

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WATER RESOURCES

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STATE ENGINEER



ANTELOPE VALLEY (HYDROGRAPHIC AREA 9-106)

GROUNDWATER PUMPAGE INVENTORY

WATER-YEAR 2007

By: Brandy Martinelli, NDWR

TABLE OF CONTENTS

	Page
<u>Map of Antelope Valley Groundwater Basin 9-106</u>	iv
<u>Purpose and Scope</u>	1
<u>Description of Study Area</u>	1
Hydrology	1
Recharge	2
Groundwater Levels	2
<u>Basic Data and Procedure</u>	3
A. Quasi-Municipal	4
B. Irrigation	4
C. Recreation	4
D. Commercial	4
E. Domestic	4
<u>Hydrographic Area Summary</u>	5
<u>Location Map of Groundwater Monitoring Wells</u>	6
<u>Antelope Valley Groundwater Use 2006 by Manner of Use</u>	7
<u>Antelope Valley Groundwater Use 2006 Permitted and Actual by Manner of Use</u>	8
<u>References Cited</u>	9

Appendix A

Water Level Measurement Data	10
Hydrographs	
Figure 1. 106 10N 22E 10 DACC1	12
Figure 2. 106 10N 22E 12 CADD1	13
Figure 3. 106 10N 22E 12 CDCC1	14
Figure 4. 106 10N 22E 15 ADC1	15
Figure 5. 106 10N 22E 15 DCBB1	16
Figure 6. 106 10N 22E 22 BAB1	17
Figure 7. 106 10N 22E 22 BDAC1	18
Figure 8. 106 10N 22E 24 BBCA1	19
Figure 9. 106 10N 22E 25 BDAC1	20
Figure 10. 106 10N 22E 26 ABCD1	21
Figure 11. 106 10N 22E 28 DDBC1	22
Figure 12. 106 10N 23E 19 BABA1	23

Appendix B

Explanation of Column Headings for Table 1	24
Table 1: Antelope Valley Ground Water Use by Permit Number	25

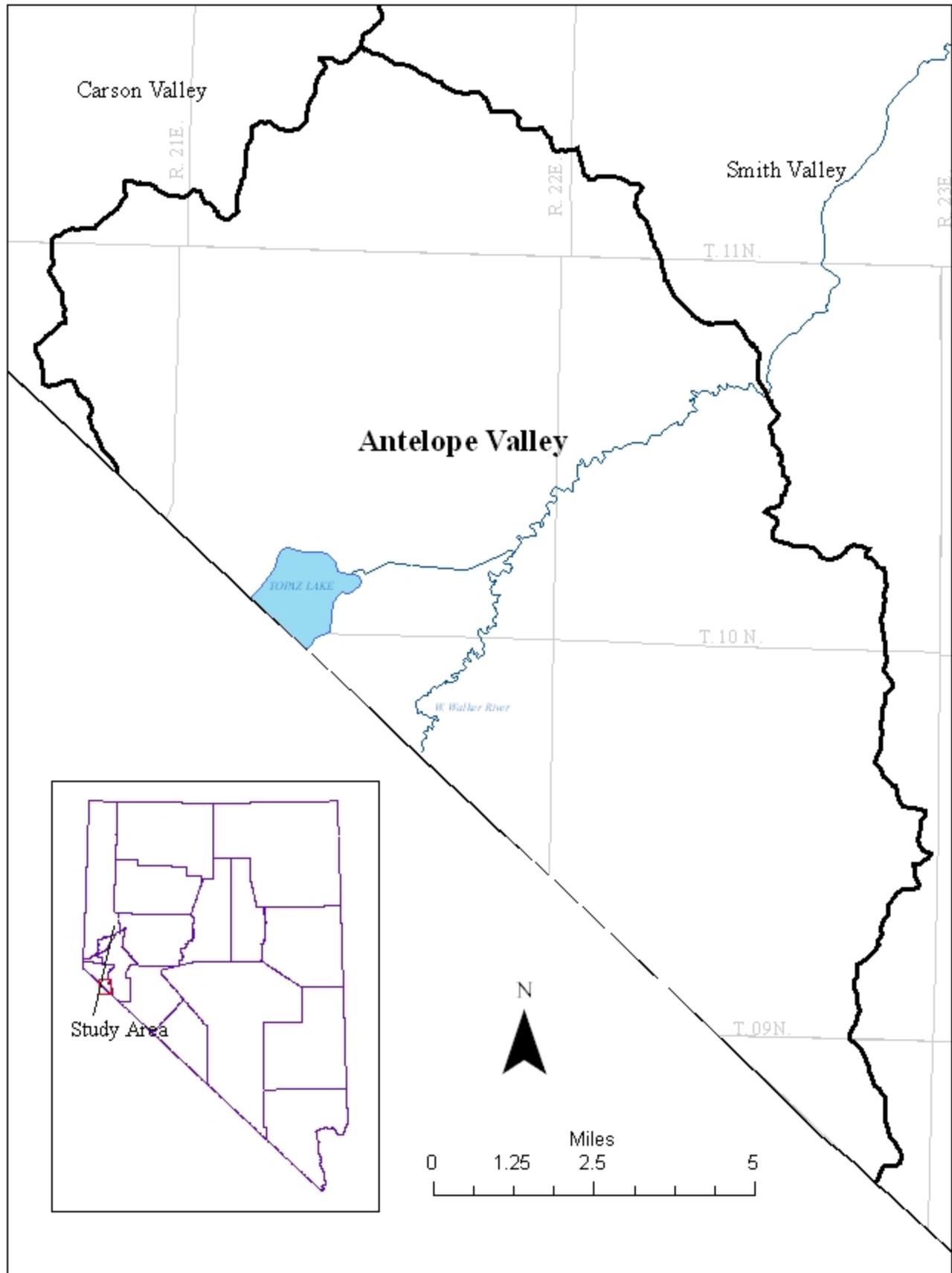
Appendix C

Explanation of Column Headings for Table 2	27
Table 2: Place of Use Table for Groundwater Irrigation Rights	28

Appendix D

Historical Pumpage by Point of Diversion	31
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ANTELOPE VALLEY GROUNDWATER BASIN 9-106



PURPOSE AND SCOPE

This report is an effort by the Nevada Division of Water Resources to better understand the hydrology of Antelope Valley, hydrographic area 9-106. This is a part of the continuing effort to document groundwater usage in the valley.

The purpose of this report is to detail and inventory the groundwater resources as allocated and described by the Office of the State Engineer, Nevada Division of Water Resources and estimate the amount of groundwater pumped within the Nevada portion of the Antelope Valley Groundwater Basin for the water year 2007, beginning October 1, 2006, and ending September 30, 2007 (hereafter referred to as the 2007 water year).

DESCRIPTION OF THE STUDY AREA

Antelope Valley is located in west central Nevada and east central California. This report deals exclusively with the Nevada portion of this valley. The Nevada portion of this basin occupies approximately 115 square miles in Douglas County, and a small portion of Lyon County. The adjacent hydrographic areas are Smith Valley (9-107) to the east and Carson Valley (8-105) to the northwest; the exterior boundary of the Antelope Valley hydrographic basin 106 is as described by Designation Order 714 issued by the Nevada State Engineer dated May 25, 1978.

Antelope Valley is bounded on the north by the Pinenut Range that rises to elevations greater than 9,000 feet, and on the east by the Sweetwater Mountains, rising to elevations greater than 10,000 feet (all elevations in this text are above mean sea level). Antelope Valley as a whole is bound by the Sierra Nevada to the west. Although the range does not lie directly within the Nevada part of Antelope Valley, the Sierra Nevada exerts a strong climatic control throughout the entire Antelope Valley. Surface water drainage from this mountain system also dominates the annual streamflow of the West Walker River.

HYDROLOGY

The dominant hydrologic features of Antelope Valley are the West Walker River and Topaz Lake. Topaz Lake is a man-made reservoir located on the California-Nevada border. The lake was formed by diverting waters from the West Walker River into a nearby basin that had previously contained a smaller, natural lake. The initial construction took place in 1922, resulting in a reservoir with a capacity of 45,000 acre-feet. In 1937 a new levee raised the capacity to its current 59,440 acre-feet, with an average area of 1,790 acres (Glancy 1971 pg.14). The maximum content of the reservoir during the 2007 water year was 34,580 acre-feet on April 9, 2007 and the minimum content of the reservoir was 8,800 acre-feet on September 30, 2007 (oral communication, Kerry Garcia, U.S. Geological Survey). This is provisional data and is subject to revisions.

The U.S. Geological Survey (USGS) operates a streamflow gaging station near the location at which the West Walker River enters Antelope Valley, (USGS site #10296500 West Walker River near Coleville CA). This gage is located in the NE ¼ NE ¼ section 28, Township 08 North, Range 23 East. The period of record is Oct. 1902-

July 1908; March 1909- September 1910; June 1915 – March 1938; May 1957 to the current year. The average annual run-off for water years 1903 - 2006 for the station is 205,100 acre-feet. (USGS, Water-Data Report 2006)

The USGS also operates a streamflow gaging station near the location at which the West Walker River exits Antelope Valley, (USGS site #10297500 West Walker River at Hoye Bridge, near Wellington NV). The gage is located in the NE ¼ SE ¼ section 17, Township 10 North, Range 23 East. The period of record is May to August 1910, July 1920 to September 1923, March 1924 to August 1925, October 1925 to September 1932, October 1957 to current year. The average annual run-off for water years 1910 - 2006 for the station is 181,100 acre-feet (USGS, Water-Data Report 2006).

RECHARGE

Most precipitation falls during the winter months, and typically the amounts increase with altitude. Some precipitation falls as rain, but winter snow generally accumulates in large amounts in the higher mountain areas. Precipitation for the 2007 water year was 59 percent of average and in the 2006 water year precipitation was 150 percent of average (NRCS, NV Basin Outlook Report for Walker River Basin).

Glancy in *Reconnaissance Report 53* estimated the annual groundwater recharge to the Nevada part of Antelope Valley at 5,000 acre-feet per year (Glancy 1971 pg.30).

Nowlin in *Open File Report 78-768* estimated the perennial yield at 2,600 acre-feet of water (Nowlin 1986 pg. 195).

Precipitation also falls directly on Topaz Lake and therefore contributes directly to the water inflow. Assuming an average lake area of 1,790 acres and an average annual precipitation of about 11 inches, the average contribution to the lake is about 1,600 acre-feet (Glancy 1971 pg. 14).

