BROOKFIELD DEVELOPMENT, INC.

May 30, 2008

Mr. Jerry Olds
Utah Division of Water Rights
P.O. Box 146300
Salt Lake City, UT 84114-6300

RE: Public Meeting held in Tooele County, April 24, 2008

Dear Mr. Olds,

This letter is written in response to the public meeting held in Tooele County on April 24, 2008 to address the new policies recommended by the Division of Water Rights (DWR). From the presentation given by the DWR, the summary of the new policies recommend by the DWR are as follows:

1. Keep withdrawals distributed
2. Moving east limitation
3. Buffer perpendicular to flow path
4. Can't cross into eastern zone

Based on the statistics presented in the presentation, I believe the overall concept that is being recommended by the DWR is necessary to preserve the historical uses of water for the current water users in the Tooele Valley. Although I agree with the overall concept, I disagree with the policy of creating a 4 mile buffer perpendicular to the flow path. My interpretation of the presentation is that there are 3 distinct water recharge areas, East, Middle, & West, see exhibit A. If there are three recharge basins and someone wants to move water within the boundaries of their recharge basin, there should be no limitation of movement within the recharge basin. As long as the water is being used within the same basin, the basin should be recharged accordingly, therefore causing minimal impact to the aquifer. Please see exhibit B, Technical Memorandum, in response to various change applications affecting a specific basin area.

Lastly, the public notice that was distrusted to the water users in the Tooele Valley stated that, "Guidelines developed as a result of this meeting will be effective on the date of this notice (April 16, 2008)." I would recommend that all unapproved change applications prior to the effective date of the new policies would be grandfathered under the old change application rules and policies.

Thank you for taking my comments into consideration and if you have any questions please feel free to contact me.

Regards,

By: _____
Jesse Lassley, Its. President

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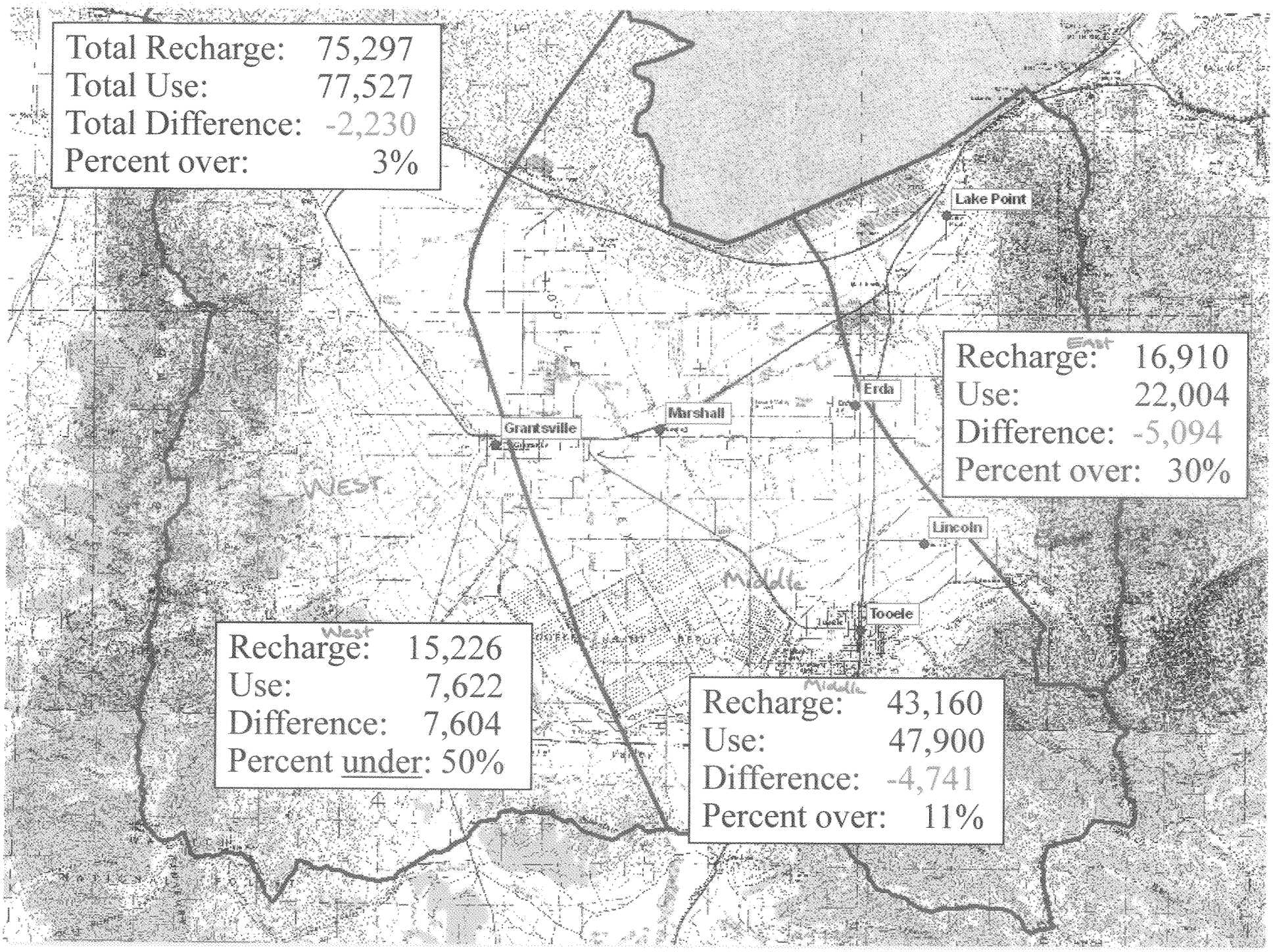
EXHIBIT A


Total Recharge: 75,297
Total Use: 77,527
Total Difference: -2,230
Percent over: 3%
Lake Point
Erda
Marshall
Grantsville
Lincoln
Tooele
WEST
Middle
Middle
Recharge: 16,910
Use: 22,004
Difference: -5,094
Percent over: 30%
Recharge: 15,226
Use: 7,622
Difference: 7,604
Percent under: 50%
Recharge: 43,160
Use: 47,900
Difference: -4,741
Percent over: 11%

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TECHNICAL MEMORANDUM

TO: Wendy Bowden Crowther, Esq. and Steven E. Clyde, Esq.
Attorneys for Brookfield Ranches, LLC.

FROM: Bob Ramsey P.G.

DATE: September 28, 2006

SUBJECT: Evaluation of Diamond BY Ranches, LLC. And George Buzianis Change Applications and Potential Hydrogeologic Effects From the Proposed Changes

INTRODUCTION

Several change applications have been filed by Diamond BY Ranches, LLC and George Buzianis for the benefit of Brookfield Ranches, LLC. There are seven proposed change applications by Diamond BY Ranches LLC totaling 200 acre-feet and one by Mr. George Buzianis for 161.932 acre-feet. Together, the change applications total 361.932 acre-feet of water to irrigate 90.483 acres of land. The beneficial use of the water will be irrigation and there will not be any enlargement of the use. In the following pages, an analysis is presented of the water rights associated with the applications, the local hydrogeologic conditions and the potential impacts to water levels and water quality. The analysis shows that there will be minimal impact to ground-water levels and water quality. Moreover, the analysis clearly demonstrates that the potential adverse impacts claimed by the protestants are unsupported and without merit. Based on the analysis and findings presented herein, the change applications should be approved by the State Engineer.

WATER RIGHT REVIEW

Diamond BY Ranches, LLC Change Applications

Seven change applications, as shown in Table 1, were filed by Diamond BY Ranches, LLC to segregate a total of 200 acre-feet from the original Water Right No. 15-333. The proposed changes will move the points of diversion and place of use. The nature of use will remain as irrigation of 50 acres from April 1 to October 31.

TABLE 1
Diamond BY Ranches LLC, Change Applications

Change Application No.	Water Right No.	Date Filed	Segregated from Water Right No.	Quntity in AF	Irrigated Acreage
a30783	15-4572	11/4/2005	15-333 & 15-4111*	25	6.25
a30868	15-4573	12/9/2005	15-333 & 15-4111*	25	6.25
a31323	15-4574	4/17/2006	15-333 & 15-4111*	25	6.25
a31457	15-4575	5/16/2006	15-333 & 15-4111*	25	6.25
a31568	15-4576	6/7/2006	15-333 & 15-4111*	25	6.25
a31572	15-4577	6/8/2006	15-333 & 15-4111*	17.068	4.267
a31571	15-4646	6/8/2006	15-4577	7.932	1.983
a31571	15-4578	6/8/2006	15-333 & 15-4111*	25	6.25
a31571	15-4579	6/8/2006	15-333 & 15-4111*	25	6.25
Total for Diamond BY Ranches				**200**	**50**

* Flow only

The water rights to be changed are evidenced by an approved right to appropriate Water Right No. (15-333) which is included in the Proposed Determination of Water Rights in the Grantsville Subdivision of the Tooele Valley Division, Area Code 15, Book 2 of the Great Salt Lake Drainage Area, as prepared by the Utah Division of Water Rights for the general determination of rights in Tooele County.

Heretofore, the water has been diverted from the following points located at:
(1) South 1254 feet and West 475 feet from the N1/4 of Section 28, T2S, R5W, SLB & M (existing 6-inch well); (2) South 1254 feet and West 2139 feet from the N1/4 of Section 28, T2S, R5W, SLB & M (existing 6-inch well); (3) South 1257 feet and West 1503 feet from the N1/4 of Section 28, T2S, R5W, SLB & M (existing 6-inch well); (4) North 50 feet and West 46 feet from the E1/4 of Section 29, T2S, R5W, SLB & M (existing 6-inch well); (5) North 58 feet and West 637 feet from the E1/4 of Section 29, T2S, R5W, SLB & M (existing 6-inch well); (6) North 56 feet and West 1268 feet from the E1/4 of Section 29, T2S, R5W, SLB & M (existing 6-inch well). The water has been used in all or portions of Section 6,7,8,17,18, 21, 28 and 29, T2S, R5W, SLB & M.

Hereafter, Change Applications a30783, a30868, a31323, a31457 and a31572 together propose to divert 142.068 acre-feet of water from a single 16-inch diameter well to be drilled to a depth of up to 1000 feet under water right 15-4572 with a point of diversion (POD) located at North 135 feet East 2370 feet from the W1/4 of Section 3, T3S, R4W, SLB & M. The water will be used to irrigate 35.517 acres in Section 3, T3S, R4W, SLB & M.

Hereafter, Change Application a31571 is proposed to divert 57.932 acre-feet of water from a single 10-inch diameter well to be drilled to a depth of up to 500 feet under Water Right No. 15-4633 with a POD located at South 559 feet East 1242 feet from the NW corner of Section 11, T3S, R4W, SLB & M. The water will be used to irrigate 14.483 acres in Section 11, T3S, R4W, SLB & M.

The heretofore and hereafter diversion and depletion quantities are unchanged as shown below:

Heretofore
POD T2S R5W
Sections 28 & 29

Change Application No.	Water Right No.	Quantity in AF	Irrigated Acreage
a30783	15-4572	25	6.25
a30868	15-4573	25	6.25
a31323	15-4574	25	6.25
a31457	15-4575	25	6.25
a31568	15-4576	25	6.25
a31572	15-4577	17.068	4.267
Subtotal:		142.068	35.517

Heretofore
POD T2S R5W
Sections 28 & 29

a31571	15-4646	7.932	1.983
a31571	15-4578	25	6.25
a31571	15-4579	25	6.25
Subtotal:		57.932	14.483
TOTAL:		200	50

Hereafter
POD T3S R4W
Section 3

Change Application No.	Water Right No.	Quantity in AF	Irrigated Acreage
a30783	15-4572	25	6.25
a30868	15-4573	25	6.25
a31323	15-4574	25	6.25
a31457	15-4575	25	6.25
a31568	15-4576	25	6.25
a31572	15-4577	17.068	4.267
Subtotal:		142.068	35.517

Hereafter
POD T3S R4W
Section 11

a31571	15-4646	7.932	1.983
a31571	15-4578	25	6.25
a31571	15-4579	25	6.25
Subtotal:		57.932	14.483
TOTAL:		200	50

The heretofore and hereafter points of diversion are shown in Figure 1.

George Buzianis Change Application

Change Application a31520 was filed by George Buzianis to segregate 161.932 acre-feet of water from Water Right No. 15-4422. The proposed change will move the POD and place of use. The nature of use was irrigation and stock watering and will change to irrigation of 40.483 acres from April 1 to October 31 as shown below.

The water rights to be changed are evidenced by an application to appropriate approved by the State Engineer on 5/ 04/1987.

Heretofore, the water has been diverted from a 475 foot deep, 12-inch diameter well located at South 2065 feet and West 880 feet from the N1/4 of Section 27, T2S, R4W, SLB & M. The water was used in portions of Section 27, T2S, R4W, SLB & M.

Hereafter, the change proposes to divert 161.932 acre-feet of water from a single 16-inch diameter well to be drilled to a depth of up to 1000 feet (under Water Right No. 15-4572) with a POD located at North 135 feet East 2370 feet from the W1/4 of Section 3, T3S, R4W, SLB & M. The water will be used to irrigate 40.483 acres in Section 3, T3S, R4W, SLB & M. The heretofore and hereafter locations are shown in Figure 1.

The water right is quantified as follows:

HERETOFORE

USE	DIVERSION	DEPLETION
Irrigation of 40.00 acres @ 4af/ac	160af	88af
Stockwatering: 69 elu @ 0.028af/yr	1.932af	1.932af
TOTAL	161.932af	89.932af

HEREAFTER

USE	DIVERSION	DEPLETION
Irrigation of 40.483 acres @ 4af/ac	161.932af	89.063af

This quantification uses the same methodology as applied by the State Engineer on other recently approved change applications in the Erda area.

