70 ft. are for non-pumping conditions at ICR well 2, but not necessarily at ICR well 1. Water levels between 80 and 90 ft. are for pumping conditions at the well. The maximum depth to water of 89 ft. is 44 ft. above that required for practical reasons. Given that, as at ICR well 1, the pump intakes are at 172 ft., a pumping depth of 89 ft. provided about 83 ft. of water above the intakes.

As discussed above, the water level at ICR 2 was about 19 ft. below land surface when it was completed on April 10, 2002. The minimum water level at the well of 38 ft. below land surface is 19 ft. lower than that originally measured at completion of the well. This decline is within that which would be considered acceptable for long-term viability of the well.

2012 and 2013 water levels are shown in figure 5. As in the case of ICR well 1, the decline in water levels in late September 2013 results from negating the influence of cascading water on the water level measurement that had occurred previously and is not an actual decline as a result. Given this consideration there is no significant difference between non-pumping water levels for the two year period.

Figure 4

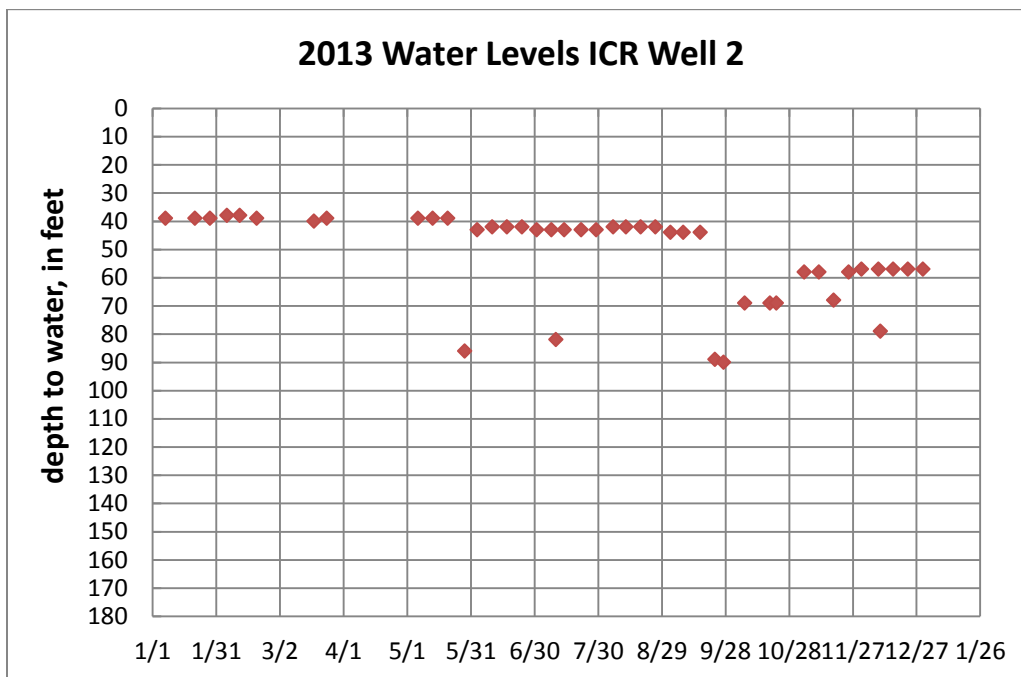
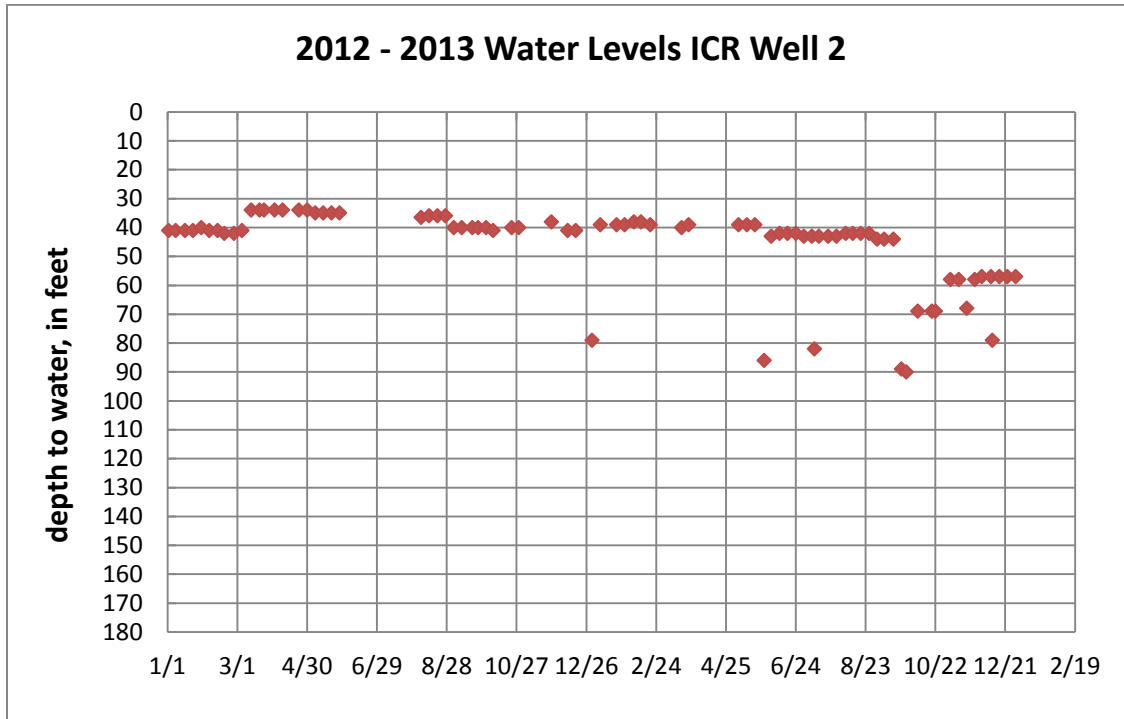