GROUNDWATER LEVELS

A groundwater level-monitoring network was instituted as part of the fieldwork done for the inventory. The network consists of twelve sites at the following locations (see map on pg. 6):

- 106 10N 22E 10 DACC1
- 106 10N 22E 12 CADD1
- 106 10N 22E 12 CDCC1
- 106 10N 22E 15 ADC1
- 106 10N 22E 15 DCBB1
- 106 10N 22E 22 BAB1
- 106 10N 22E 22 BDAC1
- 106 10N 22E 24 BBCA1
- 106 10N 22E 25 BDAC1
- 106 10N 22E 26 ABCD1
- 106 10N 22E 28 DDBC1
- 106 10N 23E 19 BABA1

Water level measurements are conducted on a semi-annual basis, and when additional sites are identified, they will be incorporated into the network (see Appendix A for water level data and hydrographs). In addition to the sites monitored by the Division of Water Resources, the USGS monitors a network of different wells whose data can be obtained from the USGS or on their website (<http://nevada.usgs.gov>).

BASIC DATA AND PROCEDURES

This report estimates the amount of groundwater pumped under claims of vested right and the permits and certificates issued by the State Engineer, as well as the amount pumped by domestic wells in the valley. The following methods were used to arrive at the estimated use:

- Where totalizing meters were in place, meter readings were taken and compared with previous data (if available).
- Where meters were not in place and the use was irrigation, use was estimated by taking the number of hours the well was operated during the past year (determined from an hour meter reading or talking with the water user) and expanding it out by the certificated diversion rate; or a survey of the place of use was done to estimate the amount of acreage under cultivation. The number of acres under cultivation would then be multiplied by a duty of 4 acre-feet per acre to estimate the use.
- Where meters were not present, previous data was not available and the use was not irrigation, use was estimated by applying the annual duty associated with the certificate (if the water right is perfected) or permit if the usage was as described in the certificate or permit; if the use was not as described in the certificate or permit then a value was estimated based on actual usage.
- If there was no use of the water under the permit, zero use was recorded.
- The primary water purveyor for Antelope Valley is the Topaz Ranch Estates General Improvement District (TRE-GID). This entity provides the Office of the State Engineer with quarterly pumping totals as a condition of the permits, under which the water was appropriated. This data was used to determine the amount pumped for the TRE-GID.
- The amount of water pumped by individual domestic wells was estimated by multiplying the number of domestic wells in the valley by a factor of 1.12 acre-feet. Domestic wells are defined by Nevada Revised Statutes 534.013 as follows: “Domestic use or domestic purposes extends to culinary and household purposes directly related to a single family dwelling, including, without limitation, the watering of a family garden and lawn and the watering of livestock and any other domestic animals or household pets.” The number of domestic wells in the valley was estimated from the records of the State Engineer at approximately 304. The number of wells was determined by a query of the Nevada Division of Water Resources’ Well Log Database.

Note that all data herein are estimates and subject to revision.

The total estimated groundwater pumpage for the water year 2007 was **2,900 acre-feet**. The annual duties of permitted, certificated and claims of vested rights within the Antelope Valley hydrographic area total approximately **6,517 acre-feet**. The permitted and pumped totals, categorized by manner of use, are as follows (see graphs on page 7 and 8):

A. Quasi-Municipal

A total of 999 acre-feet have been granted for quasi-municipal purposes in the basin. An estimated 314 acre-feet were pumped during water year 2007.

B. Irrigation

A total of 1,582 acres have been permitted for irrigation in the basin and an estimated 1,017 acres were irrigated during the water year 2007. The duty granted for the irrigation of those acres is 5,328 acre-feet, and an estimated 2,187 acre-feet were pumped during water year 2007.

C. Recreation

A total of 24 acre-feet have been granted for recreational purposes in the basin. An estimated 24 acre-feet were pumped during water year 2007.

D. Commercial

One hundred and sixty four acre-feet have been granted for commercial purposes in the basin. An estimated 32 acre-feet were pumped during water year 2007.

E. Domestic

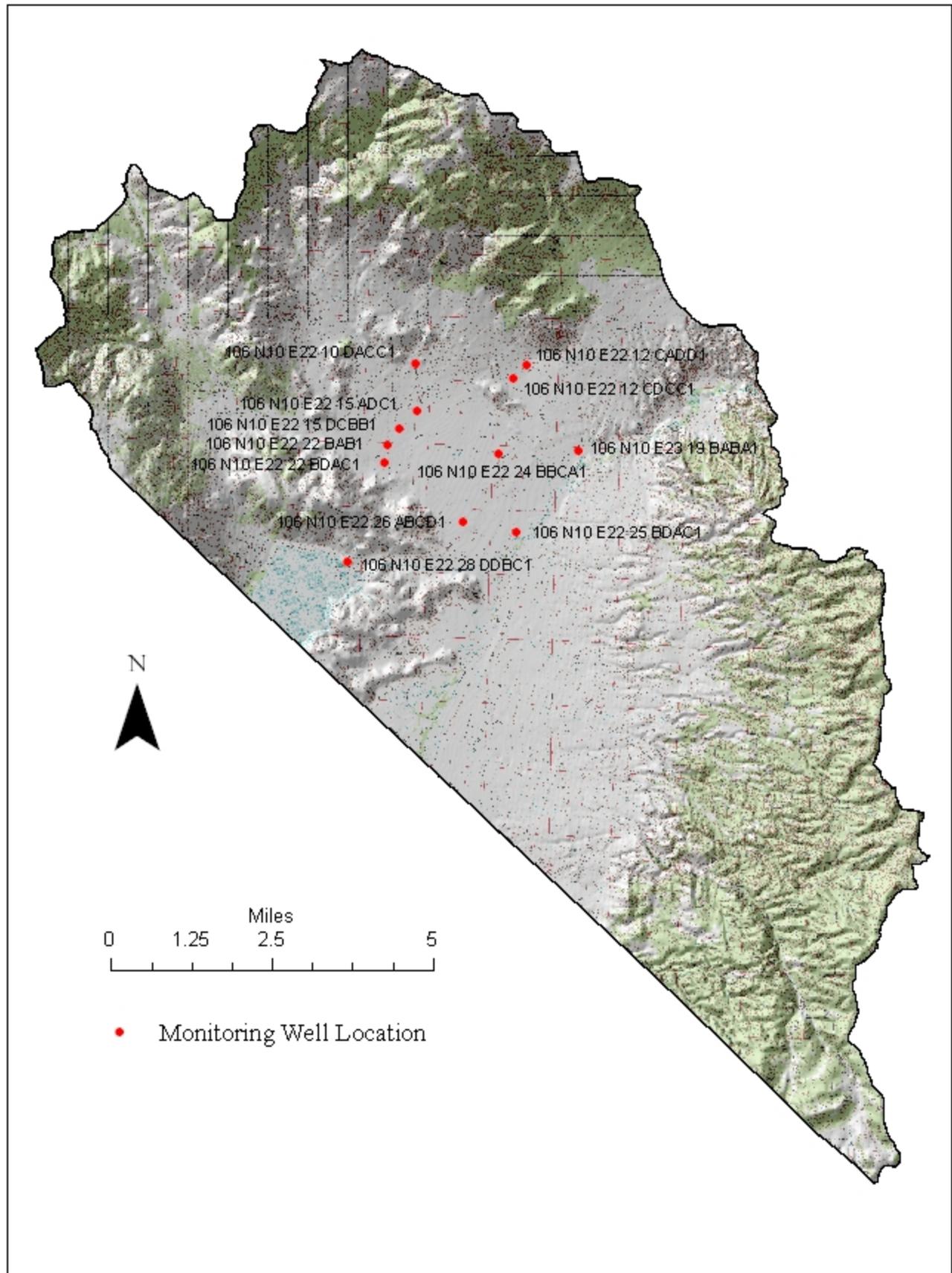
Two acre-feet have been granted for domestic purposes, however; the amount of water pumped for domestic use is estimated at 343 acre-feet during the water year 2007.