PROTESTS

The proposed change applications have received several protests by a small group of water rights holders located in the Erda, Stansbury Park and Lake Point areas. The protestants are concerned that the proposed change in points of diversion will negatively impact water levels, recharge and water quality. The individual change applications and protestants are shown below.

Change Application No.	Water Right No.	Protestants
a30783	15-4572	Kennecott Utah Copper Corporation c/o Van King
a30868	15-4573	None
a31323	15-4574	Kennecott Utah Copper Corporation c/o Van King Norm Burraston 1260 Erda way
a31457	15-4575	Kennecott Utah Copper Corporation c/o Van King Norm Burraston 1260 Erda way James Ward c/o Luecadia Financial Stansbury Recreational Area c/o Scott Totman
a31568	15-4576	Kennecott Utah Copper Corporation c/o Van King Norm Burraston 1260 Erda way James Ward c/o Luecadia Financial Stansbury Recreational Area c/o Scott Totman
a31572	15-4577	Stansbury Recreational Area c/o Scott Totman
a31571	15-4646	Kennecott Utah Copper Corporation c/o Van King Stansbury Recreational Area c/o Scott Totman
a31571	15-4578	Kennecott Utah Copper Corporation c/o Van King Stansbury Recreational Area c/o Scott Totman
a31571	15-4579	Kennecott Utah Copper Corporation c/o Van King Stansbury Recreational Area c/o Scott Totman
a 31520	15-4422	Norm Burraston 1260 Erda Way

Figure 2 shows the location of the proposed hereafter points of diversion in relation to the protestants wells and/or springs.

HYDROGEOLOGIC REVIEW

The hydrogeology and ground-water conditions in Tooele valley have been extensively studied by the U.S. Geological Survey (USGS) and the Utah Geological Survey. These studies have resulted in several published reports that describe the basin's aquifer systems, ground-water flow directions, subsurface water-quality conditions, and estimated long term annual recharge to and discharge from the aquifer system. The USGS has published a ground-water flow model which has been used to predict the potential effects of ground-water withdrawals on water levels and spring flows. The State Engineer has recently used the model to assess the potential impacts to the ground-water system and protestants of proposed change applications a30748 (15-4563) and a29456 (15-458).

The USGS maintains an observation well network and regularly collects water-level and water-quality data which are available on their website located at http://ut.water.usgs.gov. In addition, the State Engineer maintains well logs and drilling records on the State Water Rights Division website located at http://www.waterrights.utah.gov.

GEOLOGY AND HYDROLOGY OF THE GROUND-WATER SYSTEM

The geology and hydrology of the Erda, Stansbury Park and Lake Point areas are extensively described in the published reports listed in the attached references. A brief summary of the system is described here as it relates to the applicant's proposed change application and points of diversion. The applicant proposes to withdraw ground water from two new wells to be drilled under 15-4572 (a30783) and 15-4578 (a31571) in Sections 3 and 11, respectively, of T3S, R4W, as shown in Figure 1. These wells would be drilled to depths of up to 1000 and 500 feet below ground surface, respectively.

The Tooele Valley basin-fill ground-water flow system is generally thought to consist of two aquifers separated by a shallow confining layer. The first aquifer is referred to as the "shallow unconfined aquifer" and is only found in the central and northern portions of the valley. The deeper and more extensive aquifer is referred to as the "principal aquifer". The area where the proposed wells would be drilled is underlain by the Quaternary-age principal aquifer which consists mainly of interbedded sands and gravels and is estimated to be as much as 1000 feet thick (Lambert and Stolp, 1999). The principal aquifer exists in both confined and unconfined conditions within the east Erda area. To the south and along the margins of the valley, the principal aquifer generally exists in unconfined conditions. The proposed well locations are thought to be in the unconfined portion of the principal aquifer. Confined conditions generally begin to appear approximately one or more miles to the north and west of the proposed POD's.

Hydraulic properties of the principal aquifer have been studied and estimated in several portions of the valley. In the area of the proposed wells, Lambert and Stolp (1999) estimated the hydraulic conductivity of the principal aquifer to range from 5 to 620 feet per day (ft/d) and the thickness of the aquifer to be up to 900 feet. Using these numbers, transmissivity values are reported to range from 200 to 391,000 feet squared per day (ft^2/d). Specific capacity values of wells completed in the principal aquifer in this general area can be obtained from selected well logs and have been reported in several published and unpublished reports. The specific capacity values are quite variable and are affected by location, well depth and well construction. Reported values range from 1 to 1200 gallons per minute per foot of drawdown (gpm/ft). An estimated average value of specific yield for the basin-fill material in Tooele Valley was reported by Razem and Steiger (1981) to be 0.10. Hydraulic properties of selected wells reported by Stolp (1994) are shown in Table 2.

TABLE 2
Hydraulic Properties of Wells and Basin-Fill Deposits in the East Erda Area

Well Location	Well Discharge (gpm)	Drawdown (feet)	Specific Capacity gpm/ft of drawdown	Transmissivity (ft^2/day)	Hydraulic Conductivity (ft/day)
(C-2-4)27cdc-1	1,130	24	47	11,000	130
(C-2-4)33aab-1	1,500	90	17	25,000	260
(C-3-4)8aaa-1	1,375	43	32	9,100	40
(C-3-4)9aaa-1	1,320	53	25	6,700	30
(C-3-4)14adb-1	400	28	14	2,400	30
(C-3-4)16aaa-1	1,083	6	180	40,000	120

From these hydraulic values, conservative estimates were used to evaluate drawdown impacts from the proposed changes. The potential drawdown impacts are described in the *Repsonse to Protests* section of this memo.

A ground-water flow restriction in the Stansbury Park area resulting from a consolidated-rock high has been documented and described in recent USGS reports. Recent test holes drilled by the Stansbury Park Improvement District (SPID) have also confirmed the presence of shallow consolidated rock north of the flow restriction. This subsurface consolidated-rock high separates and essentially isolates the ground-water flow system in the Erda area from the flow system to the north of the consolidated-rock high (Lambert and Stolp, 1999). In other words, there are two separate ground-water flow systems and there is minimal hydraulic interconnection between them. This is further confirmed by ground-water potentiometric surface maps, water quality and hydraulic conductivity data reported in the referenced USGS reports.

GROUND-WATER LEVELS AND DIRECTION OF GROUND-WATER FLOW

Potentiometric surface contours and direction of ground-water flow in the Tooele Valley area are shown in Figure 3. (From Susong, 1999). On the eastern side of Tooele Valley and, more specifically in the east Erda area, the general direction of ground-water flow is from recharge areas in the Oquirrh Mountains towards the north and northwest. On a smaller scale, Susong (2005) has documented a ground-water mound in the area of Rose or Bryan Spring as shown in Figure 4. The mound is thought to be the result of recharge from the Springs or subsurface recharge from consolidated rock of the Oquirrh Mountains. Of interest are the steep gradients on the north and south sides of the mound. To the north, the steep ground-water gradient is thought to be influenced by pumping from the SPID wells (Susong, 2005). On the south, the steep gradient appears to be influenced by pumping from numerous small domestic wells in the Country Lane Estates area.

Figure 5 shows several USGS hydrographs with long periods of record in the area of the proposed PODs and protestants. All of the hydrographs appear to show a similar pattern of rising and falling water levels since the late 1970's. While these water levels are certainly influenced by ground-water withdrawals, it appears, they may be influenced to an equal or greater degree by annual precipitation amounts and the cumulative departure from the mean.

Note that in the three hydrographs, with periods of record since the late 1970's, water levels have fluctuated by up to 40 feet. However, water levels are at about the same level today as they were in the early 1980's. This suggests that the water-level declines observed in the hydrographs over the last two decades are heavily influenced by precipitation levels and that the long term average annual recharge to and discharge from the basin-fill aquifer are in reasonable balance. Also, note that the 5 year period of record in hydrograph (C-2-4) 35dcc-3, located in the Country Lane Estates area, correlates closely with the pattern in hydrographs with longer records.

Inspection of the hydrographs in Figure 5 and the potentiometric contours in Figure 4 further suggests that the ground-water gradient between the proposed POD's and Section 27 (SPID Wells) is nearly flat and that the direction of ground-water flow appears be to the west, northwest rather than the north, towards the SPID wells.

The Utah Division of Water Resources Cooperative Investigations Report No. 46, 2005 compared the change in water levels from March 1975 to March 2005 (a period of 30 years) as shown in Figure 6. This figure shows that ground-water levels approximately ½ to 1 mile north and west of the proposed PODs have risen from 0-8 feet over the 30 year period of record. The figure also shows that in the area approximately 1-2 miles to the north (Sections 21, 22, 27 and 28), ground-water levels have declined anywhere from 0 to 11 feet over the same 30 year period. The fact that these relatively small water-level declines have occurred during a period of on-going subnormal precipitation suggests that ground-water withdrawals from the principal aquifer system are in relative balance with the sustainable yield. It is also important to note, the Division of Water Resources (Report No. 46 and 47) reports that annual ground-water withdrawals in the Tooele Valley have been decreasing over the last several years. In 2005, the total estimated withdrawal of ground-water from wells in Tooele Valley was about 18,000 acre-feet or about 4,000 acre-feet less than the average annual withdrawal for the period of 1995 to 2004.

GROUND-WATER QUALITY

The USGS has an ongoing monitoring program to collect and analyze ground-water samples from selected wells within Tooele Valley. The analytical results from these wells are maintained on the USGS's website at http://ut.water.usgs.gov. The USGS (Susong, 2005), has described an area of high TDS, nitrate and arsenic in the south central portion of Section 35 located about one mile to the north and east of the proposed PODs. From this study it was determined that nitrate concentrations of 0 to 3.0 mg/L are considered to be in the natural background range. It was further determined that elevated nitrate concentrations are generally confined to the upper 50 to 150 feet of the basin-fill aquifer and decrease to background levels to the south and west. It was also determined that high dissolved solids (using specific conductance as a proxy) and arsenic decrease with depth. The USGS also reports that the western and southern edges of the nitrate contamination are not well defined.

Unfortunately, ground-water quality data are sparse in the east Erda area outside the USGS study boundaries and, more so, in the area of the proposed POD's. Many of the relevant wells that have been sampled and that are contained in the USGS database are listed in Table 3. For expediency, Table 3 lists only selected constituents of concern. From these water-quality data, it is apparent that ground water quality varies with depth and location. Moreover, it is difficult to compare with quality from one well to another for a variety of reasons. The wells have been sampled infrequently and many have not been sampled in more than 10 years. Therefore, it is

hard to define water-quality trends over time. The wells are constructed at depths ranging from 220 to 575 feet below ground surface. Having said this, some very general observations can be made. In the area surrounding (about ½ mile) the proposed POD's, the reported total dissolved solids (TDS) concentrations range from 529 to 1090 milligrams per liter (mg/L). TDS concentrations appear to generally decrease with depth. Nitrate concentrations are consistent with background levels and reported arsenic concentrations are less than 1.5 micrograms per liter (ug/L). There are currently no reported data in the immediate vicinity of the proposed PODs to more closely define expected water-quality conditions.

TABLE 3
Selected Water Quality Data

Well Location	Sample Date	Well Depth (feet)	Specific Conductance (uS/cm)	Residue (mg/L)	Nitrite + Nitrate (mg/l as N)	Arsenic (ug/L)	Sulfate (mg/L)
T2S R4W							
(C- 2- 4)27bdc- 1	6/27/1978	475	700	402			47
(C- 2- 4)27cdc- 1	6/13/1978	220	1340	822			150
	8/7/1990		1270				
(C- 2- 4)27ddd- 1	6/21/1978						
(C- 2- 4)33aab- 1	6/29/1978	403	660	394			51
(C- 2- 4)33add- 1	7/8/1982	165	710	464	2.7		120
(C- 2- 4)33bbb- 1	7/25/1978	277	1200	755			28
(C- 2- 4)33bdd- 1	6/20/1978	421	825	456			32
	7/13/1999	421	835				
(C- 2- 4)35dcc- 1	12/9/1999	210	2850	1650	14.8	206	
	9/7/2001	210	2690	1890	16.8	102	94
	7/1/2003	210	3070	1730		61	108
	7/19/2005	210	2960	1820	17.6	46	83
(C- 2- 4)35dcc- 2	12/9/1999	251	2290	1420	4.77	13	
	9/7/2001	251	3280	2490		10	153
	7/1/2003	251	4780	3080		4.9	193
	7/19/2005	251	5240	3900	5.12	8	199
(C- 2- 4)35dcc- 3	12/9/1999	352	1150	660	4.77	24	
	9/7/2001	352	1150	677		10	72
	7/1/2003	352	1220	690		5	94
	7/19/2005	352	1190	703	5.12	5	74
T3S R4W							
(C- 3- 4) 2bcd- 1	7/5/2005	400	760		1.87	0.3	
(C- 3- 4) 2cbb- 1	10/17/2002	340	875	529	3.14	0.5	110
(C- 3- 4) 3dcc- 1	4/13/2005	380	972	635	2.92	0.6	239
(C- 3- 4) 9aaa- 1	6/6/1978	575	1850	1090			52
	4/30/2002	575	1600	876	1.41	1.4	57.1

RESPONSE TO PROTESTS

The proposed change application by Diamond BY Ranches and George Buzianis would move a total of 361.932 acre-feet of water to two points of diversion located in Sections 3 and 11 of T3S R4W. The PODs are located about 1 mile apart. The heretofore and hereafter nature of use will be essentially the same. A conversion of livestock watering to irrigation for Change Application a31520 will increase irrigation acreage from 40 acres to 40.483 acres with an elimination of 69 elu, as detailed in the *Water Rights* section. Because the water will be used for irrigation, a portion of the pumped water will return to the hydrologic system as deep percolation and recharge to the basin-fill aquifer. Using the irrigation demand and consumptive use values for alfalfa, applied by the State Engineer in Tooele Valley, the net loss to the aquifer through consumptive use would be 199.062 acre-feet rather than the full water right of 361.932 acre-feet.