Figure 5



THE TALKING ROCK WELL FIELD

The Talking Rock Ranch (TRR) well field consists of three wells referred to as TRR wells TRR 1, 2, and 3. Construction of TRR 1 began on January 3, 2001 and was completed on February 5, 2001; construction of TRR 2 began on March 27, 2001 and was completed April 20, 2002; construction of TRR 3 began May 13, 2002 and was completed May 15, 2002. The wells are situated along the eastern edge of the Mint Wash floodplain immediately east of Williamson Valley road where the road crosses the wash. The well field services the TRR subdivision and the TRR golf course. The well field and the land it is on are owned by the ICR Water Users Association.

The aquifer tapped by the TRR well field consist of medium to coarse sand with small amounts of intermixed gravel and layers of gravel and sand mixed with minor amounts of silt and clay. Interbedded within this material is a layer of basalt that is encountered at depths ranging from 70 ft., 108 ft., and 118 ft. below land surface at wells 1, 2, and 3 respectively. Thickness of the basalt ranges from 41 ft. to 50 ft. Geologic logs of nearby wells indicate that the areal extent of the basalt is limited and does not extend to the ICR Well Field. The base of the aquifer is formed by granitic and metamorphic rocks occurring at depths ranging from about 300 ft. below land surface at well 1, 262 ft. at well 2, and 240 ft. below land surface at well 3.

The regional water table lies in the unconsolidated sands and gravel above the basalt. In the absence of pumping, the altitude of the water table varies naturally in accordance with the seasonal pattern of precipitation. Measured depth to water at completion of drilling for each well was 20 ft., 57 ft., and 23 ft. below land surface at wells 1, 2, and 3 respectively. Wells 1 and 3 are at about the same elevation above sea level whereas well 2 is about 10 ft. higher. Subsequent non-pumping measurements at the well field have shown that depth to water at well 2 is about 8-10 ft. greater than that at wells 1 and 3. This difference is consistent with the difference in elevation of well 2 compared to wells 1 and 3 the wells. This suggests that the initial water level measurement at well 2 was not representative of non-pumping conditions at the well field.

The pumping capacity at all three wells has been downsized from that originally installed at all three wells due to initial overly optimistic estimates of the long-term yield of each well that resulted in unacceptable decline in water levels and air entrainment at all three wells. The pump at well 3 was downsized from 430 gpm to about 260 gpm in 2003 after which the well has been highly reliable. The pump at well 2 was downsized from about 530 gpm to a pump capacity of about 285 gpm in 2009. Due to an electrical problem the pump at well 2 failed in June 2013 and was replaced in July of that year. The capacity of the new pump ranges from about 275 to 290 gpm. The pump at well 1 was downsized in February 2012 and reliably yields about 330 gpm.

The well field is managed so that the wells are called up sequentially as demand increases. As a result on a given day, only one well is initially in service until demand requires an additional well. In general any two wells can meet daily demand except during the hottest and driest part of the year when the water demand for the TRR golf course is at its greatest. The general practice is to use either well 1 or 2 as the initial well on call followed by well 3.

Demand

Demand at the TRR well field in 2013 was 107,520,000 compared to 104,613,000 gallons in 2012. As shown in table 4, annual demand from 2008 through 2013 has ranged from 104,613,000 gallons to 116,091,800 gallons with the lowest demand in 2012. Average daily demand in 2013 was 294,575 gallons that corresponds to an average well yield of about 205 gpm.

Total pumpage at wells 1, 2, and 3 for the year were 30,404,000 gallons, 46,575,000 gallons, and 30,541,000 gallons respectively, table 5. Columns 2, 3, and 4, table 5, show monthly pumpage from wells 1, 2, and 3 respectively; Column 5 shows total monthly pumpage from all three wells in gallons. Column 6 shows average daily pumpage in gallons per day, and column 7 shows average demand at the well field during the month in gallons per minute.

2013 demand varied significantly during the year (figure 6) with greatest demand occurring from April through August due to increasing golf course demand at this time. Golf course demand was approximately 96,138,000 million gallons; about 89.4 percent of the annual pumpage.

Monthly demand on the well field in 2013 increased from about 1,130,000 gallons in February to about 6,648,000 gallons in March, 12,076,000 gallons in April, and 15,433,000 gallons in June when pumpage peaked. Demand slowly decreased from this level falling to about 3,027,000 gallons in December, table 4 and figure 6.