HYDROGRAPHIC AREA SUMMARY

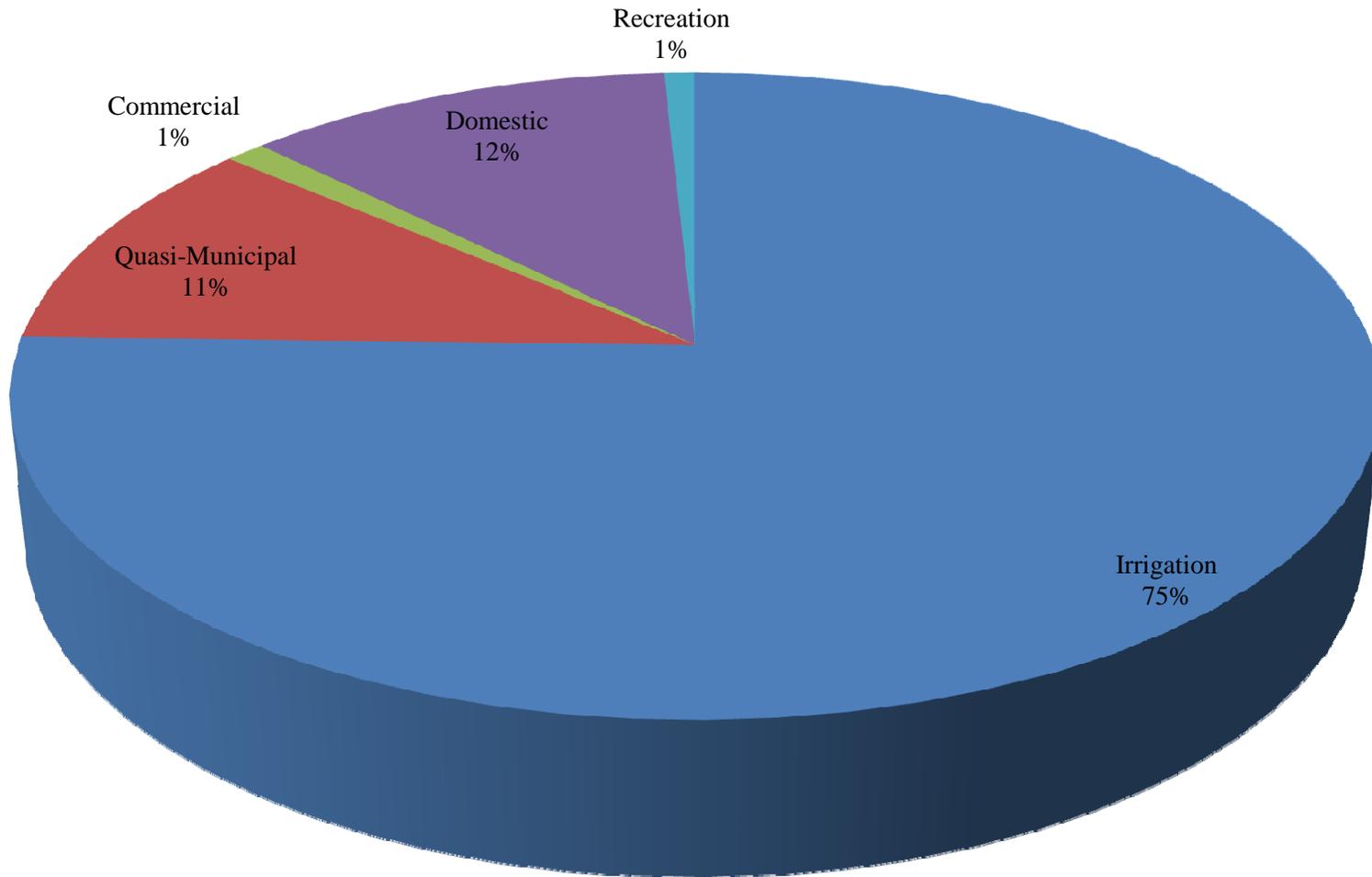
HYDROGRAPHIC AREA NUMBER	106, REGION 9
HYDROGRAPHIC AREA NAME	ANTELOPE VALLEY
COUNTIES	DOUGLAS, LYON
MAJOR COMMUNITIES	TOPAZ RANCH ESTATES, HOLBROOK JUNCTION, TOPAZ LAKE
DESIGNATED	YES
PREV. DENIALS BASED UPON WATER AVAILABILITY	IRRIGATION, COMMERCIAL, QUASI- MUNICIPAL
GROUNDWATER LEVEL MEASUREMENTS	USGS, NDWR
PUMPAGE INVENTORY, ACRE-FEET IN 2007	2,900
YIELD, ACRE-FEET ANNUALLY	
USGS OPEN FILE REPORT 78-768	2,600
USGS WRRS REPORT 53	5,000
COMMITTED GROUNDWATER RESOURCE 6,517 ACRE-FEET, DATE: SEPT. 2007	
IRRIGATION.....	5,328 COMMERCIAL..... 164 DOMESTIC..... 2
RECREATIONAL.....	24 QUASI-MUNICIPAL... 999
STATE ENGINEER'S ORDERS	714 – DESIGNATION DATE: MAY 25, 1978
COMMENTS: DOMESTIC USE, AS DEFINED BY NRS 534.180, TOTALS APPROXIMATELY 343 ACRE-FEET FOR WATER YEAR 2007.	

- The domestic use estimate is based upon a count of the domestic wells in the basin multiplied by 1.12 acre-feet per annum. The number of wells was determined by a query of the Nevada Division of Water Resources' Well Log Database.
- The numbers associated with the committed groundwater resources represent the status for the time frame stated, September 2007. Manner of use category totals vary over time, as rights are not necessarily static. Rights may be subject to change applications, certification, withdrawals, and cancellations; each of these circumstances would impact the duty, diversion rate and acreage associated with a given right. The value associated with each manner of use category does not include those portions that have been relinquished in support of domestic wells. A total of 48.6 acre-feet have been relinquished in the basin.

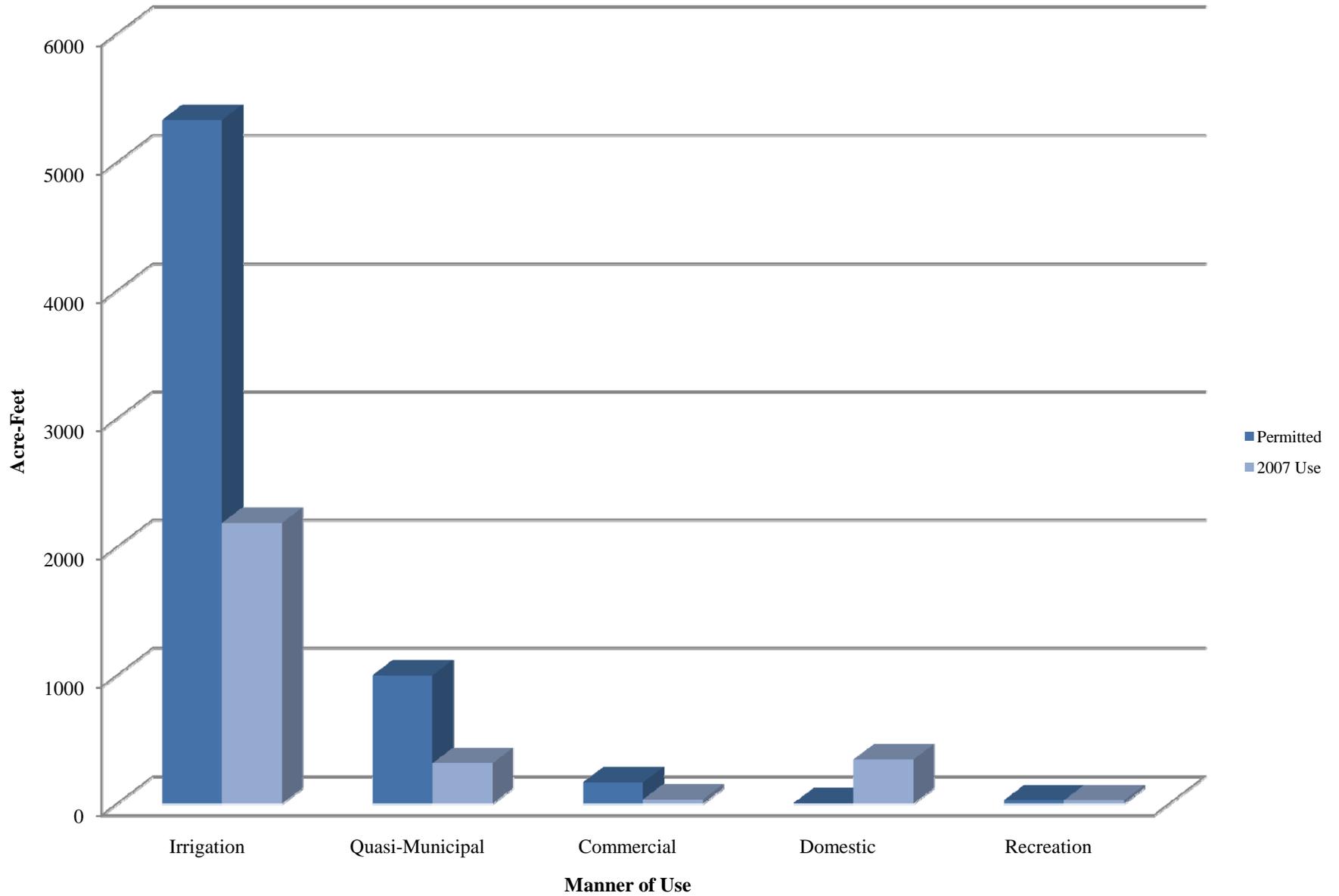
**NDWR GROUNDWATER MONITORING WELLS
ANTELOPE VALLEY, BASIN 9-106**



ANTELOPE VALLEY GROUNDWATER USE 2007 BY MANNER OF USE



ANTELOPE VALLEY GROUNDWATER USE 2007 PERMITTED AND ACTUAL USAGE



REFERENCES

Glancy, Patrick A., 1971, Water-Resources Appraisal of Antelope Valley and East Walker Area, Nevada and California: Water Resources-Reconnaissance Series Report 53, p. 14, 30.

Nowlin, Jon O., 1986, Ground-Water Quality in Nevada - A Proposed Monitoring Program: U.S. Geological Survey Open File Report 78-768, p. 195.

Department of the Interior, U.S. Geological Survey. "Nevada Water-Data Report 2006." [Online] 30 November 2007. < <http://waterdata.usgs.gov/nv/nwis/gw?>>.

U.S. Department of Agriculture, Natural Resources Conservation Service. "Nevada Basin Outlook Report for Walker River Basin." [Online] 12 December 2007. <<http://www.wcc.nrcs.usda.gov/cgi-bin/newbor2.pl?state=nv&year=2007&month=5&basin=23>>

APPENDIX A

WATER LEVEL MEASUREMENT DATA

	MEASURE DATE	WATER LEVEL (FT.)	STATUS	METHOD	REMARKS
106 N10 E22 10DACC1 WEST TRE-GID	10/3/2007	239.95	Nearby Pumping	Electric Tape	Possibly nearby pumping
	4/4/2007	229.17		Steel Tape	
	11/6/2006	231.72		Electric Tape	
	6/13/2006	231.38		Steel Tape	
106 N10 E22 12CADD1 EAST TRE-GID	10/3/2007	40.4		Electric Tape	
	4/4/2007	41.09		Steel Tape	
	11/2/2006	40.06		Electric Tape	
	6/13/2006	39.43		Electric Tape	
	4/14/2006	55.78		Steel Tape	
106 N10 E22 12CDCC1 BLUE SAGE STORAGE	10/3/2007	102.3	Pumping	Electric Tape	
	4/4/2007	99.74		Steel Tape	
	11/2/2006	102.7		Electric Tape	
	6/13/2006	100.1		Electric Tape	
106 N10 E22 15ADC 1 SLEEPING ELEPHANT #16989	10/3/2007	84.41		Electric Tape	
	4/4/2007	92.63		Steel Tape	
	11/7/2006	84.23		Electric Tape	
	6/13/2006	86.6		Electric Tape	
106 N10 E22 15DCBB1 SLEEPING ELEPHANT #16988	10/3/2007	80.2		Electric Tape	
	4/4/2007	75.68		Steel Tape	
	11/7/2006	77.36		Electric Tape	
	6/13/2006		Pumping		112.7 ft BLS, in the middle of a 72 hour pump test
	4/27/2006	79.21		Electric Tape	
106 N10 E22 22BAB 1 SLEEPING ELEPHANT #24470	10/3/2007	80.62		Steel Tape	
	4/4/2007	75.17		Steel Tape	
	11/7/2006				No measurment
	6/13/2006	85.6		Electric Tape	
106 N10 E22 22BDAC1 SLEEPING ELEPHANT #13014	10/3/2007		Obstruction		
	4/4/2007	79.3		Steel Tape	
	11/7/2006	78.65		Electric Tape	
	6/13/2006	81.38		Electric Tape	
106 N10 E22 24BBCA1 FAIRFIELD #13788	10/3/2007	31.22		Electric Tape	
	4/4/2007	27.08		Steel Tape	
	11/13/2006	28.18		Electric Tape	
	6/13/2006	28.11		Electric Tape	