To evaluate the impact to the basin-fill aquifer and protestants' wells from pumping, if the proposed changes are approved, a distance-drawdown analysis was performed using the Theis non-equilibrium well equation. Values of hydraulic conductivity, specific yield, saturated aquifer thickness and transmissivity were all conservatively selected as noted earlier in the discussion of Table 2. These selected hydraulic values are at the low end of the ranges shown and, are consistent with those used in the USGS Ground-Water Flow Model of Tooele Valley. The calculated drawdowns are based on the simplifying assumptions built into the Theis equation and that pumping would be on a continuous basis during the irrigation season (April 1 to October 31). The calculated values represent the drawdown at the end of a full season (214 days) of pumping. The drawdown calculations do not consider any recharge of return irrigation to the aquifer. Thus, the drawdown estimates are overly conservative and represent potential worst case conditions. Figures 7 and 8 show the input parameters and the calculated drawdowns at varying distances from the proposed PODs. Figure 9 shows the predicted drawdowns at distances up to 5000 feet from the proposed PODs in relation to the protestants' wells. Clearly, these figures show that the proposed changes would have minimal impact to water levels and recharge to the basin-fill aquifer and negligible impact to the protestants water rights. In fact, the Buzianis change application (a31520) would result in a beneficial change to the SPID wells by eliminating 161.932 acre-feet of ground-water pumping. Figure 10 shows that water levels at the SPID wells would rise more than 2 feet due to elimination of this pumping. The net impact from the proposed change applications to the SPID wells would be a rise in water levels in the immediate vicinity.

It is interesting to note that the SPID is protesting the Diamond BY Ranches change applications due to concerns of moving water from an area of poorer quality water near Grantsville to an area of higher quality ground-water south and east of Erda. SPID also raises concerns that the increased ground-water withdrawals could impact water levels at the SPID wells and cause the westward movement of arsenic and nitrate contaminated water located to the east of the SPID wells. In change application a29456 (15-458) recently approved by the State Engineer, SPID successfully demonstrated that moving 1084.05 acre-feet of water rights from an area of poorer quality ground-water north of the ground-water flow restriction to the SPID wells, an area of higher ground-water quality, would have no adverse effect on ground-water reservoir south of the ground-water flow restriction. If the State Engineer has determined that the movement of 1084.05 acre-feet of water rights to SPID wells in the east Erda area will have no adverse impact on the basin-fill aquifer, it seems unlikely now that approval to move 200 acre-feet from the Grantsville area to the area south and east of Erda will have the dire consequences claimed by the protestants.

The protestants also claim that approval of the change applications would accelerate movement of ground water containing nitrate and arsenic toward the north and west. While elevated levels of nitrate and arsenic have been documented to the northeast and southeast of the proposed change PODs, the calculated drawdowns from these changes do not support a case for any significant acceleration of ground-water movement toward the protestants wells.

CONCLUSIONS AND RECOMMENDATIONS

The proposed change applications would move 361.932 acre-feet of water rights to T3S R4W Sections 3 and 11. This area is underlain by basin-fill materials that may be up to 1000 feet thick. The principal aquifer in this area is unconfined and has hydraulic characteristics that are suitable for large diameter, high capacity wells. In the areas around the proposed PODs, there is relatively limited ground-water production as compared with other more heavily pumped areas to the north and west. Drawdown calculations, using similar input variables as used in the USGS Ground-Water Flow Model, indicate potential impacts to the aquifer would be relatively minor. Even in the immediate vicinity of the largest well, located in Section 3, predicted drawdown would be less than 10 feet.

In fact, the calculated drawdown impact at the closest protestant's well located about 6000 feet to the northeast would be only about ½ foot at the end of the pumping season. It is likely that this small drawdown would quickly recover during the winter non-irrigation season. The wells of other protestants are located from two to five miles away from the proposed PODs. Adverse impacts to the principal aquifer and the protestant's wells would be negligible.

Water quality in the area of the proposed PODs is expected to be suitable for irrigation purposes. TDS concentrations are expected to be in the 500 to 700 mg/L range with improving quality at depth. Nitrate concentrations are expected to be at natural background levels and arsenic concentrations are expected to be well below drinking water limits of 10 ug/L. New wells will be constructed to depths of from 500 to 1000 feet deep with screened intervals in the deeper portions of the principal aquifer where the best quality water is expected. Constructing wells with deeper screened intervals would also lessen the potential impacts to any nearby wells.

Protestants have expressed concern that the proposed changes may cause accelerated movement of ground water containing nitrate and arsenic from the Country Lanes Estates area, located approximately one mile to the north and east and, arsenic from the ISR Superfund Site, located approximately two miles to the south. These concerns do not appear to be valid for several reasons. First, calculated drawdown impacts are about ½ foot in the County Lanes Estates area. This suggests that the ground-water gradient from east to west in this area will not be materially changed by the added pumping. Second, identified contaminants in the Country Lane Estates area are present in the shallower aquifer zones between 210 and 352 feet below ground surface. Contaminant concentrations of both nitrate and arsenic at the USGS monitoring well cluster in the Country Lane Estates (35dcc) decrease with depth and have not been documented to exist below 352 feet. The extent of these contaminants also have not been determined either vertically and aerially to the west of the USGS monitoring wells. With respect to migration of arsenic contamination from the ISR Superfund Site, the drawdown calculations suggest that pumping impacts from the proposed change will be negligible to non-existent at this location.

Based on the forgoing presentation and analysis of data, there will neither be an enlargement of the existing water rights nor will there be any significant impact to water levels, production rates, water quality or water rights of the protestants. On this basis, it is recommended that Change Applications Nos. a30783, a30868, a31323, a31457, a31568, a31571, a31572 and a31520 be approved.

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FIGURES

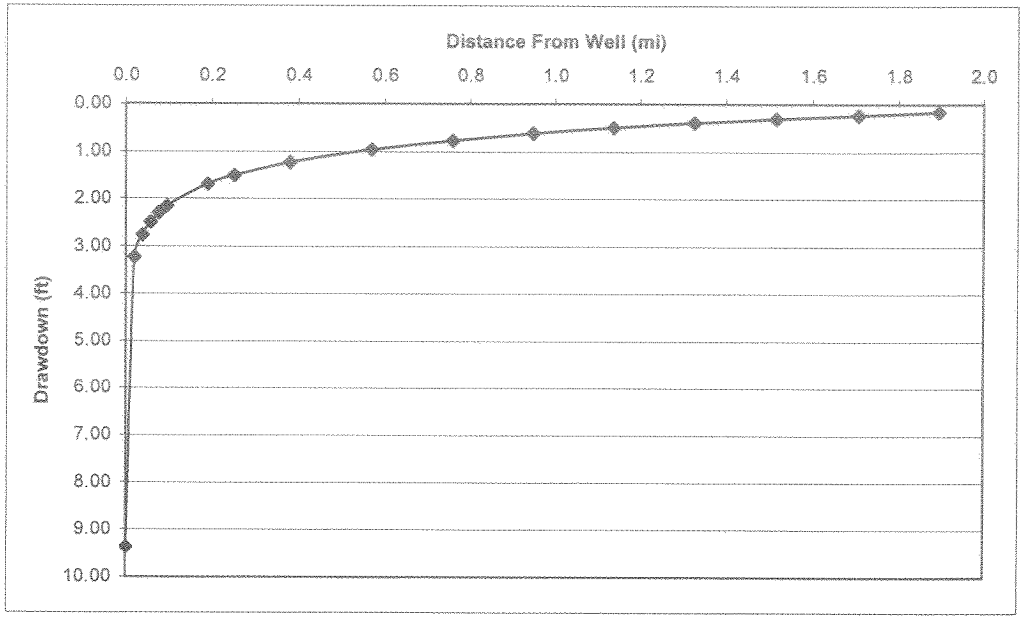
Q	Flow Rate	321.45	gpm	(assumes continuous pumpint during irrigation season from April 1 to October 31)
Sy	Specific Yield	0.10	(USGS 99-4014, page 13, average value)	
b	Initial Sat. Thickness	400	ft	
K	Hydraulic Conductivity	30	ft/day (USGS and State of Utah, Technical Publication No. 107, 1994 , Table 8, typical value)	
t	Pumping Time	214	days	
T	transmissivity	12,000	ft^2/day	

Drawdown = [Q * W(u)]/[4 * pi * T]

$u = [r^2 * Sy]/[4 * T * t]$

T = K*b

Dist (ft)	u	W(u)	Drawdown (ft)	Dist (mi)
0.01	0.0000	22.834	9.37	0.000
100	0.0001	7.864	3.23	0.019
200	0.0004	6.737	2.76	0.038
300	0.0009	6.078	2.49	0.057
400	0.0016	5.610	2.30	0.076
500	0.0024	5.248	2.15	0.095
1000	0.0097	4.121	1.69	0.189
1320	0.0170	3.670	1.51	0.250
2000	0.0389	2.994	1.23	0.379
3000	0.0876	2.335	0.96	0.568
4000	0.1558	1.868	0.77	0.758
5000	0.2434	1.505	0.62	0.947
6000	0.3505	1.209	0.50	1.136
7000	0.4770	0.958	0.39	1.326
8000	0.6231	0.741	0.30	1.515
9000	0.7886	0.550	0.23	1.705
10000	0.9735	0.379	0.16	1.894
11000	1.1780	0.224	0.09	2.083
12000	1.4019	0.082	0.03	2.273
13000	1.6452	0.078	0.03	2.462
14000	1.9081	0.056	0.02	2.652



Hereafter Point of Diversion **T3S R4W Section 3** **Annual Withdrawal 304 acre-feet**

Figure 7

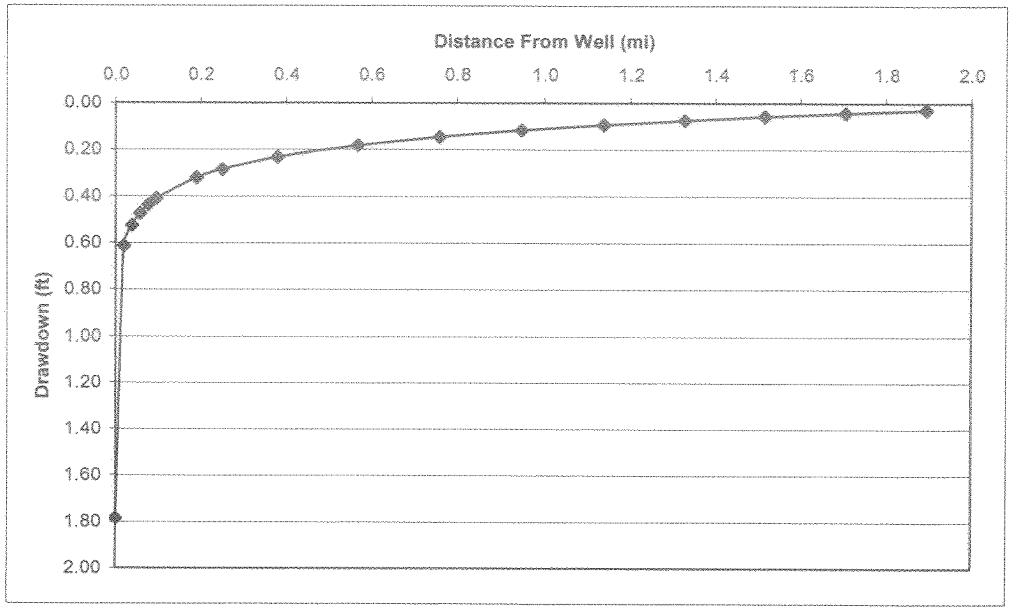
Q	Flow Rate	61.25	gpm	(assumes continuous pumpint during irrigation season from April 1 to October 31)
Sy	Specific Yield	0.10		(USGS 99-4014, page 13, average value)
b	Initial Sat. Thickness	400	ft	
K	Hydraulic Conductivity	30	ft/day	(USGS and State of Utah, Technical Publication No. 107, 1994 , Table 8, typical value)
t	Pumping Time	214	days	
T	transmissivity	12,000	ft^2/day	

Drawdown = [Q * W(u)]/[4 * pi * T]

$u = [r^2 * Sy]/[4 * T * t]$

T = K*b

Dist (ft)	u	W(u)	Drawdown (ft)	Dist (mi)
0.01	0.0000	22.834	1.79	0.000
100	0.0001	7.864	0.61	0.019
200	0.0004	6.737	0.53	0.038
300	0.0009	6.078	0.48	0.057
400	0.0016	5.610	0.44	0.076
500	0.0024	5.248	0.41	0.095
1000	0.0097	4.121	0.32	0.189
1320	0.0170	3.670	0.29	0.250
2000	0.0389	2.994	0.23	0.379
3000	0.0876	2.335	0.18	0.568
4000	0.1558	1.868	0.15	0.758
5000	0.2434	1.505	0.12	0.947
6000	0.3505	1.209	0.09	1.136
7000	0.4770	0.958	0.07	1.326
8000	0.6231	0.741	0.06	1.515
9000	0.7886	0.550	0.04	1.705
10000	0.9735	0.379	0.03	1.894
11000	1.1780	0.224	0.02	2.083
12000	1.4019	0.082	0.01	2.273
13000	1.6452	0.078	0.01	2.462
14000	1.9081	0.056	0.00	2.652



Hereafter Point of Diversion **T3S R4W Section 11** **Annual Withdrawal 57.932 acre-feet**