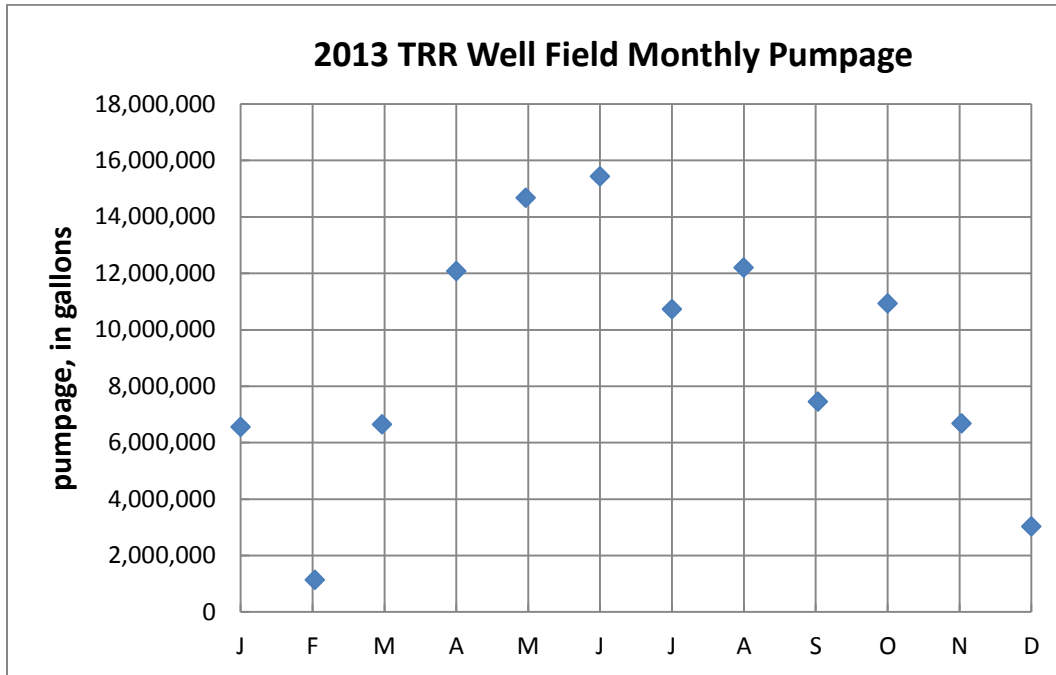
Table 4

TRR Well Field 2008-2013 pumpage, in gallons						
Month	2008	2009	2010	2011	2012	2013
Jan	742,000	757,000	2,691,500	4,263,000	3,499,000	6,554,000
Feb	632,000	646,100	5,747,700	805,000	3,750,000	1,130,000
March	9,014,000	8,612,900	7,192,600	4,708,000	5,363,000	6,648,000
April	13,882,000	9,276,000	13,290,000	10,180,000	9,641,000	12,076,000
May	14,003,400	13,927,000	14,925,000	11,283,000	12,560,000	14,674,000
June	22,215,500	16,132,000	11,287,000	16,018,000	14,342,000	15,433,000
July	11,399,300	13,348,500	14,144,000	14,087,000	17,613,000	10,726,000
August	14,365,700	17,862,200	9,511,000	15,325,000	11,203,000	12,199,000
Sept	12,779,500	12,409,300	13,306,000	12,985,000	7,540,000	7,447,000
Oct	10,735,000	9,106,000	10,756,000	7,266,000	6,860,000	10,927,000
Nov	4,770,900	5,646,500	7,612,000	6,734,000	7,525,000	6,679,000
Dec	512,000	499,000	5,629,000	3,004,000	4,717,000	3,027,000
Total	115,051,300	108,222,500	116,091,800	106,658,000	104,613,000	107,520,000

Table 5. 2013 Monthly, Annual and Average Daily, TRR Well Field Pumpage, in Gallons

1	2	3	4	5	6	7
Month	TRR 1	TRR 2	TRR 3	Total	Daily	GPM
Jan	2,945,000	2,856,000	753,000	6,554,000	211,419	147
Feb	2,000	942,000	186,000	1,130,000	38,966	27
March	0	4687000	1961000	6,648,000	214,452	149
April	22,000	7,412,000	4,642,000	12,076,000	402,533	280
May	39,000	9,326,000	5,309,000	14,674,000	473,355	329
June	6,129,000	4,418,000	4,886,000	15,433,000	514,433	357
July	5,958,000	2,253,000	2,515,000	10,726,000	346,000	240
Aug	5,029,000	5,097,000	2,073,000	12,199,000	393,516	273
Sept	63,000	4,816,000	2,568,000	7,447,000	248,233	172
Oct	2,423,000	4,768,000	3,736,000	10,927,000	352,484	245
Nov	5,385,000	0	1,294,000	6,679,000	222,633	155
Dec	2,409,000	0	618,000	3,027,000	97,645	68
Total	30,404,000	46,575,000	30,541,000	107,520,000	294,500	205

Figure 6



Yield

In general the TRR well field is operated with only two wells pumping during a given day. As discussed above, well 1 or well 2 serves as the primary well on call while well 3 is used to provide additional water if required. Thus if well 1 is primary, only wells 1 and 3 are used for that day. If well 2 is primary, only wells 2 and 3 are used. Well 1 was primary in January after which well 2 was until, as discussed above, the pump failed in late June at which time well 1 became the lead well. As discussed above, a new pump was installed at well 2 in July 2013. Well 2 became the primary well once again in mid-August and remained as such through October, after which well 1 became primary once again. Even though only two wells are generally used on a given day, all three wells were used during most months of the year.