WATER LEVEL MEASUREMENT DATA

	MEASURE DATE	WATER LEVEL (FT.)	STATUS	METHOD	REMARKS
106 N10 E22 25BDAC1 FAIRFIELD #70852	10/3/2007	6.54		Electric Tape	Meter: 635486 x 0.001 af
	4/4/2007	4.12		Steel Tape	Meter read 38235 x .001 af
	11/13/2006	4.03		Electric Tape	
	6/13/2006	3.21		Electric Tape	
106 N10 E22 26ABCD1 FAIRFIELD #70851	10/3/2007		Obstruction	Electric Tape	Obstruction @ apprx. 8'
	4/4/2007		Flowing		Flowing at 4.3 gpm; meter read 433286 x .001 af
	11/13/2006		Flowing		flowing at 10 gpm
	6/13/2006	4.01		Electric Tape	
106 N10 E22 28DDBC1 DOUGLAS CO. PARK	10/3/2007		Pumping		
	4/4/2007	29.25		Steel Tape	
	11/2/2006	38.02		Electric Tape	
	6/13/2006		Pumping		fluctuating at approximately 60ft +/-
106 N10 E23 19BABA1 FAIRFIELD #13013	10/3/2007	13.6		Electric Tape	Meter: 23851 x 100 gal
	4/4/2007	13.1		Steel Tape	
	11/13/2006	13.24		Electric Tape	
	6/13/2006	9.98		Electric Tape	