Figure 8

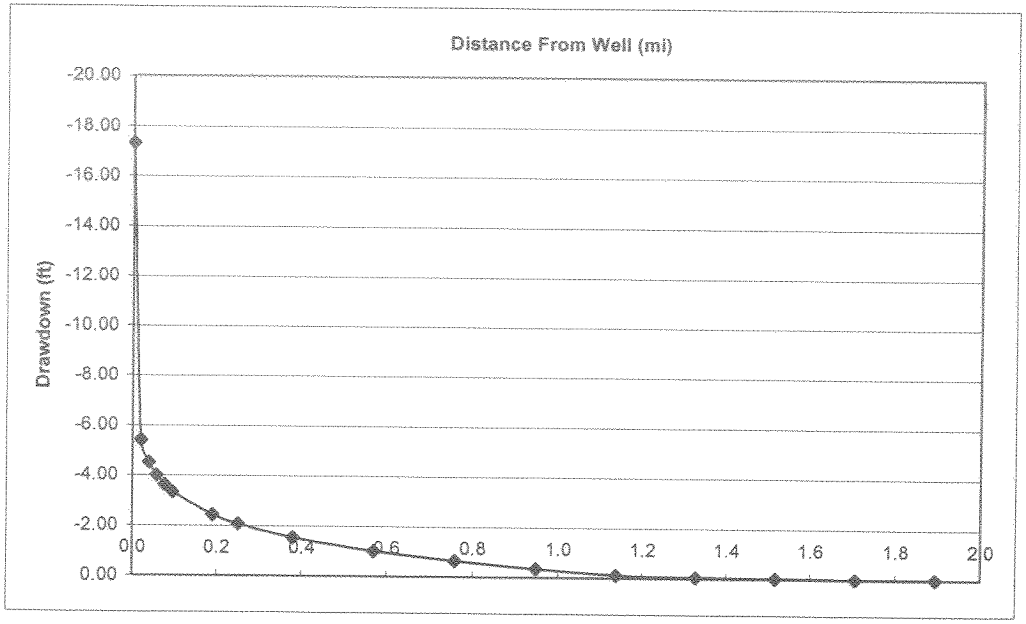
Q	Flow Rate	-171.23	gpm	(assumes continuous pumpint during irrigation season from April 1 to October 31)
Sy	Specific Yield	0.10	(USGS 99-4014, page 13, average value)	
b	Initial Sat. Thickness	300	ft	
K	Hydraulic Conductivity	11	ft/day	
t	Pumping Time	214	days	
T	transmissivity	3,300	ft^2/day	

Drawdown = [Q * W(u)]/[4 * pi * T]

$u = [r^2 * Sy]/[4 * T * t]$

T = K*b

Dist (ft)	u	W(u)	Drawdown (ft)	Dist (mi)
0.01	0.0000	21.785	-17.32	0.000
100	0.0004	6.815	-5.42	0.019
200	0.0014	5.688	-4.52	0.038
300	0.0032	5.029	-4.00	0.057
400	0.0057	4.561	-3.63	0.076
500	0.0089	4.199	-3.34	0.095
1000	0.0354	3.072	-2.44	0.189
1320	0.0617	2.621	-2.08	0.250
2000	0.1416	1.945	-1.55	0.379
3000	0.3186	1.286	-1.02	0.568
4000	0.5664	0.819	-0.65	0.758
5000	0.8850	0.456	-0.36	0.947
6000	1.2744	0.160	-0.13	1.136
7000	1.7346	0.070	-0.06	1.326
8000	2.2656	0.037	-0.03	1.515
9000	2.8675	0.018	-0.01	1.705
10000	3.5401	0.008	-0.01	1.894
11000	4.2835	0.003	0.00	2.083
12000	5.0977	0.001	0.00	2.273
13000	5.9827	0.000	0.00	2.462
14000	6.9385	0.000	0.00	2.652



Heretofore Point of Diversion **T2S R4W Section 27** **Annual Withdrawal 161.932 acre-feet**

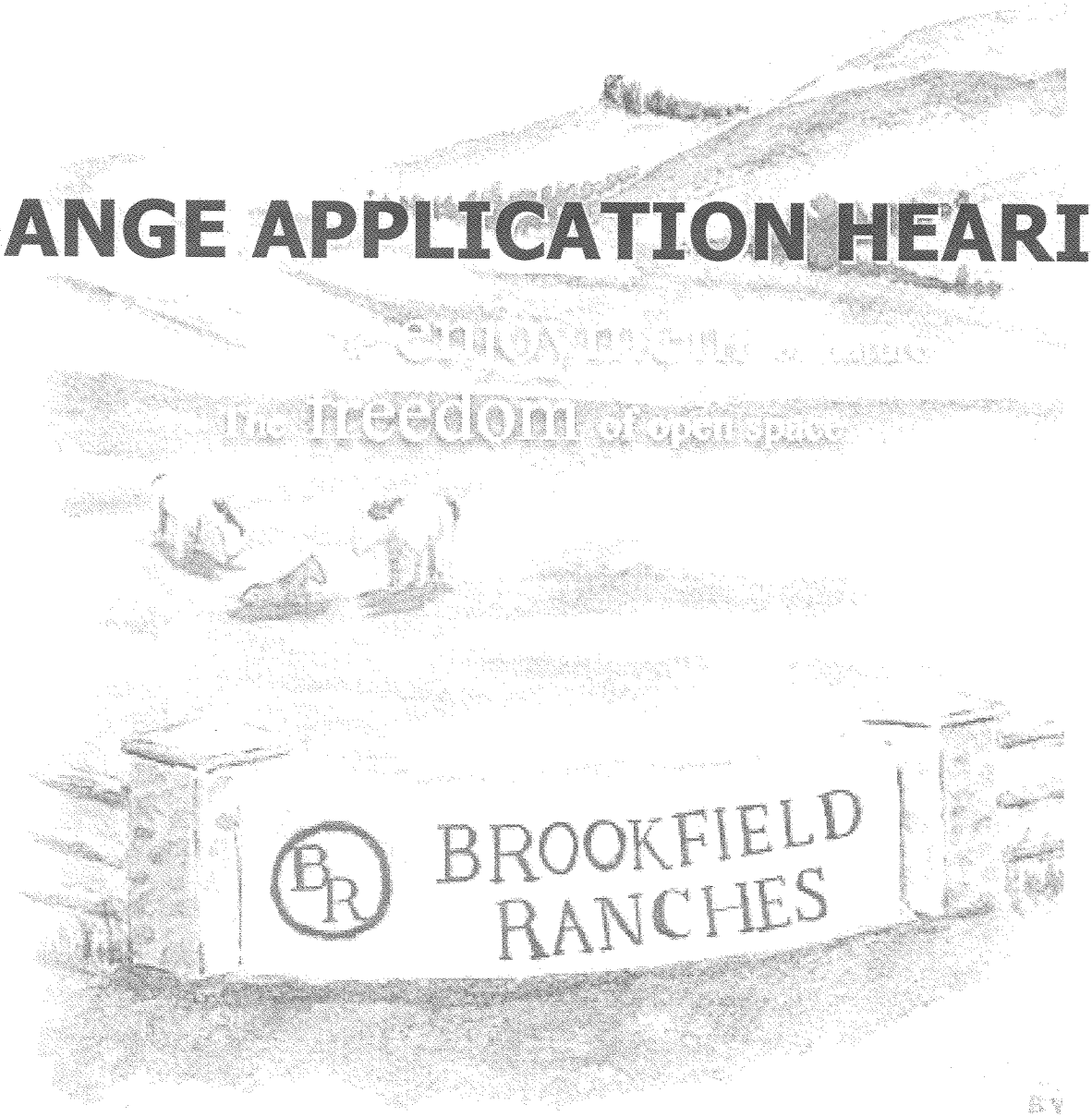
Figure 10

BROOKFIELD RANCHES

CHANGE APPLICATION HEARING

CALDWELL RICHARDS SORENSEN
ANSWERS TO INFRASTRUCTURE™

November 2, 2006



CHANGE APPLICATION HEARING

- INTRODUCTION
- WATER RIGHT REVIEW
- PROTESTS
- HYDROGEOLOGIC REVIEW
- RESPONSE TO PROTESTS
- CONCLUSIONS & RECOMMENDATIONS

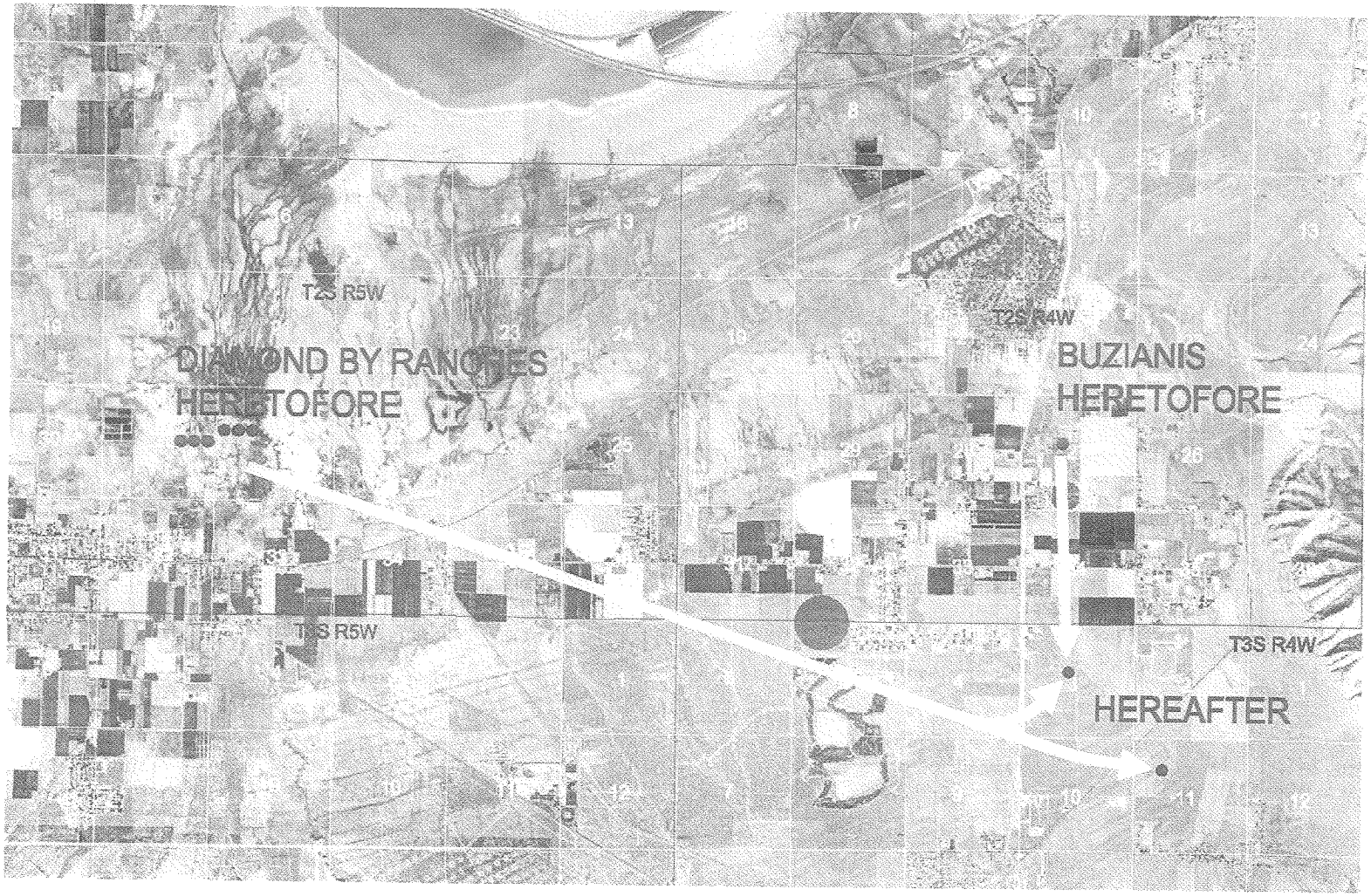
INTRODUCTION

- Brookfield Ranches has requested to move 361.932 acre-feet to Sections 3 & 11 of T3S, R4W
- A total of 8 change applications involved
- Use will remain irrigation
- The impact to the hydrologic system and protestors will be negligible
- The Change Applications should be approved

WATER RIGHT REVIEW

- Diamond BY Ranches, LLC
  - Seven Change Applications
  - 200 acre-feet
  - Irrigation of 50 acres
- George Buzianis
  - One Change Application
  - 161.932 acre-feet
  - Irrigation of 40.483 acres
- Two new PODs

FIGURE 1 HERETOFORE AND HEREAFTER CHANGE LOCATIONS



WATER RIGHT REVIEW

DIAMOND BY RANCHES, LLC

TABLE 1
Diamond BY Ranches LLC, Change Applications

Change Application No.	Water Right No.	Date Filed	Segregated from Water Right No.	Quntity in AF	Irrigated Acreage
a30783	15-4572	11/4/2005	15-333 & 15-4111*	25	6.25
a30868	15-4573	12/9/2005	15-333 & 15-4111*	25	6.25
a31323	15-4574	4/17/2006	15-333 & 15-4111*	25	6.25
a31457	15-4575	5/16/2006	15-333 & 15-4111*	25	6.25
a31568	15-4576	6/7/2006	15-333 & 15-4111*	25	6.25
a31572	15-4577	6/8/2006	15-333 & 15-4111*	17.068	4.267
a31571	15-4646	6/8/2006	15-4577	7.932	1.983
a31571	15-4578	6/8/2006	15-333 & 15-4111*	25	6.25
a31571	15-4579	6/8/2006	15-333 & 15-4111*	25	6.25
Total for Diamond BY Ranches				**200**	**50**