Yield from the well field varies with the water level at the well field, falling as water levels generally decline during the summer. The decline is relatively small and therefore the range in yield is also relatively small. Yield of well 1 averaged about 330 gpm with little variation during the year. The yield of well 2 after installation of the new pump averaged about 280 gpm with little variation as well; the yield of well 3 varied between 225 to 240 gpm and averaged about 228 gpm.

Water Levels

As discussed in the 2011 and 2012 Annual Reports, the pumping water level in the wells should be limited to about two-thirds of the original thickness of the aquifer to maximize production relative the

pumping water level in the well and to pumping cost. Under this consideration, the maximum depth to water at well 1 should be about 185 ft. For well 2 the maximum depth should be about 155 ft. and about 145 ft. at well 3. An additional consideration however, is that in order to limit problems with air entrainment at wells 1 and 2, the pumping level in well 1 should not be more than about 165 ft. below land surface and the pumping water level in well 2 should be no more than about 155 ft. below land surface. The purpose behind the installation of a new pump at well 2 in 2011 and at well 1 in 2012 was to maintain pumping water levels at or above that required to limit air entrapment issues.

The pump intakes at TRR wells 1 and 2 are set at approximately 262 ft. below land surface. Maintaining a pumping level of 165 ft. or less at well 1, although not maximizing production relative to pumping cost, assures at least 97 ft. of water above the pump intakes. Maintaining a pumping level of 155 ft. or less at well 2 assures at least 107 ft. of water above the intakes and also meets the two-thirds rule. The pump intake at well 3 is set at approximately 230 ft. below land surface. Maintaining a pumping level of 145 ft. assures at least 85 ft. of water above the intakes.

TRR Well 1

Depth to water below land surface at TRR 1 in 2013 ranged from about 41 ft. to 113 ft., figure 7. Water levels that are less than 80 ft. below land surface represent non-pumping conditions at the well, but not necessarily at one or both of the other wells. Water levels deeper than 80 ft. represent pumping conditions at well 1.

Non-pumping water levels varied throughout the year, being deeper in the summer months when well field use was greatest. Non-pumping water levels varied from about 41 feet below land surface in February to about 80 feet in June. Non-pumping water levels rose to about 48 feet below land surface by the end of the year when pumping at the well field was low. 2012 and 2013 water levels at the well are shown in figure 8. As can be seen, non-pumping water levels fall with the same range for both years.

Pumping water levels in 2013 ranged from about 90 feet to 113 feet below land surface. This range is similar to that of 2012 following installation of the new pump in early 2012. These depths are considerably above 165 feet below land surface required to preclude air entrapment. The intakes for the pump at TRR well 1 are at a depth of 255 feet, so that at its deepest point during the year, pumping water levels were about 142 feet above the intakes.

As discussed above, the water level at TRR well 1 was about 20 ft. below land surface when it was completed on February 5, 2001. The minimum non-pumping water level of 41 ft. below land surface in 2013 represents a decline of about 21 ft. since 2001, which is not considered to be excessive. Given this, and the fact that pumping water level remained about 1142 feet above the pump intakes, there is no concern regarding the long-term viability of the well.