Figure 1

**106 10N 22E 10DACCI
WEST TRE-GID**

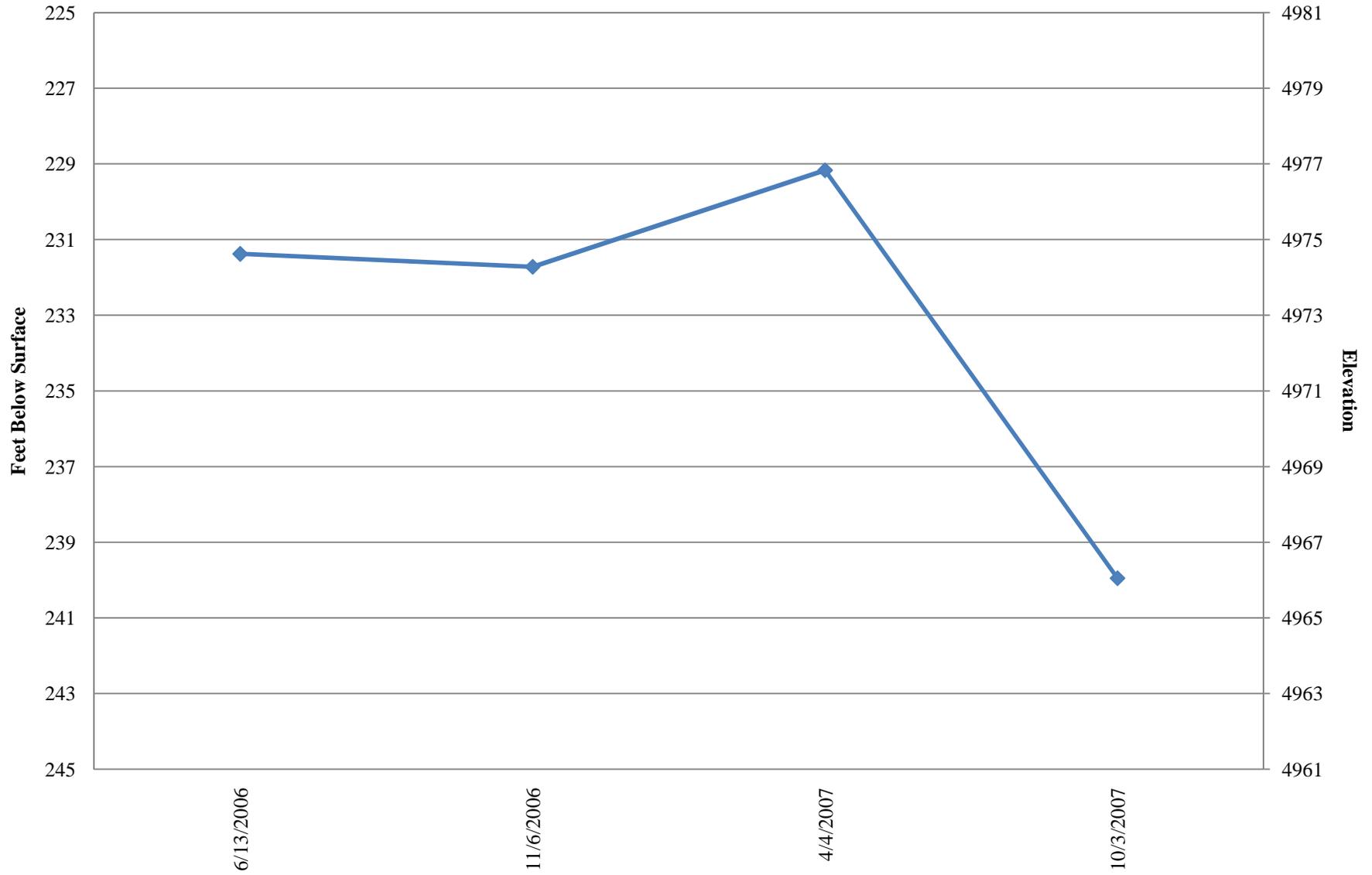


Figure 2

106 10N 22E 12CADD1
EAST TRE-GID

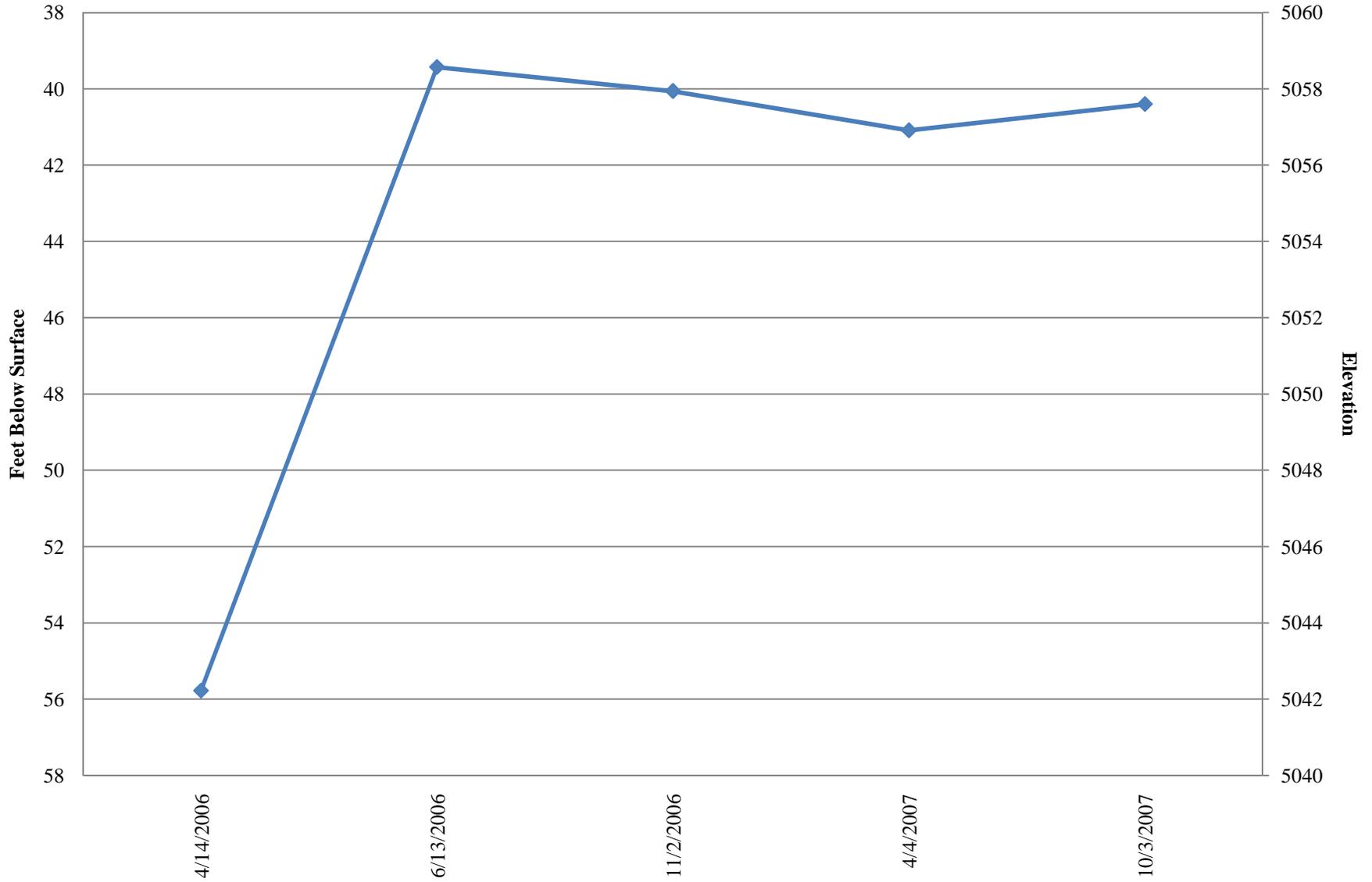


Figure 3

**106 10N 22E 12CDCC1
BLUE SAGE STORAGE**

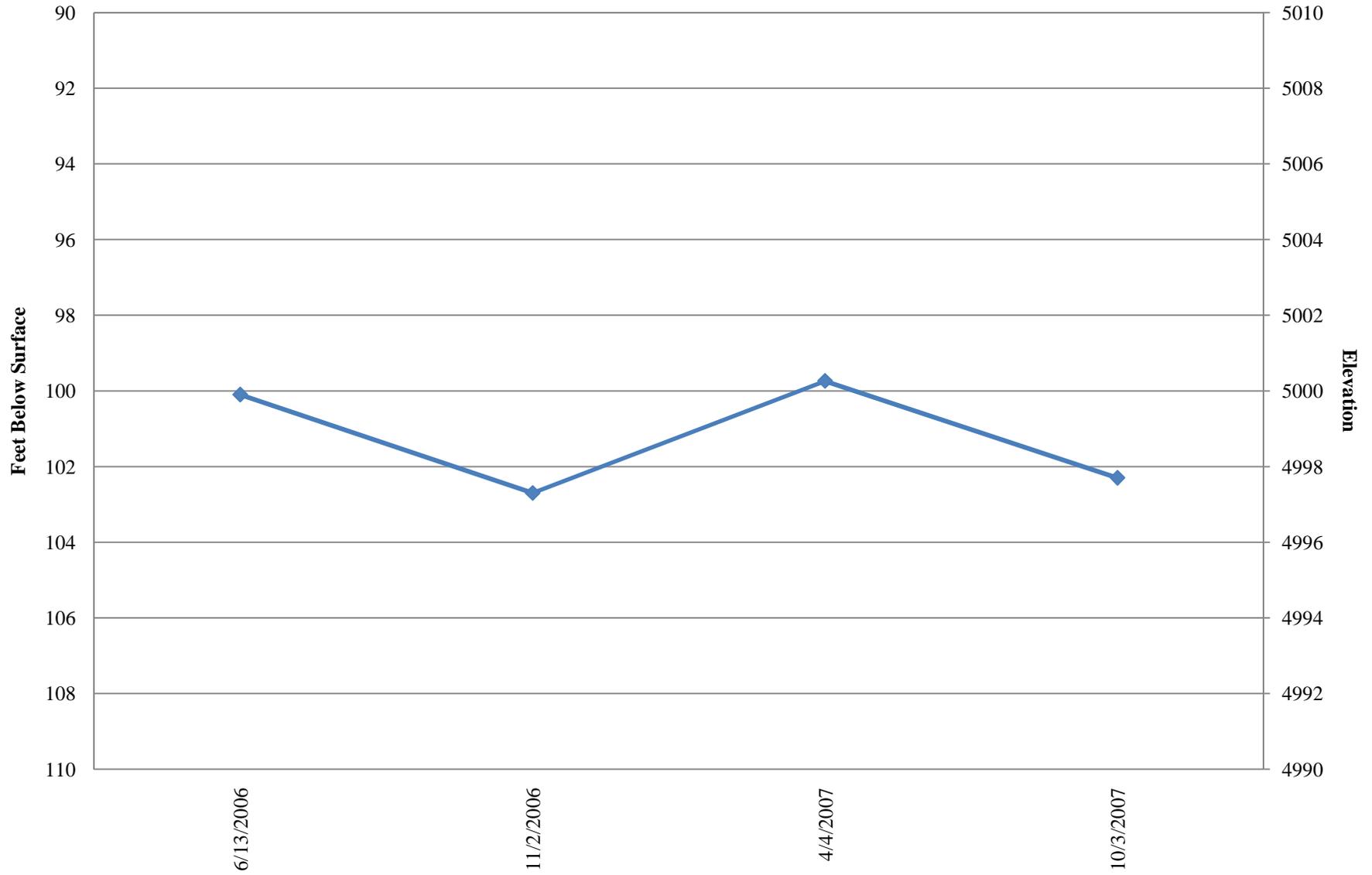


Figure 4

**106 10N 22E 15ADC1
SLEEPING ELEPHANT #16989**

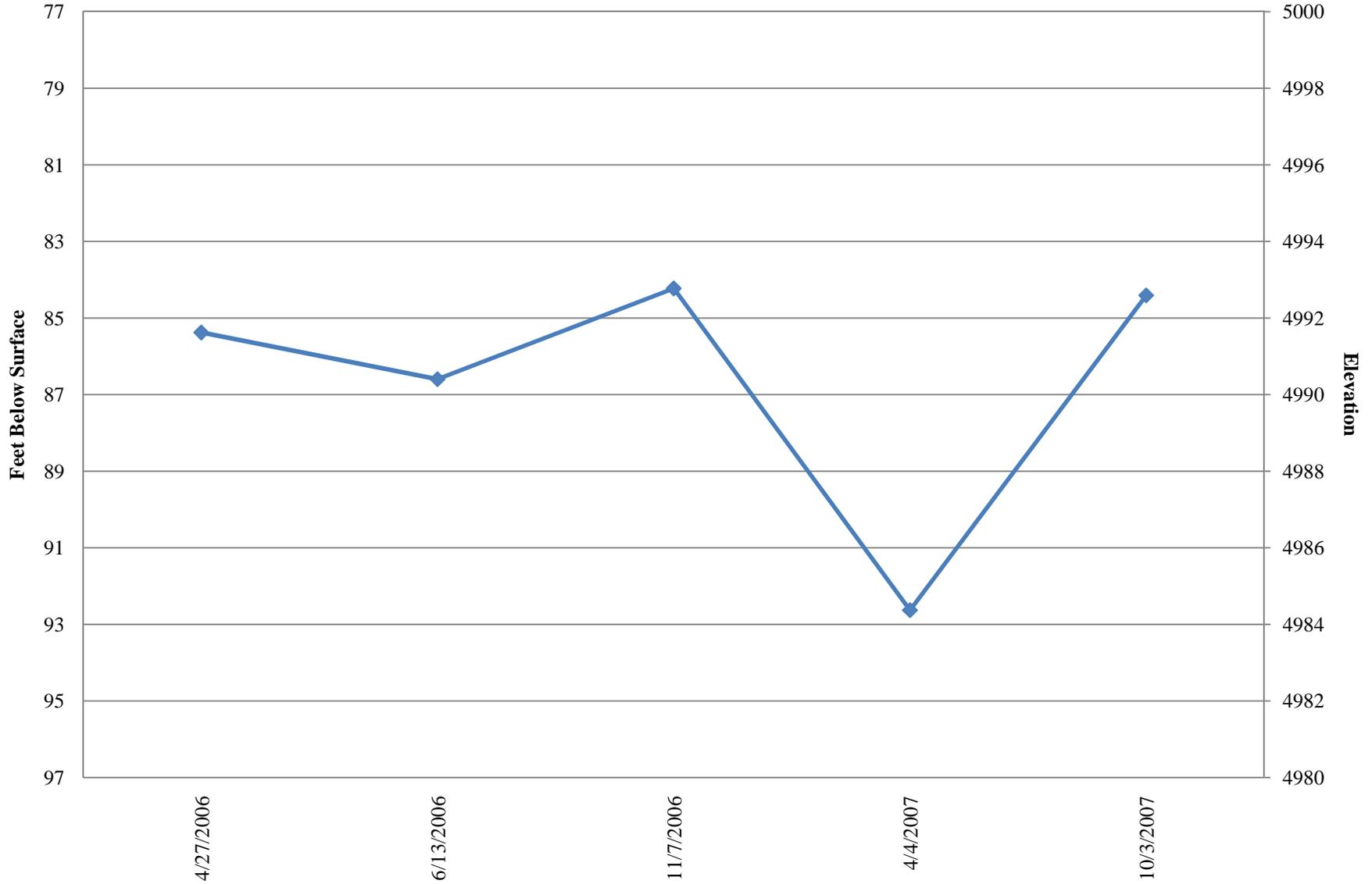


Figure 5

**106 10N 22E 15DCBB1
SLEEPING ELEPHANT #16988**

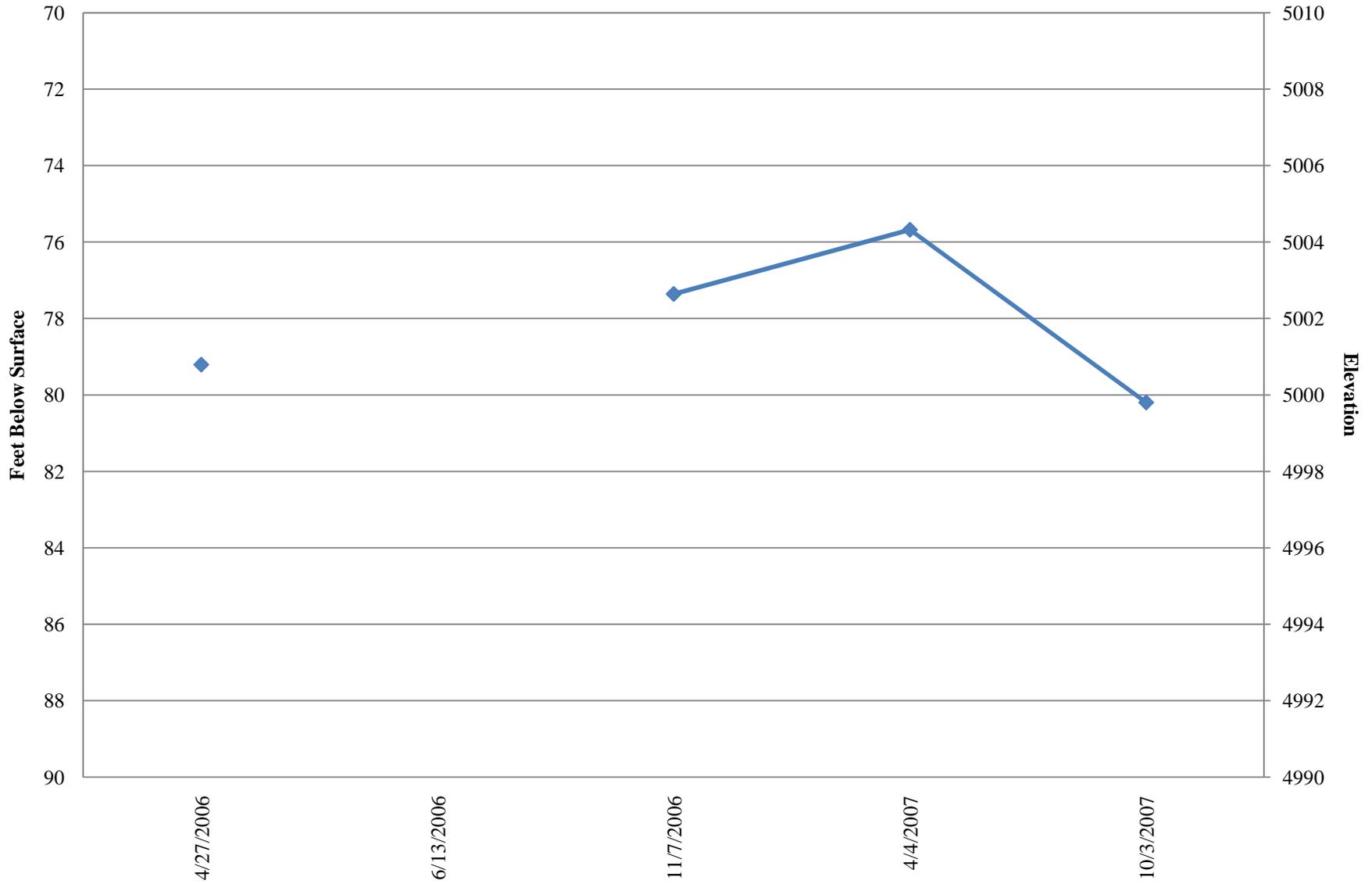


Figure 6

**106 10N 22E 22BAB1
SLEEPING ELEPHANT #24470**

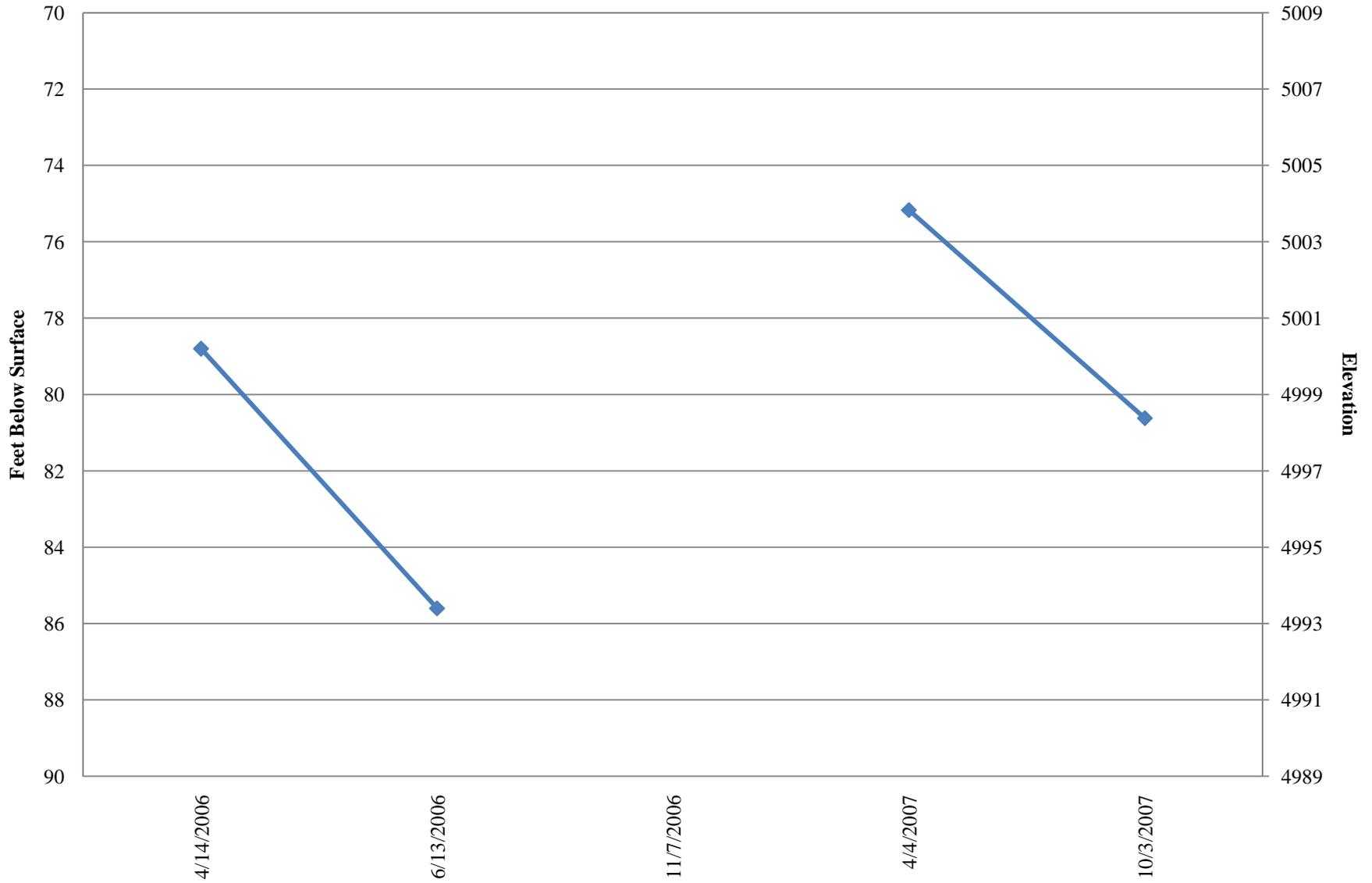


Figure 7

**106 10N 22E 22BDAC1
SLEEPING ELEPHANT #13014**

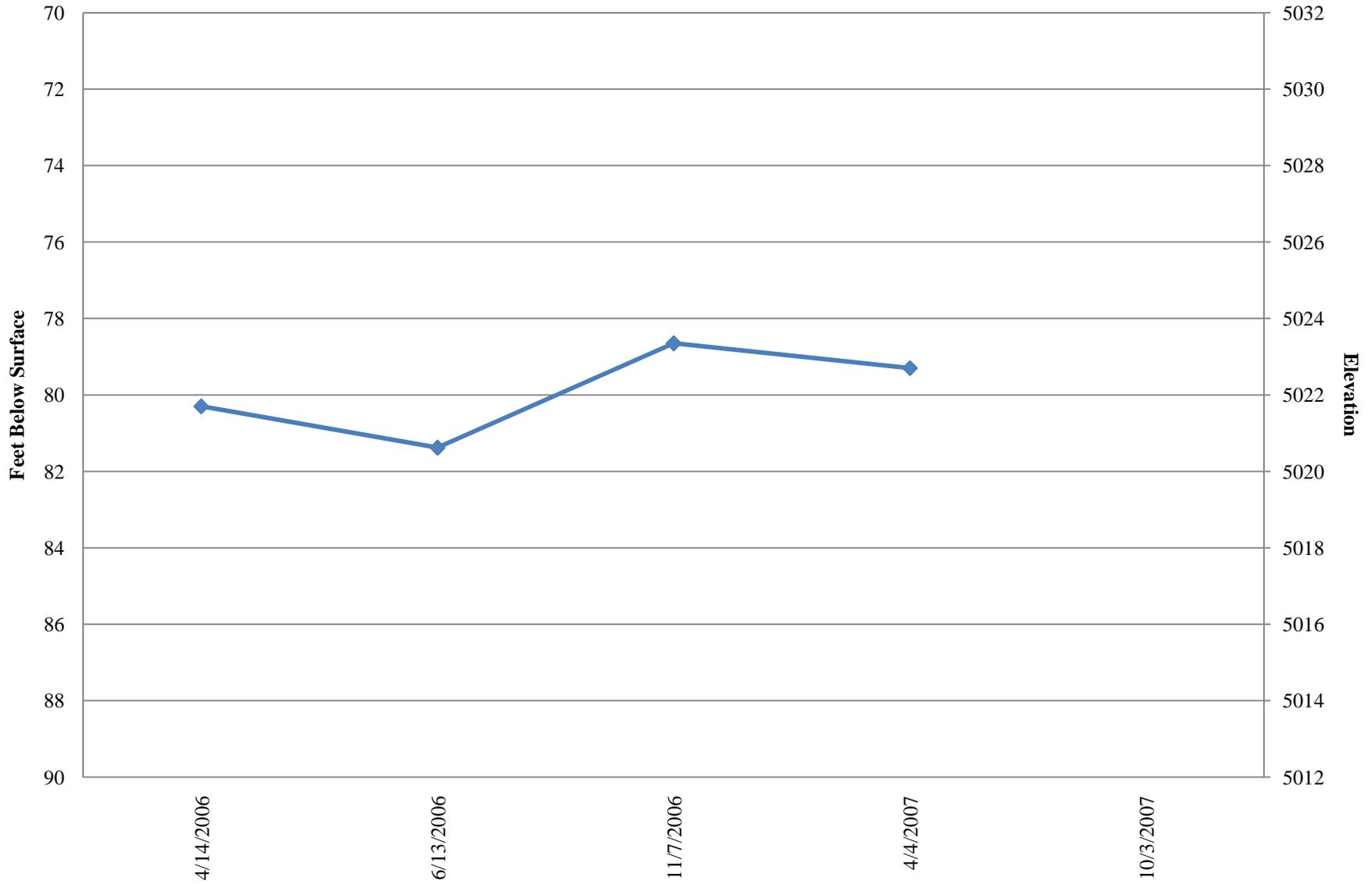


Figure 8

**106 10N 22E 24BBCA1
FAIRFIELD #13788**

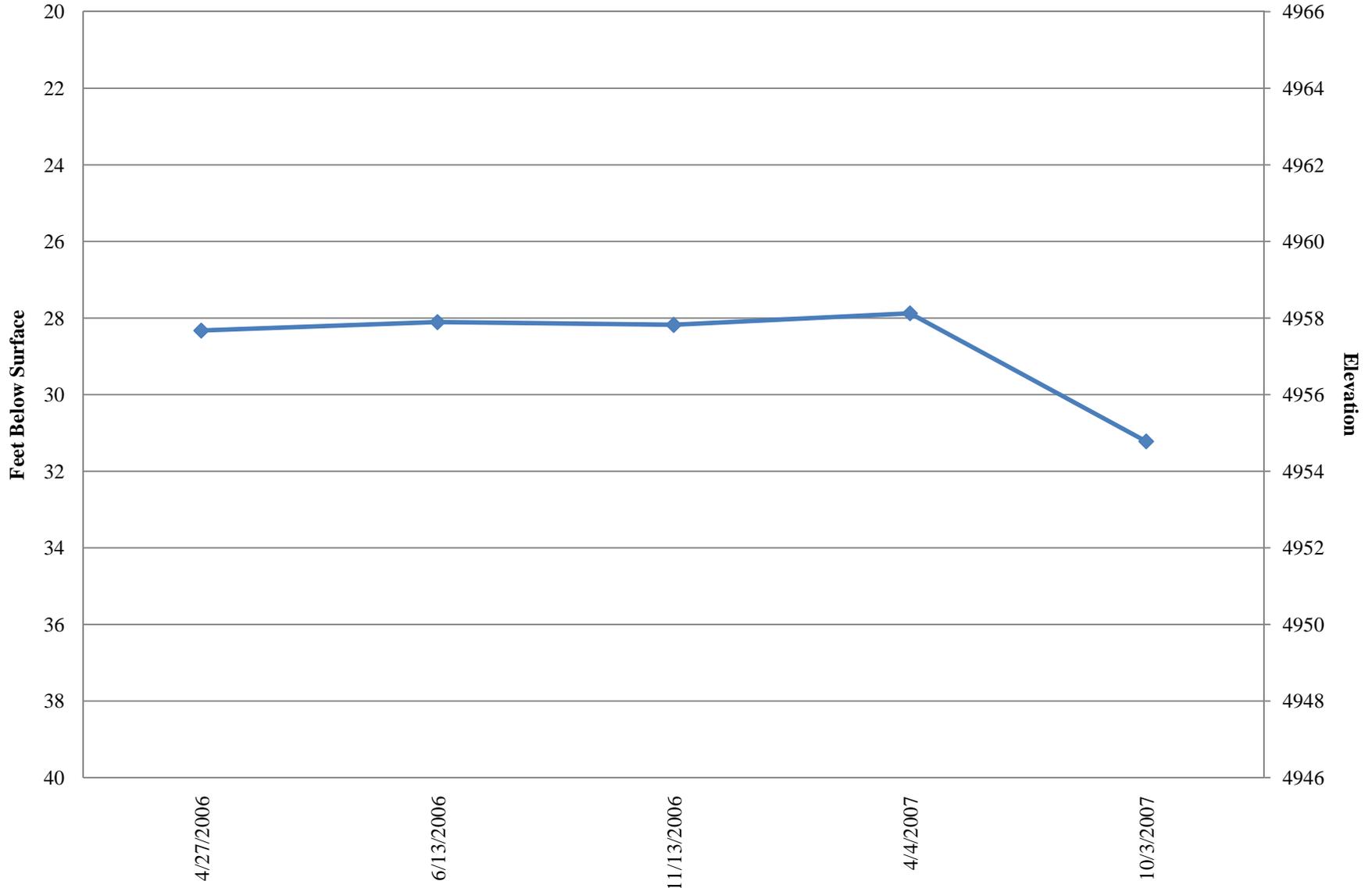


Figure 9

**106 10N 22E 25BDAC1
FAIRFIELD #70852**