* Flow only

WATER RIGHT REVIEW

HERETOFORE & HEREAFTER CHANGE

Heretofore
POD T2S R5W
Sections 28 & 29

Change Application No.	Water Right No.	Quantity in AF	Irrigated Acreage
a30783	15-4572	25	6.25
a30868	15-4573	25	6.25
a31323	15-4574	25	6.25
a31457	15-4575	25	6.25
a31568	15-4576	25	6.25
a31572	15-4577	17.068	4.267
Subtotal:		142.068	35.517

Heretofore
POD T2S R5W
Sections 28 & 29

a31571	15-4646	7.932	1.983
a31571	15-4578	25	6.25
a31571	15-4579	25	6.25
Subtotal:		57.932	14.483
TOTAL:		**200**	**50**

Hereafter
POD T3S R4W
Section 3

Change Application No.	Water Right No.	Quantity in AF	Irrigated Acreage
a30783	15-4572	25	6.25
a30868	15-4573	25	6.25
a31323	15-4574	25	6.25
a31457	15-4575	25	6.25
a31568	15-4576	25	6.25
a31572	15-4577	17.068	4.267
Subtotal:		142.068	35.517

Hereafter
POD T3S R4W
Section 11

a31571	15-4646	7.932	1.983
a31571	15-4578	25	6.25
a31571	15-4579	25	6.25
Subtotal:		57.932	14.483
TOTAL:		**200**	**50**

WATER RIGHT REVIEW

GEORGE BUZIANIS CHANGE

HERETOFORE

USE	DIVERSION	DEPLETION
Irrigation of 40.00 acres @ 4af/ac	160af	88af
Stockwatering: 69 elu @ 0.028af/yr	1.932af	1.932af
TOTAL	161.932af	89.932af

HEREAFTER

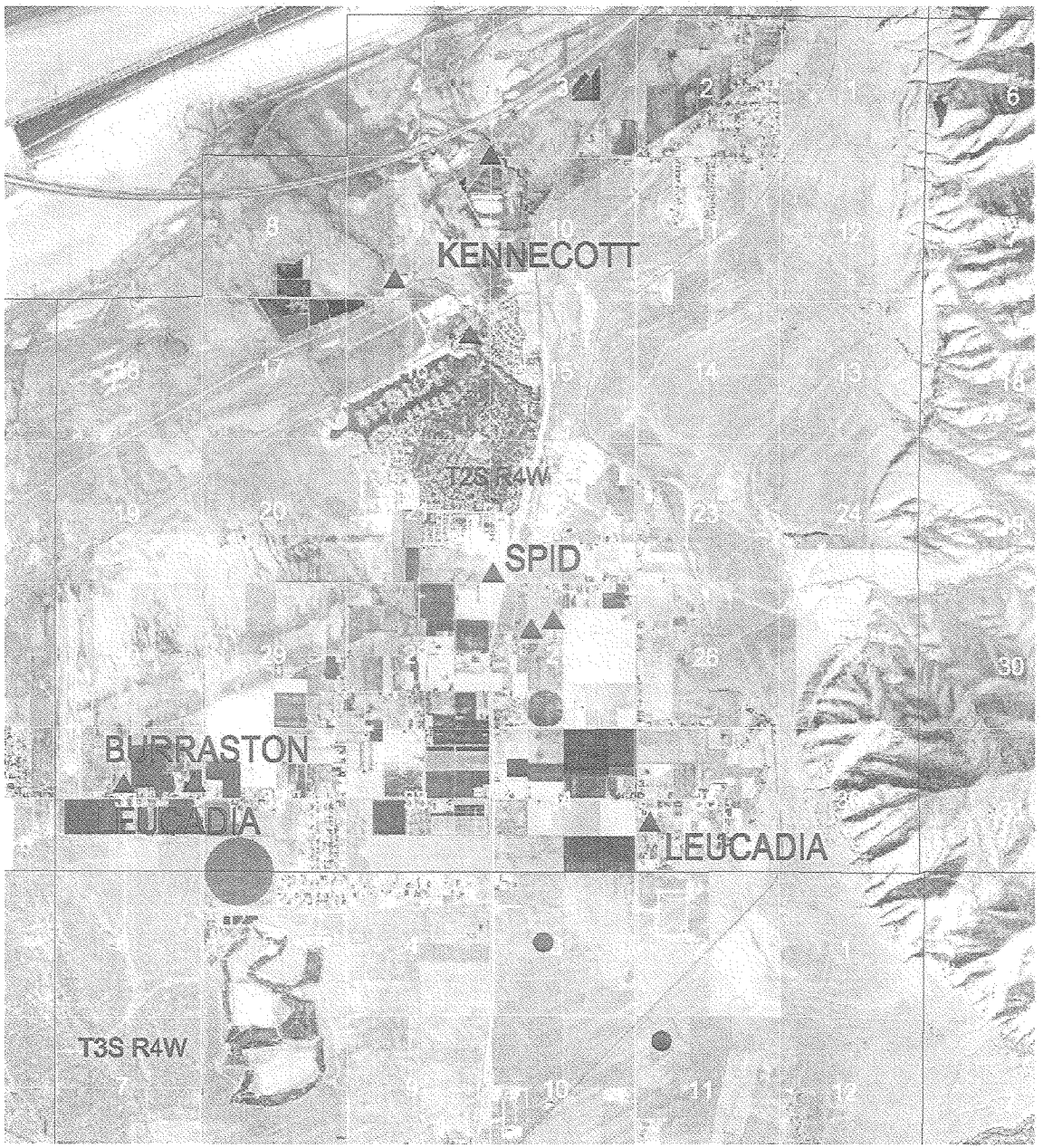
USE	DIVERSION	DEPLETION
Irrigation of 40.483 acres @ 4af/ac	161.932af	89.063af

PROTESTS

- Four parties protested the Change Applications
- Protestants PODs located from 1 to 5 miles away from proposed PODs
- The protestants are concerned that the change will negatively impact water levels, recharge and water quality.

FIGURE 2

LOCATION OF PROPOSED PODS AND PROTESTANTS' PODS



HYDROGEOLOGIC REVIEW

- Geology and Hydrology of the Groundwater System
  - Extensively studied
  - Numerous published & unpublished reports
  - Two aquifers-shallow and principal
  - Principal up to 1000 ft thick
  - Hydraulic properties highly variable

HYDROGEOLOGIC REVIEW

TABLE 2
Hydraulic Properties of Wells and Basin-Fill Deposits in the East Erda Area

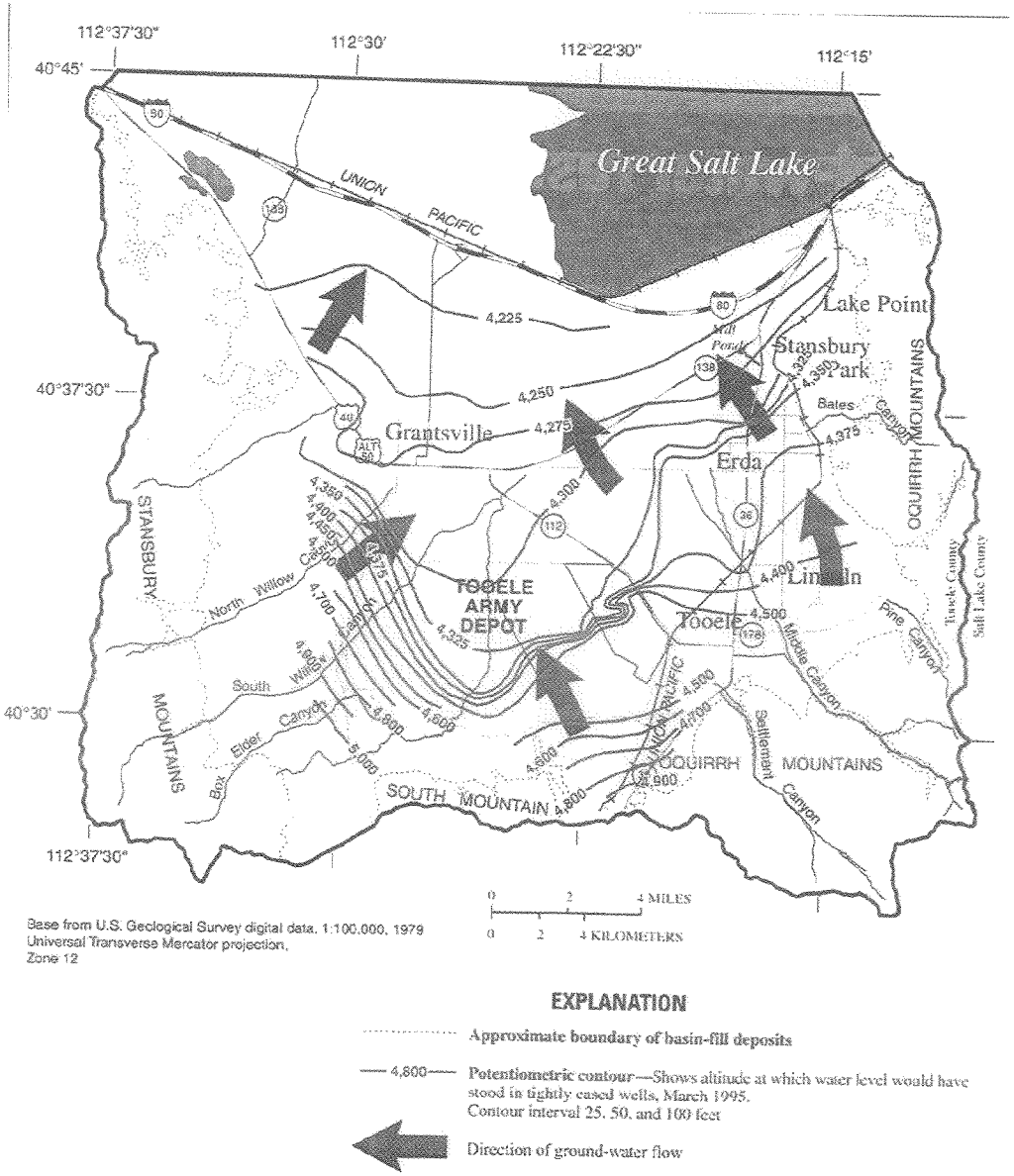
Well Location	Well Discharge (gpm)	Drawdown (feet)	Specific Capacity gpm/ft of drawdown	Transmissivity (ft^2/day)	Hydraulic Conductivity (ft/day)
(C-2-4)27cdc-1	1,130	24	47	11,000	130
(C-2-4)33aab-1	1,500	90	17	25,000	260
(C-3-4)8aaa-1	1,375	43	32	9,100	40
(C-3-4)9aaa-1	1,320	53	25	6,700	30
(C-3-4)14adb-1	400	28	14	2,400	30
(C-3-4)16aaa-1	1,083	6	180	40,000	120

HYDROGEOLOGIC REVIEW

- Direction of Ground-water Flow
  - Regionally to the North and Northwest
  - Locally to the west, northwest and southwest

FIGURE 3

POTENTIOMETRIC SURFACE AND DIRECTION OF GROUNDWATER FLOW IN TOOELE VALLEY, UTAH



Base from U.S. Geological Survey digital data, 1:100,000, 1979
Universal Transverse Mercator projection,
Zone 12

EXPLANATION

Approximate boundary of basin-fill deposits

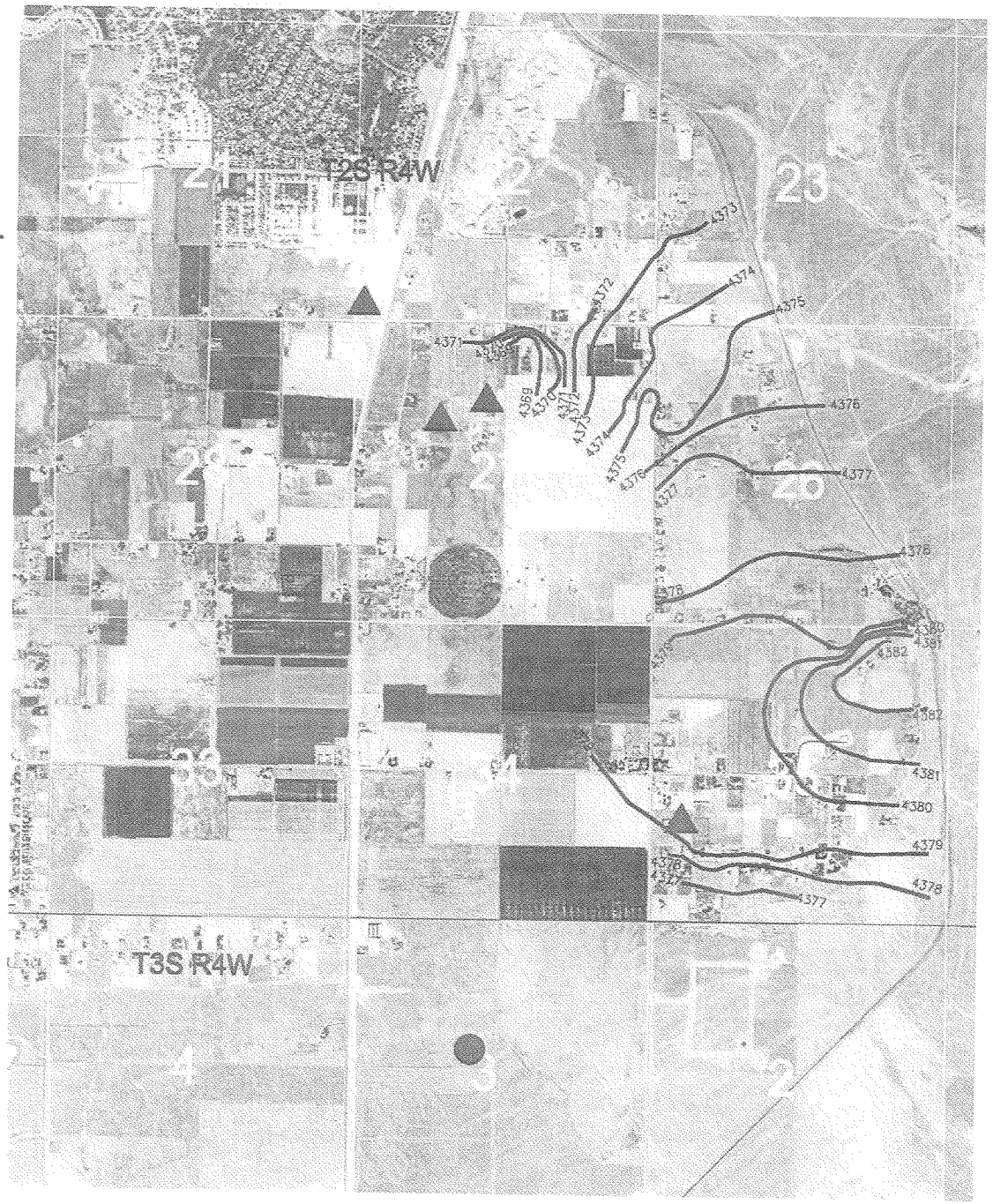
4,800 — Potentiometric contour—Shows altitude at which water level would have stood in tightly cased wells, March 1995. Contour interval 25, 50, and 100 feet