Figure 7

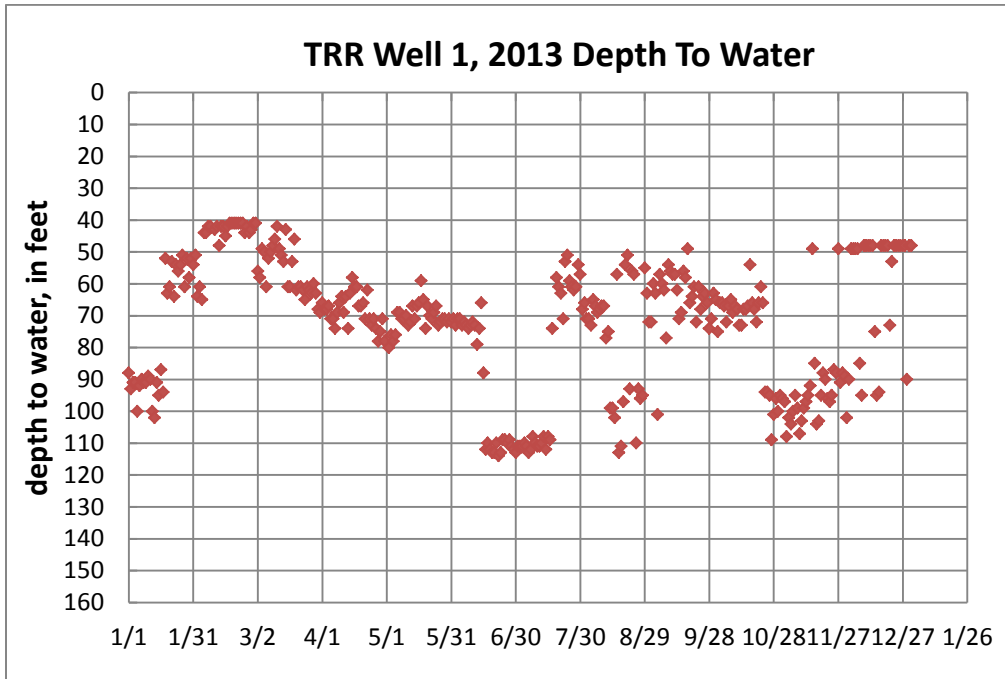
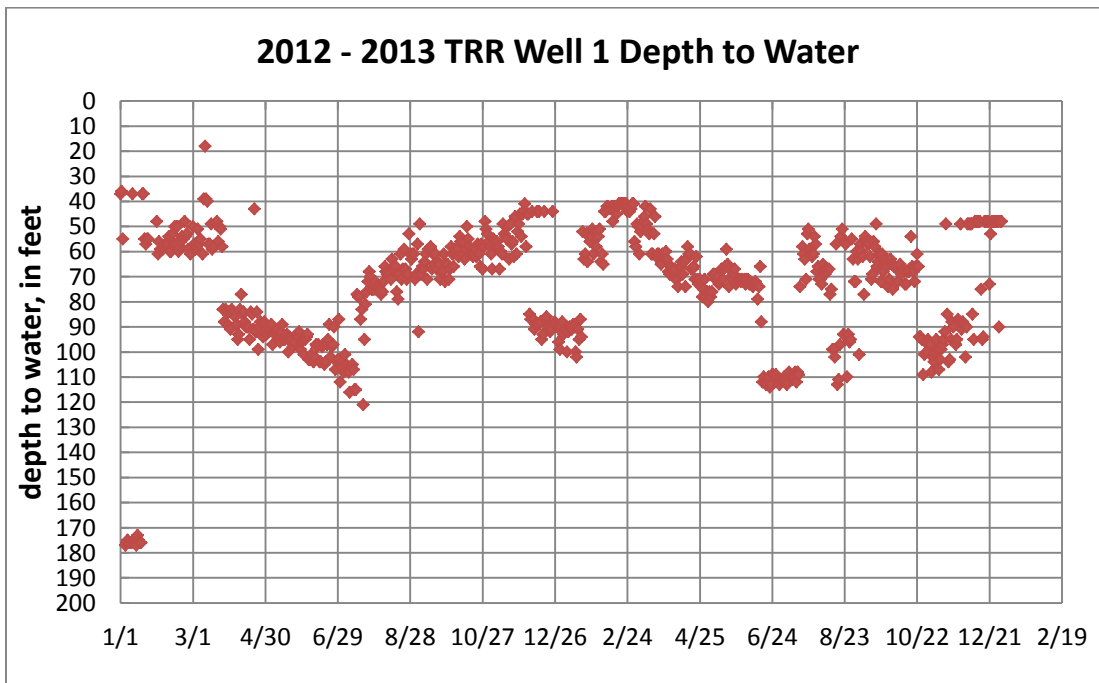


Figure 8



TRR Well 2

Depth to water below land surface at TRR 2 in 2013 ranged from about 49 feet to about 145 feet, figure 9. Water levels that are less than 100 feet below land surface represent non-pumping conditions at the well, but not necessarily at one or both of the other wells. Water levels deeper than 100 feet represent pumping conditions at the well. The maximum depth to water of about 145 feet is 10 feet above that required for practical reasons and for problems associated with air entrainment. For the most part, pumping water levels fell between 110 to 140 feet during the year. Non-pumping water levels recovered to about 59 feet below land surface at the end of the year.

2012 and 2013 water levels at the well are shown in figure 10. As can be seen, pumping and non-pumping water levels are similar for both years.

As discussed above, the water level at TRR well 2 was about 57 ft. below land surface when it was completed on April 20, 2002. The minimum water level of 49 ft. below land surface in 2013 is about 8 ft. higher than that originally measured at completion of the well indicating no long-term decline in water levels since the wells construction.