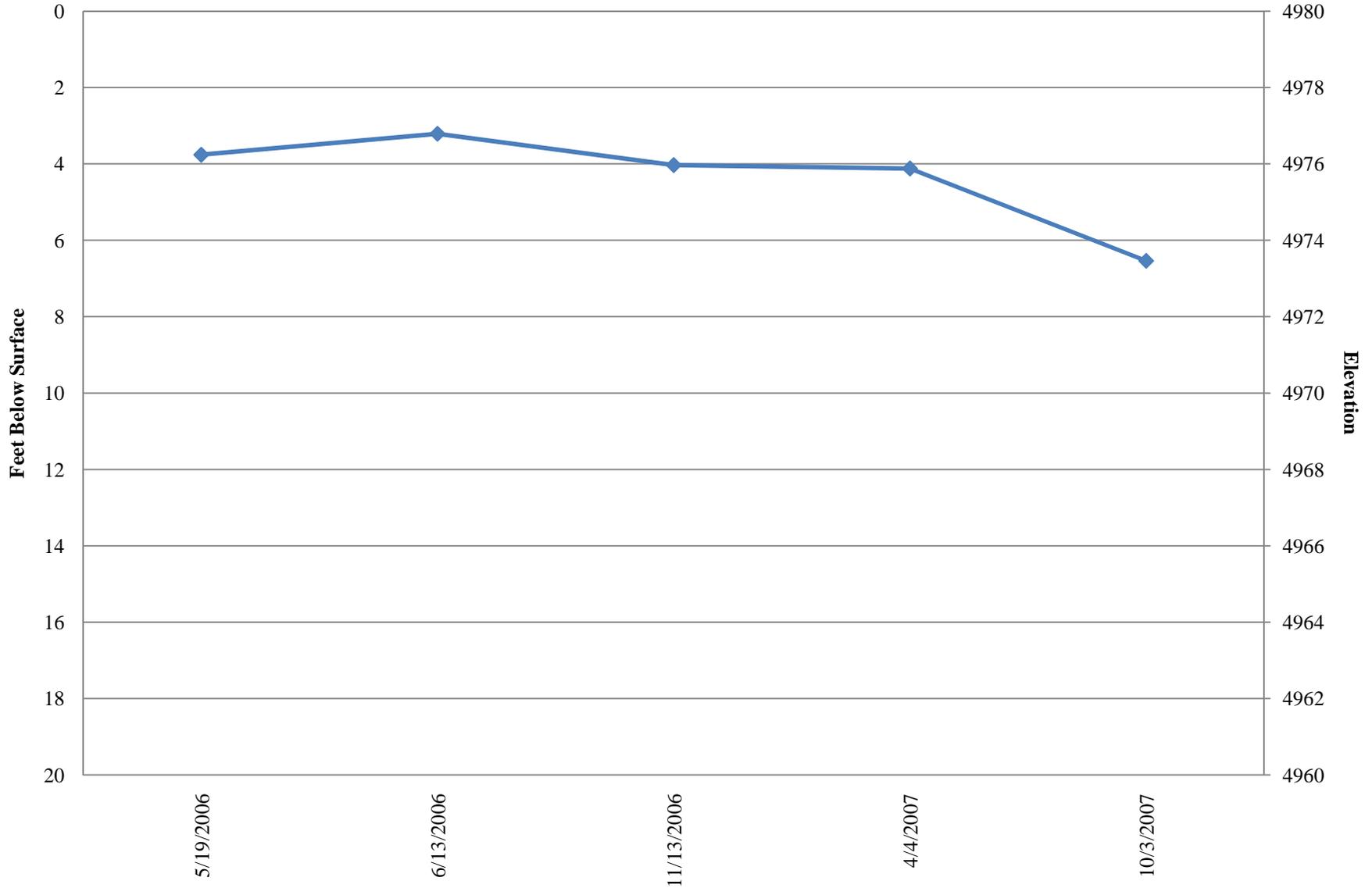


Figure 10

106 10N 22E 26ABCD1

FAIRFIELD #70851

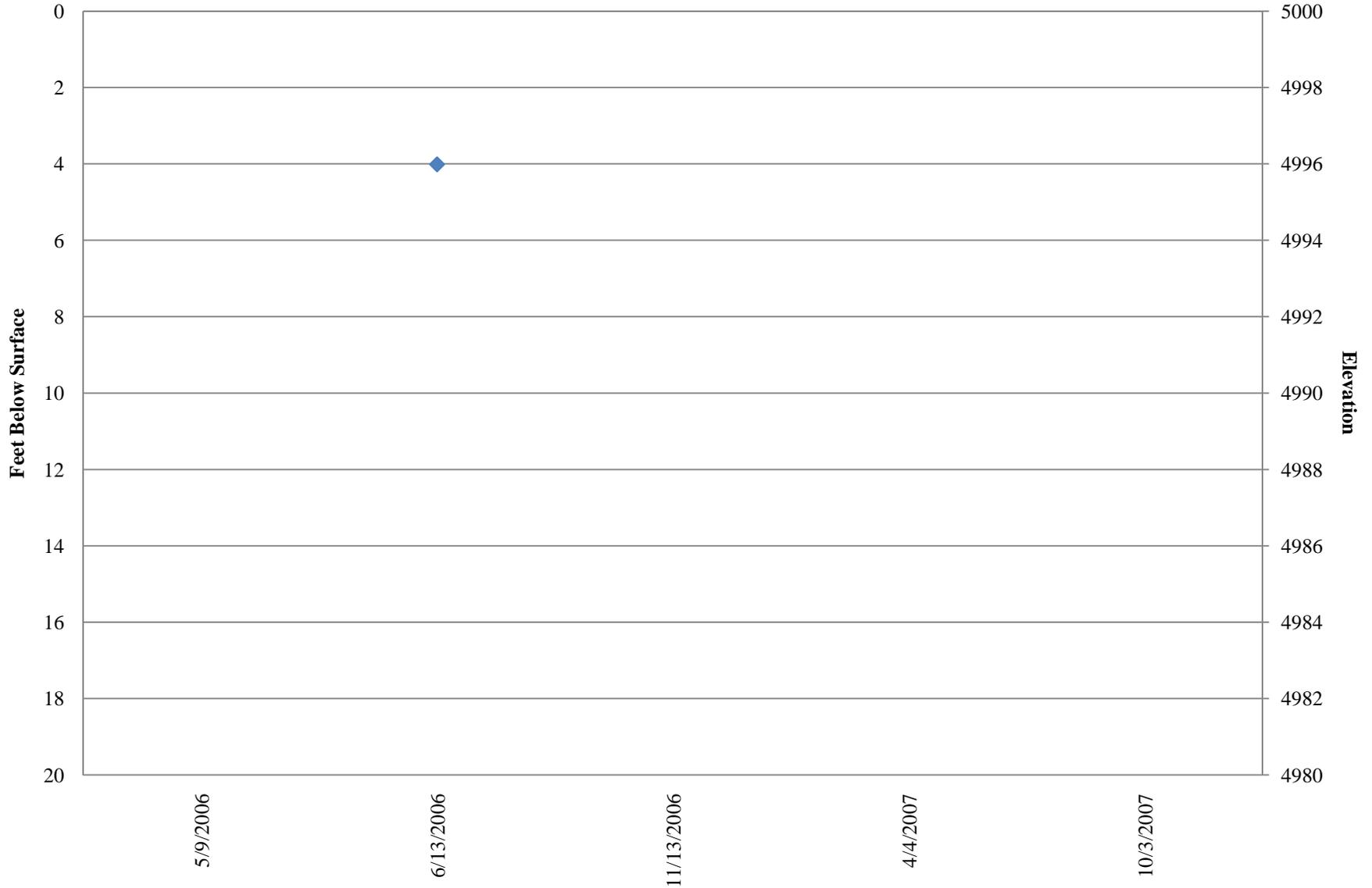


Figure 11

**106 10N 22E 28DDBC1
DOUGLAS CO PARK**

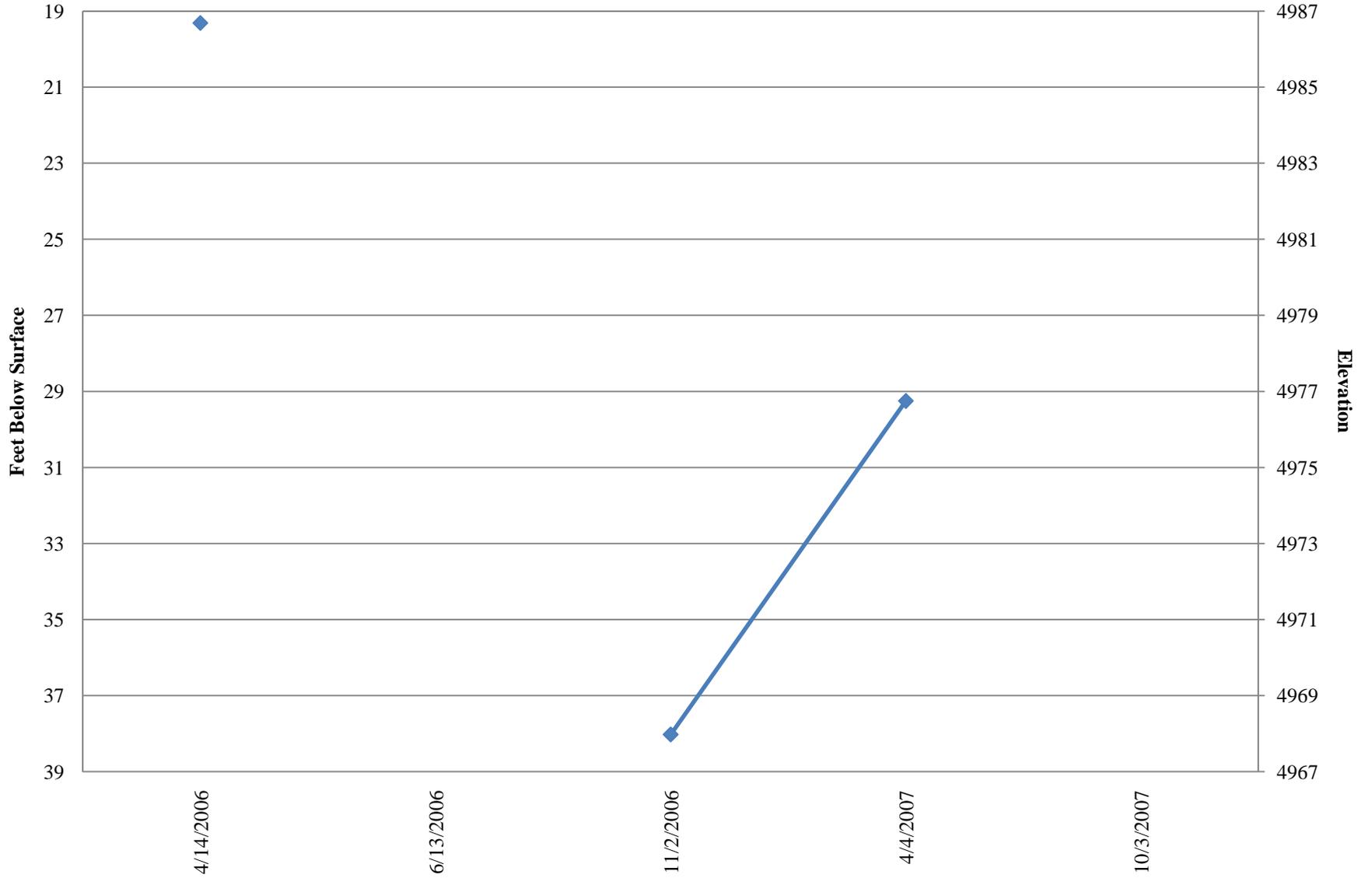
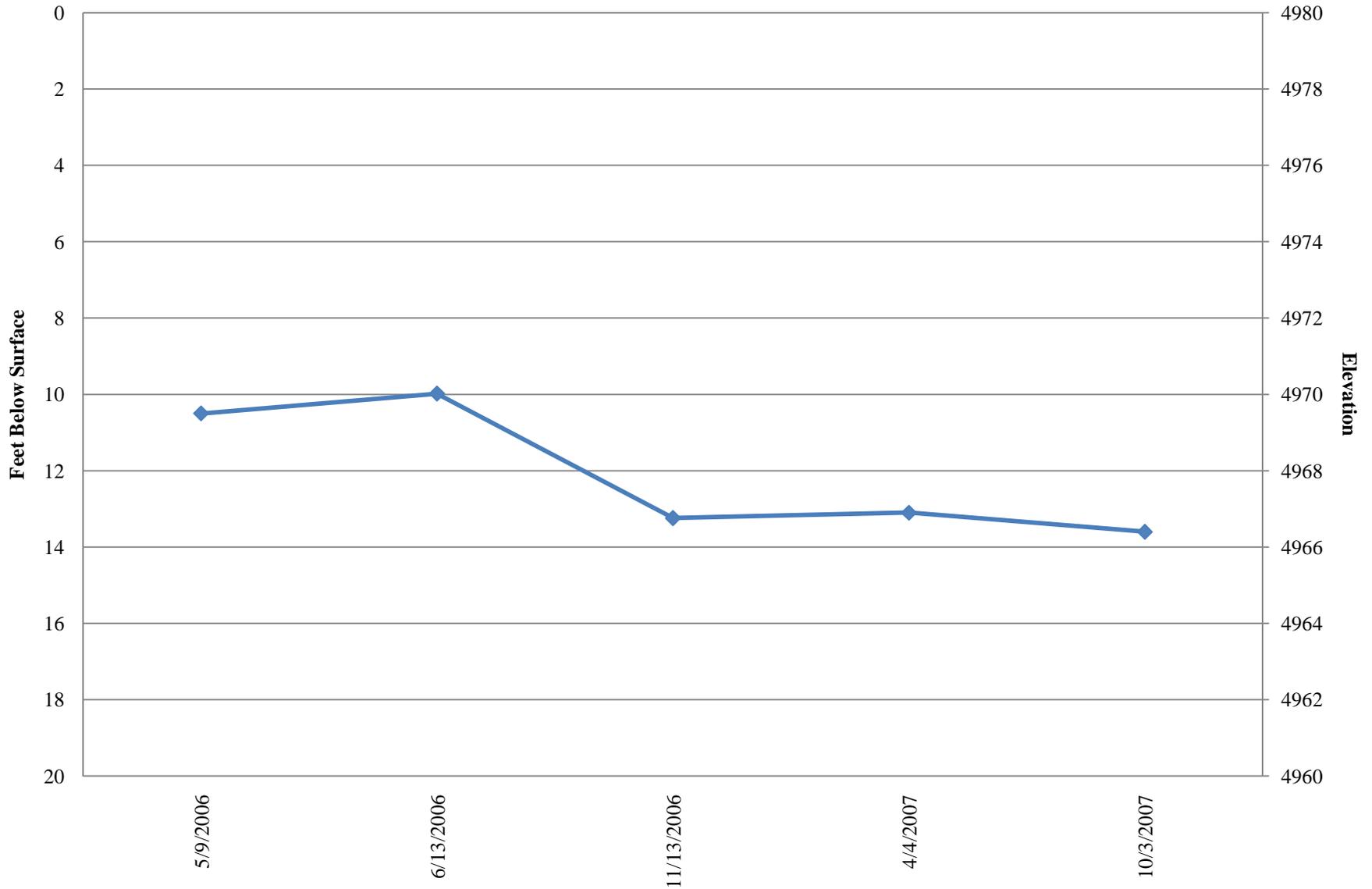


Figure 12

106 10N 23E 19BABA1
FAIRFIELD #13013



APPENDIX B

EXPLANATION OF COLUMN HEADINGS FOR
TABLE 1: ANTELOPE VALLEY GROUNDWATER USE BY PERMIT NUMBER

UNIQUE IDENTIFIER	An ID assigned to each well, based on its geographic location.
APP NO.	The file number of the Application to Appropriate Water.
STATUS	If a number is in this field, it is the certificate number associated with the permit to appropriate, PER means that the permit has not been certificated, CAN means the permit has been cancelled.