Direction of ground-water flow

SOURCE: GROUNDWATER RESOURCES OF TOOELE VALLEY – USGS FACT SHEET 125–99, JULY 1999

FIGURE 4

POTENTIOMETRIC SURFACES OF EAST ERDA, TOOELE COUNTY, UTAH MAY-JUNE 1997



HYDROGEOLOGIC REVIEW

- Ground-water Levels
  - Large fluctuations over last 20-30 years
  - Consistent pattern of rising and falling levels
  - Influenced by pumping and precipitation
  - Strongest influence appears to be precipitation
  - Recent declines influenced by below normal precipitation
  - Levels today about the same as early 1980s

FIGURE 5

WELL HYDROGRAPHS IN VICINITY OF PROPOSED PODS

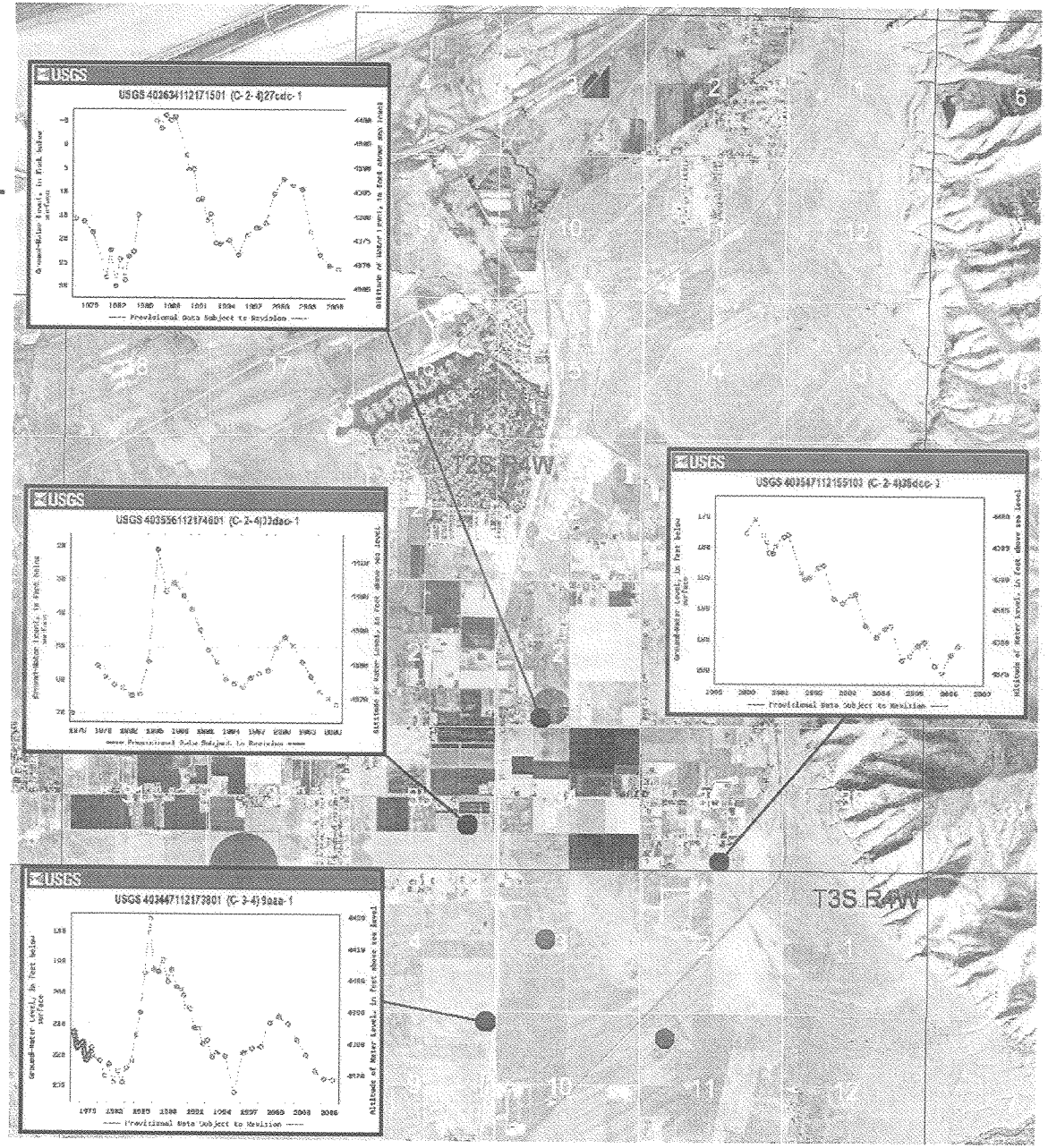


FIGURE 6

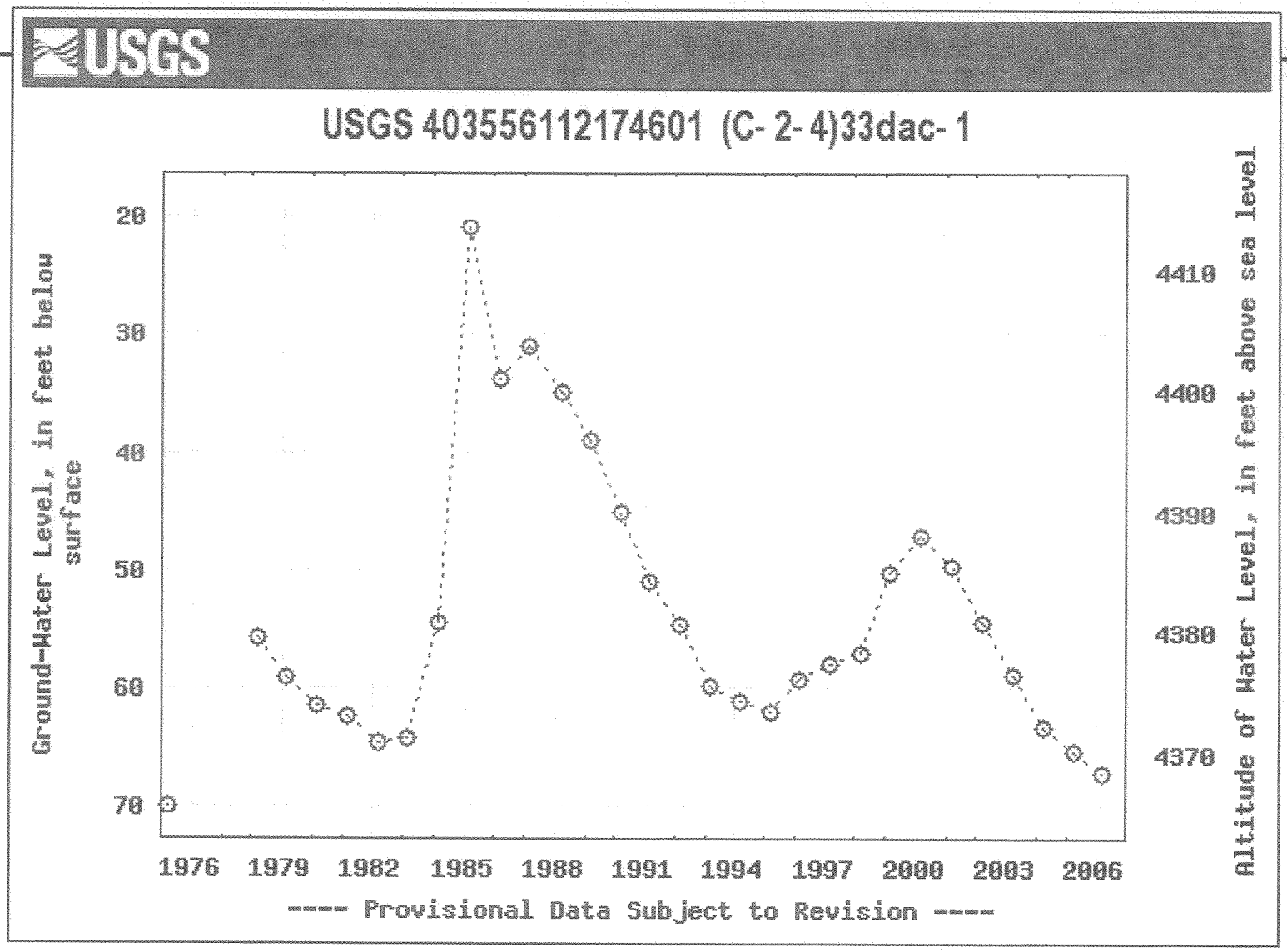

USGS
USGS 403556112174601 (C- 2- 4)33dac- 1
Ground-Water Level, in feet below surface
20
30
40
50
60
70
4410
4400
4390
4380
4370
Altitude of Water Level, in feet above sea level
1976 1979 1982 1985 1988 1991 1994 1997 2000 2003 2006
----- Provisional Data Subject to Revision -----

FIGURE 7

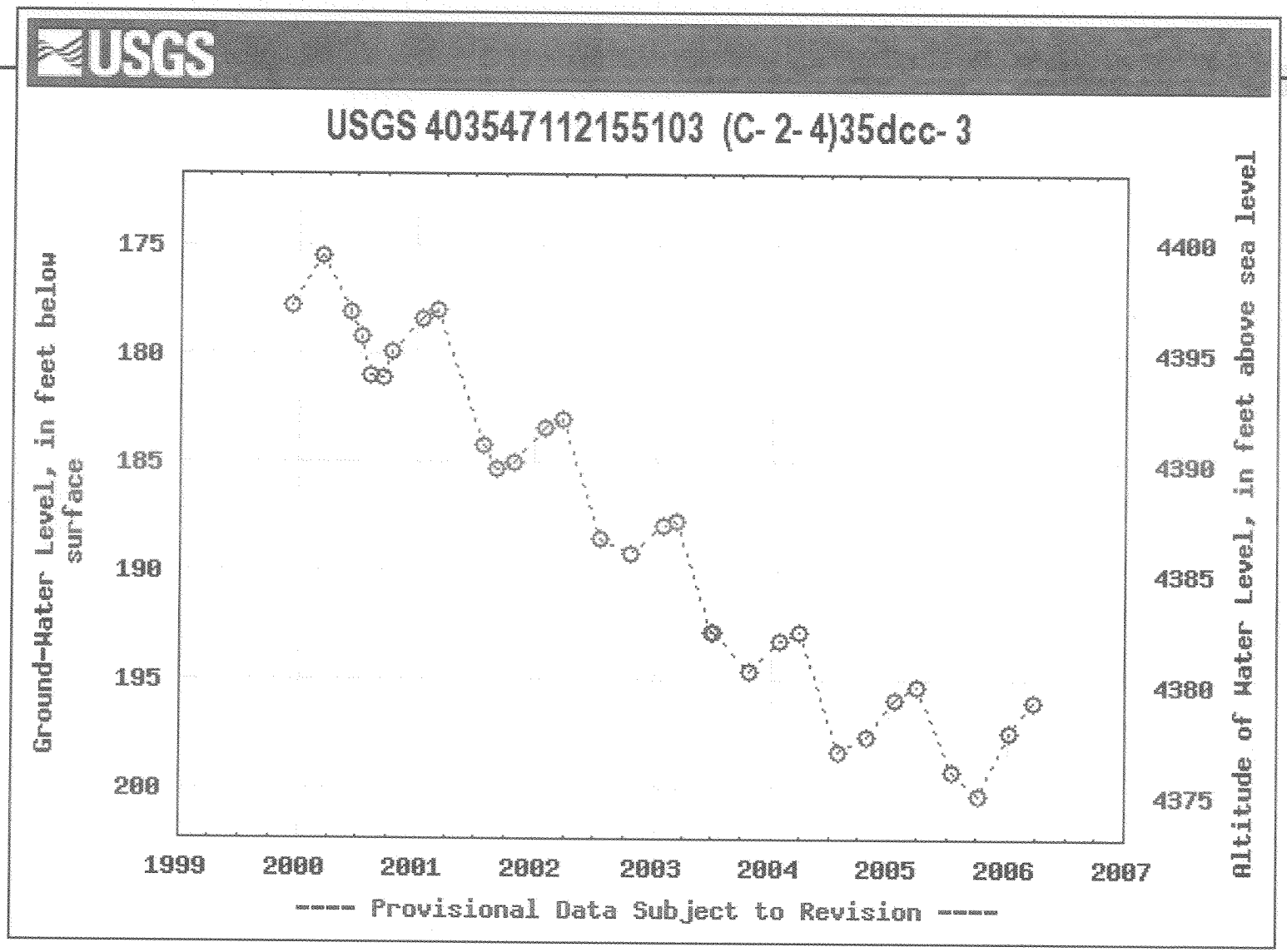

USGS
USGS 403547112155103 (C-2-4)35dcc-3
Ground-Water Level, in feet below surface
175
180
185
190
195
200
4400
4395
4390
4385
4380
4375
Altitude of Water Level, in feet above sea level
1999
2000
2001
2002
2003
2004
2005
2006
2007
Provisional Data Subject to Revision