Figure 9

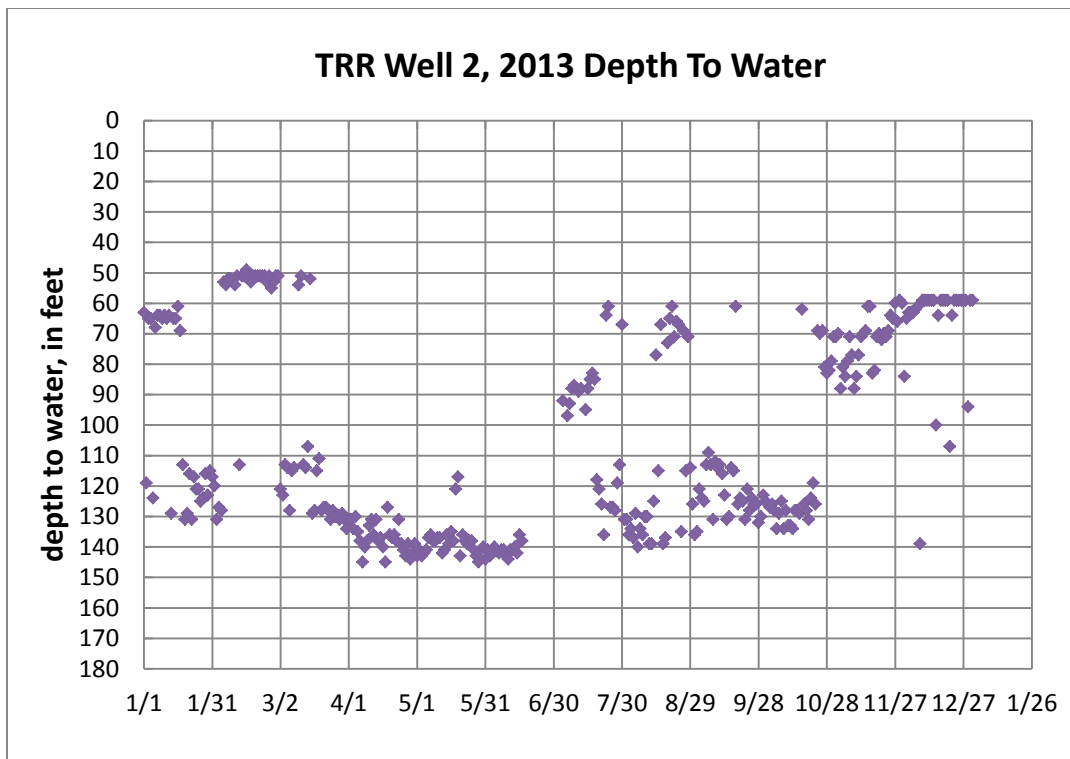
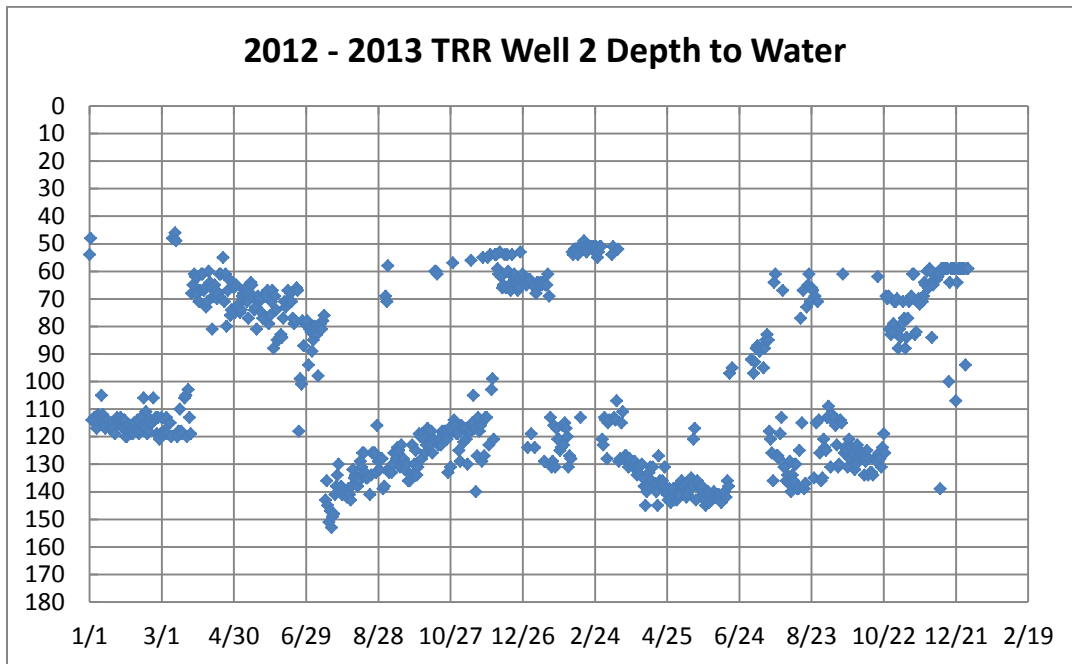


Figure 10



TRR Well 3

Depth to water below land surface at TRR 3 in 2013 ranged from about 42 feet to 161 feet, figure 11. The pumping water level varied from about 135 feet below land surface over much of the year to as much as 161 feet on June 16. For the most part the pumping depth to water fell between 135 and 160 feet below land surface and averaged about 155 feet.

Non-pumping water levels ranged from about 42 feet below land surface in February to about 87 feet in August and December reflecting the continuous and relatively heavy pumpage at the well for much of the year. The average non-pumping water level was about 60 feet below land surface.

The maximum depth to water of about 161 feet is about 16 feet lower than that required for efficiency reasons although it provides 69 feet of water above the pump intakes. The average pumping depth to water of about 155 feet is 10 feet below that required for practical reasons and provided about 75 feet of water above the pump intakes; both of which are acceptable.

2012 and 2013 water levels are shown in figure 12. As can be seen, pumping and non-pumping water levels are similar for both years.