FIGURE 8

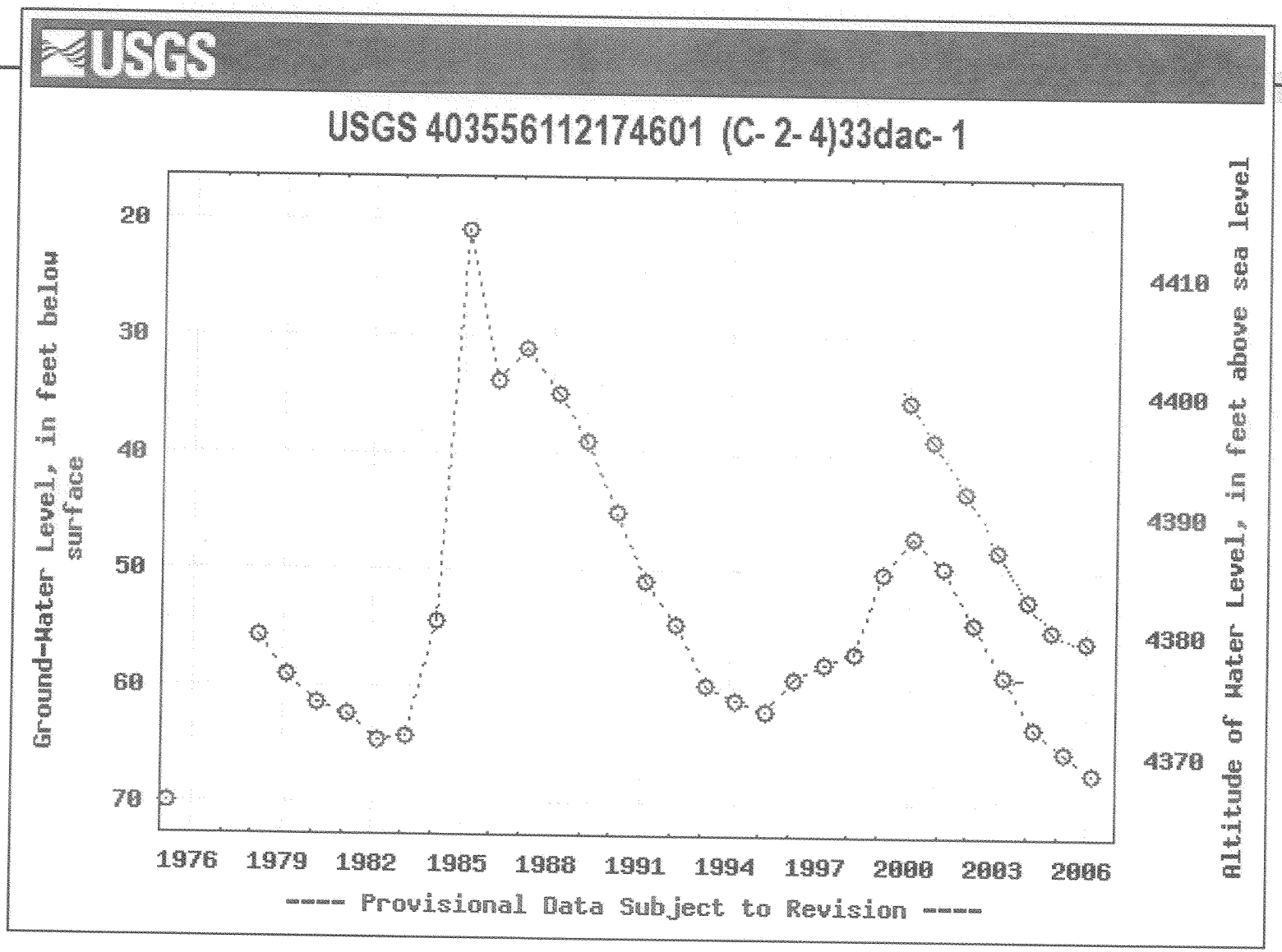
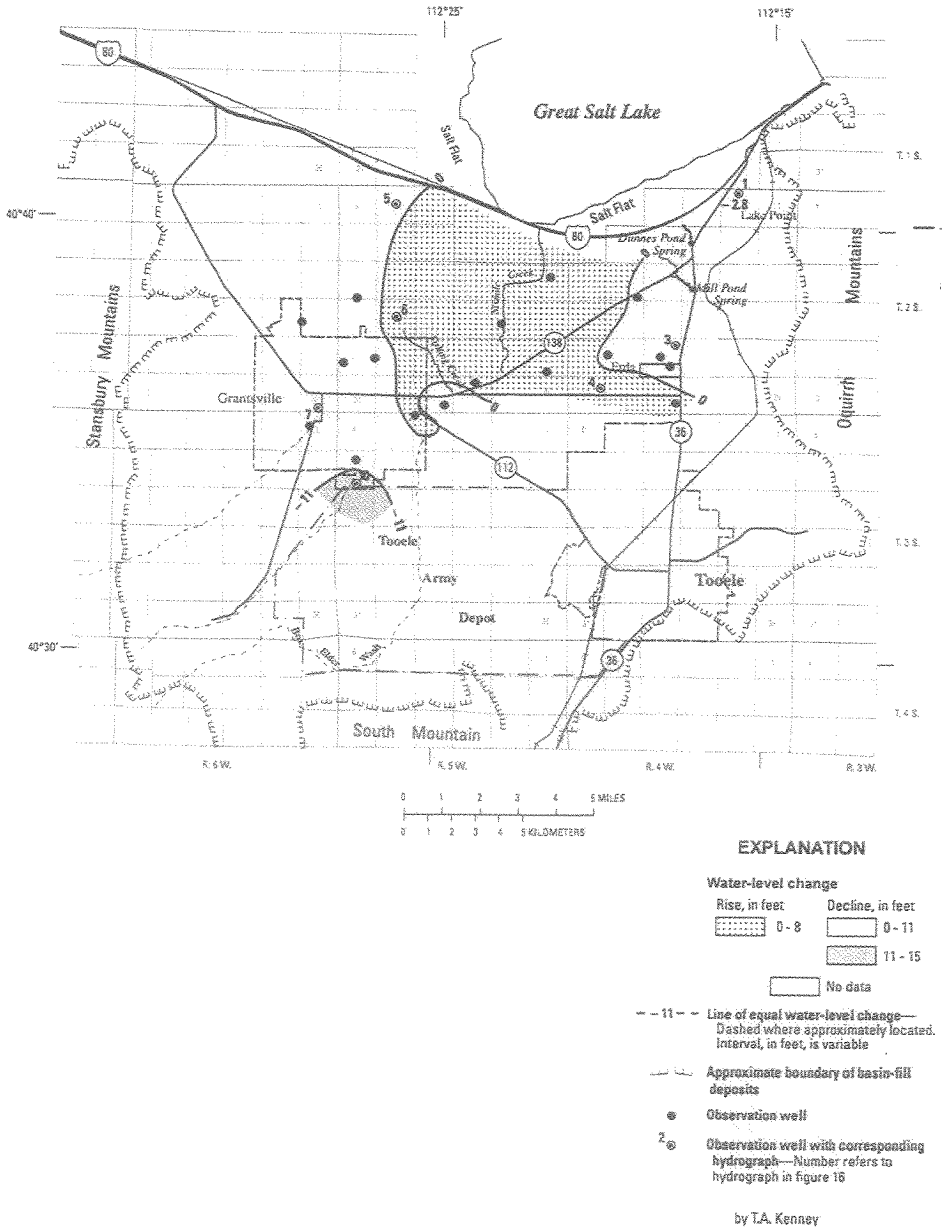

USGS
USGS 403556112174601 (C- 2- 4)33dac- 1
Ground-Water Level, in feet below surface
20
30
40
50
60
70
Altitude of Water Level, in feet above sea level
4410
4400
4390
4380
4370
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
----- Provisional Data Subject to Revision -----

FIGURE 9

GROUNDWATER CONDITIONS IN TOOELE VALLEY MARCH 1975 TO MARCH 2005



SOURCE: GROUNDWATER CONDITIONS SPRING 2005, UTAH DIVISION OF WATER RESOURCES COOPERATIVE INVESTIGATIONS REPORT 46, 2005

Ground-Water Withdrawals

- Ground-water withdrawal rates in Tooele Valley have been decreasing in recent years
  - Annual withdrawals over last 10 years have averaged about 22,000 af (1995-2004)
  - In 2005, the estimated withdrawal was 18,000 af
  - This is 3000 af less than 2004

HYDROGEOLOGIC REVIEW

- Ground-water Quality
  - Data are sparse
  - Limited long term data
  - Available data indicates significant variability
  - Water quality near the proposed PODs is suitable for irrigation use
  - Known areas of poorer quality water to the northeast and east of proposed PODs

HYDROGEOLOGIC REVIEW

- Ground-water Quality Near Proposed PODs
  - Expected TDS in 400 to 800 mg/L range
  - TDS appears to decrease w/ depth
  - Nitrate and Arsenic appear to be at natural background levels

HYDROGEOLOGIC REVIEW

- Ground-water Quality Near Country Lane Estates
  - Reported areas of poor quality water
  - Poor quality generally at shallower depths
    - TDS levels in 600 to 2500 mg/L range
    - Nitrate levels up to 17.6 mg/L
    - Arsenic levels up to 206 ug/L
  - Concentrations at depth unknown
  - Eastern and southern extent unknown

RESPONSE TO PROTESTS

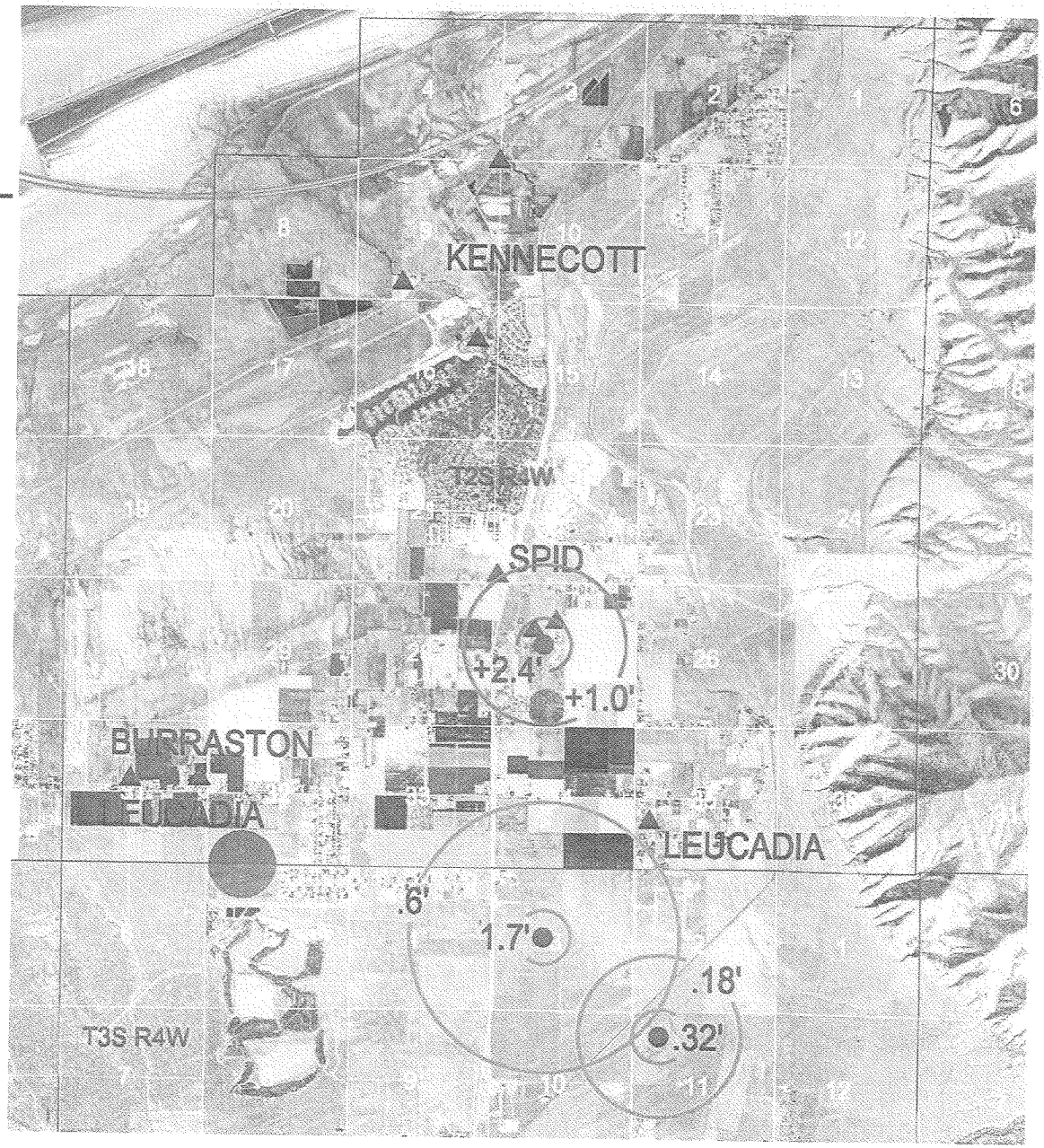
- Approval of Changes will have minimal effect on ground-water system
- Impacts to regional ground-water levels will be minimal
- Adverse impacts to protestants wells will be non-existent
- Water levels at SPID wells will actually rise if changes are approved