The minimum non-pumping water level of 42 ft. below land surface in 2013 represents a decline of about 19 ft. since the well's completion. As in the case of well 1, this decline is not considered to be excessive. Given this, and the fact that pumping water level remained about 75 feet above the pump intakes, there is no concern regarding the long-term viability of the well.

Figure 11

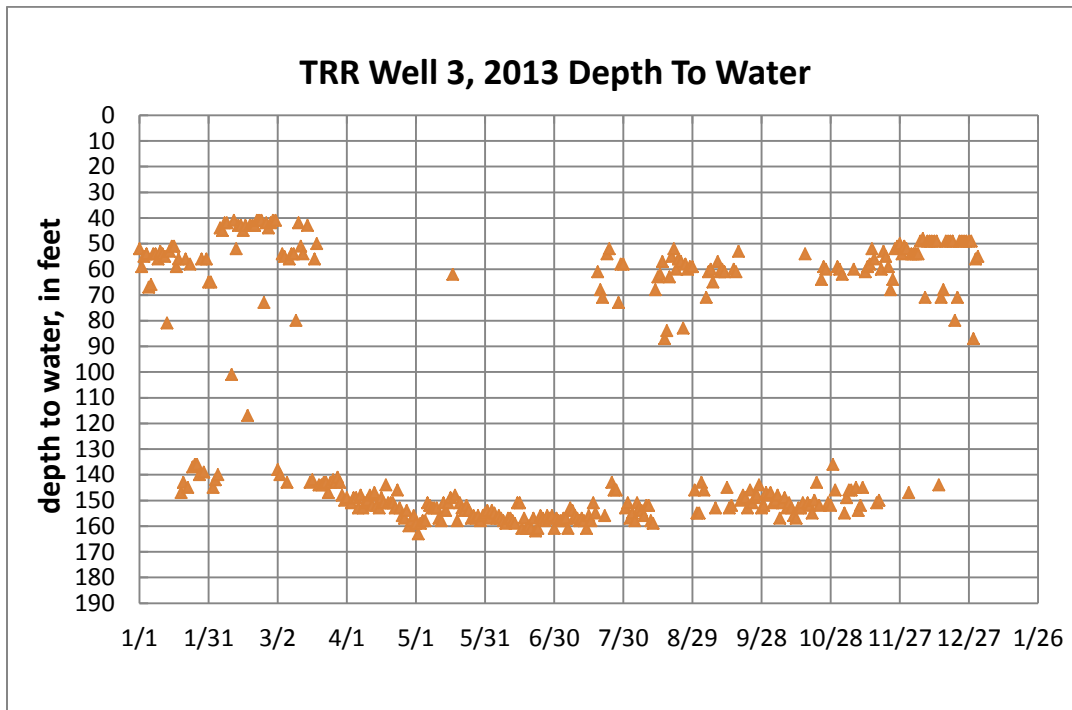
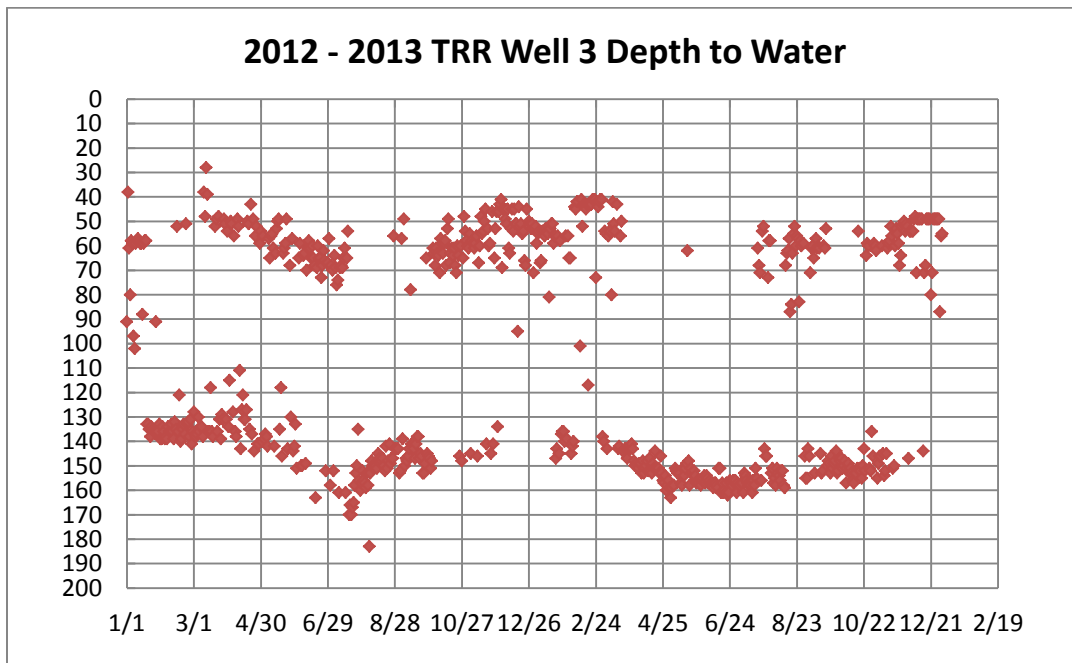


Figure 12



SUMMARY

The ICR Water Users Association (ICRWUA) is a private non-profit water company that provides water to the Inscription Canyon Ranch, Whispering Canyons, Preserve at the Ranch and Talking Rock subdivisions. The company also provides water to the Talking Rock golf course. Water for the first three subdivisions comes from the ICR well field while water for the Talking Rock subdivision and golf course comes from the TRR well field. The combined demand for all uses from both well fields for 2013 was 133,895,000 gallons. Of this amount some 26,375,000 gallons came from the ICR well field and another 107,520,000 gallons came from the TRR well field. The golf course use was approximately 96,138,000 gallons, or about 89 percent of the total pumpage from the TRR well field and 72 percent of the combined pumpage from both well fields.