RESPONSE TO PROTESTS

- Drawdown impacts analyzed using Theis non-equilibrium well equation
- Hydraulic values similar to USGS model
- Very conservative hydraulic values used
- Results demonstrate principal aquifer can easily support and sustain proposed ground-water withdrawals

FIGURE 10

CALCULATED DRAWDOWN AT PROPOSED PODS VS PROTESTANTS' WELLS



CONCLUSIONS and RECOMMENDATIONS

- The proposed change applications are consistent with other recently approved changes in the Erda area
- There will be no change in the nature of use
- Of 361.932 af withdrawals, consumptive use will be 199.062 af with 162.87 af returning to the hydrologic system
- Impacts to the aquifer system will be minimal

CONCLUSIONS and RECOMMENDATIONS

- There is no evidence to support protestants claims of potential adverse impacts
- To the contrary, the evidence presented indicates there will be negligible impact to protestants water rights
- On this basis, it is recommended that the change applications be approved

PROTESTANTS

Change Application No.	Water Right No.	Protestants
a30783	15-4572	Kennecott Utah Copper Corporation c/o Van King
a30868	15-4573	None
a31323	15-4574	Kennecott Utah Copper Corporation c/o Van King Norm Burraston 1260 Erda way
a31457	15-4575	Kennecott Utah Copper Corporation c/o Van King Norm Burraston 1260 Erda way James Ward c/o Luecadia Financial Stansbury Recreational Area c/o Scott Totman
a31568	15-4576	Kennecott Utah Copper Corporation c/o Van King Norm Burraston 1260 Erda way James Ward c/o Luecadia Financial Stansbury Recreational Area c/o Scott Totman
a31572	15-4577	Stansbury Recreational Area c/o Scott Totman
a31571	15-4646	Kennecott Utah Copper Corporation c/o Van King Stansbury Recreational Area c/o Scott Totman
a31571	15-4578	Kennecott Utah Copper Corporation c/o Van King Stansbury Recreational Area c/o Scott Totman
a31571	15-4579	Kennecott Utah Copper Corporation c/o Van King Stansbury Recreational Area c/o Scott Totman
a 31520	15-4422	Norm Burraston 1260 Erda Way

HYDROGEOLOGIC REVIEW

TABLE 3
Selected Water Quality Data

Well Location	Sample Date	Well Depth (feet)	Specific Conductance (uS/cm)	Residue (mg/L)	Nitrite + Nitrate (mg/l as N)	Arsenic (ug/L)	Sulfate (mg/L)
T2S R4W							
(C- 2- 4)27bdc- 1	6/27/1978	475	700	402			47
(C- 2- 4)27cdc- 1	6/13/1978	220	1340	822			150
	8/7/1990		1270				
(C- 2- 4)27ddd- 1	6/21/1978						
(C- 2- 4)33aab- 1	6/29/1978	403	660	394			51
(C- 2- 4)33add- 1	7/8/1982	165	710	464	2.7		120
(C- 2- 4)33bbb- 1	7/25/1978	277	1200	755			28
(C- 2- 4)33bdd- 1	6/20/1978	421	825	456			32
	7/13/1999	421	835				
(C- 2- 4)35dcc- 1	12/9/1999	210	2850	1650	14.8	206	
	9/7/2001	210	2690	1890	16.8	102	94
	7/1/2003	210	3070	1730		61	108
	7/19/2005	210	2960	1820	17.6	46	83
(C- 2- 4)35dcc- 2	12/9/1999	251	2290	1420	4.77	13	
	9/7/2001	251	3280	2490		10	153
	7/1/2003	251	4780	3080		4.9	193
	7/19/2005	251	5240	3900	5.12	8	199
(C- 2- 4)35dcc- 3	12/9/1999	352	1150	660	4.77	24	
	9/7/2001	352	1150	677		10	72
	7/1/2003	352	1220	690		5	94
	7/19/2005	352	1190	703	5.12	5	74
T3S R4W							
(C- 3- 4) 2bcd- 1	7/5/2005	400	760		1.87	0.3	
(C- 3- 4) 2cbb- 1	10/17/2002	340	875	529	3.14	0.5	110
(C- 3- 4) 3dcc- 1	4/13/2005	380	972	635	2.92	0.6	239
(C- 3- 4) 9aaa- 1	6/6/1978	575	1850	1090			52
	4/30/2002	575	1600	876	1.41	1.4	57.1

FIGURE 11

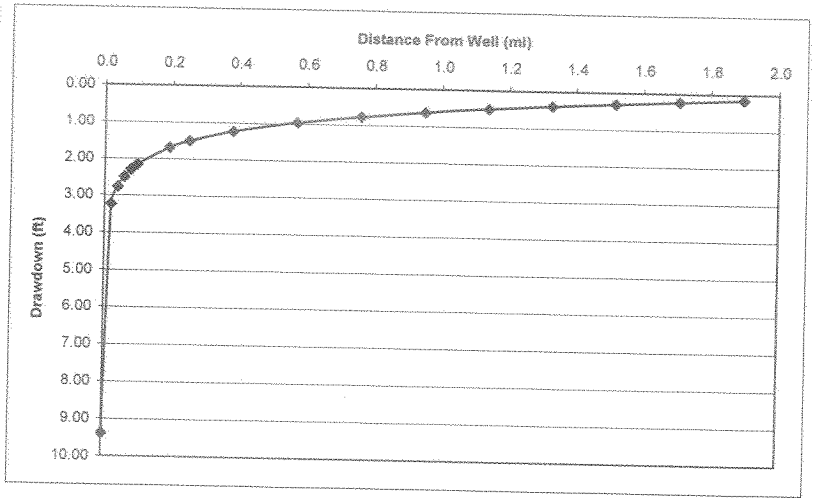
Q	Flow Rate	321.45	gpm (assumes continuous pumpint during irrigation season from April 1 to October 31)
Sy	Specific Yield	0.10	(USGS 99-4014, page 13, average value)
b	Initial Sat. Thickness	400	ft
K	Hydraulic Conductivity	30	ft/day (USGS and State of Utah, Technical Publication No. 107, 1994 , Table 8, typical value)
t	Pumping Time	214	days
T	transmissivity	12,000	ft^2/day

Drawdown = [Q * W(u)]/[4 * pi * T]

$u = [r^2 * Sy]/[4 * T * t]$

T = K*b

Dist (ft)	u	W(u)	Drawdown (ft)	Dist (mi)
0.01	0.0000	22.834	9.37	0.000
100	0.0001	7.864	3.23	0.019
200	0.0004	6.737	2.76	0.038
300	0.0009	6.078	2.49	0.057
400	0.0016	5.610	2.30	0.076
500	0.0024	5.248	2.15	0.095
1000	0.0097	4.121	1.69	0.189
1320	0.0170	3.670	1.51	0.250
2000	0.0389	2.994	1.23	0.379
3000	0.0876	2.335	0.96	0.568
4000	0.1558	1.868	0.77	0.758
5000	0.2434	1.505	0.62	0.947
6000	0.3505	1.209	0.50	1.136
7000	0.4770	0.958	0.39	1.326
8000	0.6231	0.741	0.30	1.515
9000	0.7886	0.550	0.23	1.705
10000	0.9735	0.379	0.16	1.894
11000	1.1780	0.224	0.09	2.083
12000	1.4019	0.082	0.03	2.273
13000	1.6452	0.078	0.03	2.462
14000	1.9081	0.056	0.02	2.652



Hereafter Point of Diversion **T3S R4W Section 3** **Annual Withdrawal 304 acre-feet**

Figure 7

FIGURE 12

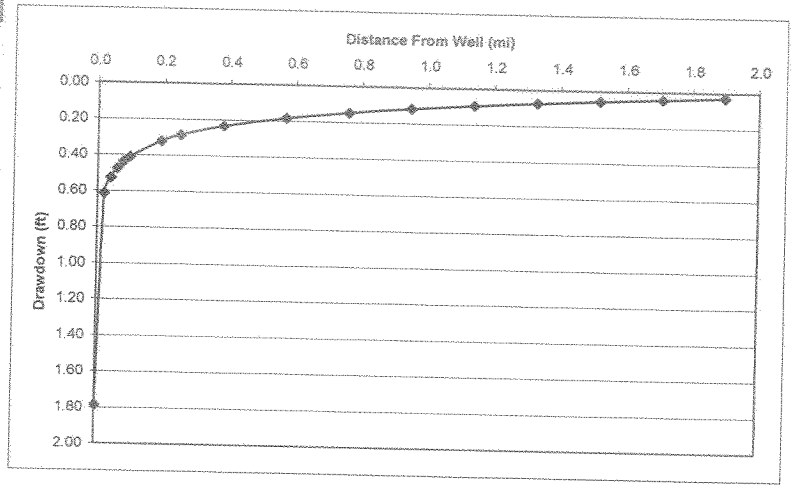
Q	Flow Rate	61.25	gpm (assumes continuous pumpint during irrigation season from April 1 to October 31)
Sy	Specific Yield	0.10	(USGS 99-4014, page 13, average value)
b	Initial Sat. Thickness	400	ft
K	Hydraulic Conductivity	30	ft/day (USGS and State of Utah, Technical Publication No. 107, 1994 , Table 8, typical value)
t	Pumping Time	214	days
T	transmissivity	12,000	ft^2/day

Drawdown = [Q * W(u)]/[4 * pi * T]

$u = [r^2 * Sy]/[4 * T * t]$

T = K*b

Dist (ft)	u	W(u)	Drawdown (ft)	Dist (mi)
0.01	0.0000	22.834	1.79	0.000
100	0.0001	7.864	0.61	0.019
200	0.0004	6.737	0.53	0.038
300	0.0009	6.078	0.48	0.057
400	0.0016	5.610	0.44	0.076
500	0.0024	5.248	0.41	0.095
1000	0.0097	4.121	0.32	0.189
1320	0.0170	3.670	0.29	0.250
2000	0.0389	2.994	0.23	0.379
3000	0.0876	2.335	0.18	0.568
4000	0.1558	1.868	0.15	0.758
5000	0.2434	1.505	0.12	0.947
6000	0.3505	1.209	0.09	1.136
7000	0.4770	0.958	0.07	1.326
8000	0.6231	0.741	0.06	1.515
9000	0.7886	0.550	0.04	1.705
10000	0.9735	0.379	0.03	1.894
11000	1.1780	0.224	0.02	2.083
12000	1.4019	0.082	0.01	2.273
13000	1.6452	0.078	0.01	2.462
14000	1.9081	0.056	0.00	2.652



Hereafter Point of Diversion **T3S R4W Section 11** **Annual Withdrawal 57.932 acre-feet**

Figure 8

FIGURE 13

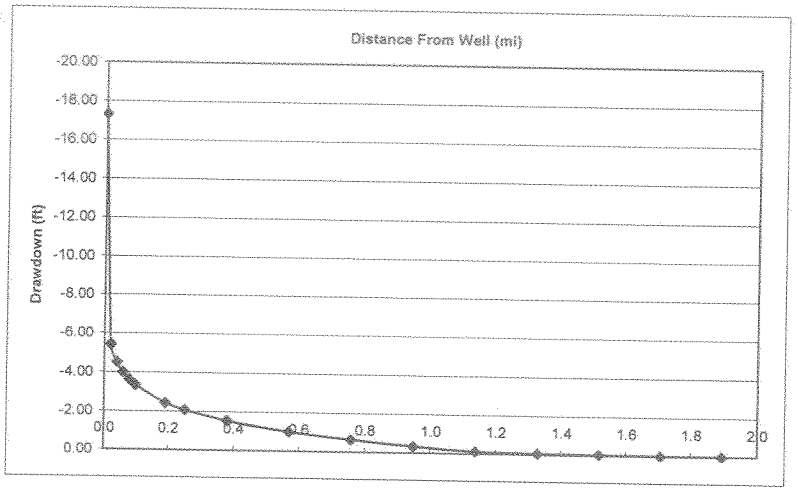
Q	Flow Rate	-171.23	gpm	(assumes elimination of pumping during irrigation season from April 1 to October 31)
Sy	Specific Yield	0.10	(USGS 99-4014, page 13, average value)	
b	Initial Sat. Thickness	300	ft	
K	Hydraulic Conductivity	11	ft/day	
t	Pumping Time	214	days	
T	transmissivity	3,300	ft^2/day	

Drawdown = [Q * W(u)]/[4 * pi * T]

$u = [r^2 * Sy]/[4 * T * t]$

T = K*b

Dist (ft)	u	W(u)	Drawdown (ft)	Dist (mi)
0.01	0.0000	21.785	-17.32	0.000
100	0.0004	6.815	-5.42	0.019
200	0.0014	5.688	-4.52	0.038
300	0.0032	5.029	-4.00	0.057
400	0.0057	4.561	-3.63	0.076
500	0.0089	4.199	-3.34	0.095
1000	0.0354	3.072	-2.44	0.189
1320	0.0617	2.621	-2.08	0.250
2000	0.1416	1.945	-1.55	0.379
3000	0.3186	1.286	-1.02	0.568
4000	0.5664	0.819	-0.65	0.758
5000	0.8850	0.456	-0.36	0.947
6000	1.2744	0.160	-0.13	1.136
7000	1.7346	0.070	-0.06	1.326
8000	2.2656	0.037	-0.03	1.515
9000	2.8675	0.018	-0.01	1.705
10000	3.5401	0.008	-0.01	1.894
11000	4.2835	0.003	0.00	2.083
12000	5.0977	0.001	0.00	2.273
13000	5.9827	0.000	0.00	2.462
14000	6.9385	0.000	0.00	2.652



Heretofore Point of Diversion **T2S R4W Section 27** **Annual Withdrawal 161.932 acre-feet**

Figure 10