There are two wells in the Inscription Canyon Ranch (ICR) well field about 30 feet apart; ICR 1 and ICR 2. In general the ICR well field is operated with only one well pumping during a given day. ICR 1 was used for 256.5 hours during the year for an average daily use of about 0.7 hours. ICR 2 was used for 922 hours for an average daily use of 2.5 hours. Average yield from ICR 1 increased from about 338 gpm prior to rehabilitation to about 385 gpm after. Average yield from ICR 2 was 375 gpm.

Non-pumping depth to water below land surface at ICR 1 in 2013 ranged from about 40 ft. to 57 ft. The minimum water level is 22 ft. lower than that originally measured at completion of the well. This decline is within that which would be considered acceptable for long-term viability of the well.

ICR 1 was rehabilitated in late September due to a gradual decline in pumping water levels and yield from the well. Pumping water levels had declined to a depth of as much as 139 ft. below land surface providing only 33 ft. of water above the pump intakes. Yield had declined from about 400 gpm to about 340 gpm. Following rehabilitation, the pumping water level at well 1 rose from a depth of about 139 ft. to about 100 ft. and the yield increased from about 340 gpm to about 395 gpm.

ICR well 2 was used as the primary well until rehabilitation of well 1 was completed after which the latter once again became the primary well.

Given rehabilitation, ICR 1 was used for only 256.5 hours during the year for an average daily use of about 0.7 hours, while ICR 2 was used for 922 hours for an average daily use of 2.5 hours. Average yield from ICR 2 was 375 gpm.

Non-pumping depth to water below land surface at ICR 2 ranged from about 38 ft. to 70 ft. Pumping depth to water ranged from about 70 to 89 ft. The maximum depth to water of 89 ft. is about 83 ft. of water above the intakes.

The minimum water level at ICR 2 of 38 ft. below land surface is 19 ft. lower than that originally measured at completion of the well. This decline is within that which would be considered acceptable for long-term viability of the well. Water levels at the well were similar between 2012 and 2013.

The Talking Rock Ranch (TRR) well field consists of three wells referred to as TRR wells TRR 1, 2, and 3. The well field is managed so that the wells are called up sequentially as demand increases. As a result on

a given day, only one well is initially in service until demand requires an additional well. In general any two wells can meet daily demand except during the hottest and driest part of the year when the water demand for the TRR golf course is at its greatest. The general practice is to use either well 1 or 2 as the initial well on call followed by well 3.

Well 1 was primary in January after which well 2 was until, as discussed above, the pump failed in late June at which time well 1 became the lead well. A new pump was installed at well 2 in July 2013. Well 2 became the primary well once again in mid-August and remained as such through October, after which well 1 became primary once again. Even though only two wells are generally used on a given day, all three wells were used during most months of the year.

Yield from the well field varies with the water level at the well field, falling as water levels generally decline during the summer. Yield of well 1 averaged about 330 gpm with little variation during the year. The yield of well 2 after installation of the new pump averaged about 280 gpm with little variation as well; the yield of well 3 varied between 225 to 240 gpm and averaged about 228 gpm.

As at the ICR wells, 2012 and 2013 water levels at the TRR wells are similar for both years, and are consistent with those required for long-term viability of the wells. Non-pumping depth to water below land surface at TRR 1 in 2013 ranged from about 41 ft. to slightly less than 80 ft. The 41 ft. depth represents a decline of about 21 ft. since 2001 when the well was drilled, which is not considered to be excessive. Pumping water levels ranged from about 90 feet to 113 feet below land surface. The intakes for the pump at TRR well 1 are at a depth of 255 feet, so that at its deepest point during the year, pumping water levels were about 142 feet above the intakes.

Non-pumping depth to water below land surface at TRR 2 in 2013 ranged from about 49 feet to about 100 feet. For the most part, pumping water levels fell between 110 to 140 feet during the year. Non-pumping water levels recovered to about 59 feet below land surface at the end of the year.

Non-pumping depth to water below land surface at TRR 3 in 2013 ranged from about 42 feet below land surface in February to about 87 feet in August and December reflecting the continuous and relatively heavy pumpage at the well for much of the year. The average non-pumping water level was about 60 feet below land surface. The minimum non-pumping water level of 42 ft. below land surface in 2013 represents a decline of about 19 ft. since the wells completion. For the most part the pumping depth to water fell between 135 and 160 feet below land surface and averaged about 155 feet, providing about 75 feet of water above the pump intakes.