MOU	The manner of use of the appropriated water. COM - Commercial DOM - Domestic IRR - Irrigation QM - Quasi-Municipal REC - Recreational
OWNER OF RECORD	The owner of the water right as recorded in the files of the state engineer.
QQ	The quarter quarter of the section in which the point of diversion is located.
QTR	The quarter of the section in which the point of diversion is located.
SEC	The section in which the point of diversion is located.
T	The township in which the point of diversion is located.
R	The range in which the point of diversion is located.
PER ACRES	
IRR	The number of acres that are permitted to be irrigated.
DUTY (AF)	The number of acre-feet of water that the permittee may pump. An acre-foot equals 325,851 gallons.
SUPP ADJ	Where more than one permit is appurtenant to the same place of use, the permits are considered supplemental. Permits may be either completely or partially supplemental. In these cases, a total combined duty for the subject permits is employed.
DUTY USED	The amount of water used, in acre-feet, as determined by review of records and or field investigation.
UNIT	AFA stands for acre-feet annually, and AFS stands for acre-feet seasonally. AFS limits water usage to certain months out of the year.
SUPP SRC	The source of the supplemental water; UG means underground, WR stands for Walker River.
SUPP GW APP NO.	The file number(s) of any supplemental ground water appropriations.

Table 1

Antelope Valley Groundwater Use 2007 by Permit Number

UNIQUE IDENTIFIER	APP NO.	STATUS	MOU	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES IRR	DUTY (AF)	SUPP ADJ	DUTY USED	UNIT	SUPP SRC	SUPP GW APP NO.
106 N10 E23 19BABA1	13013	04928	IRR	MATHEWSON, CHARLES N. TRUST	NE	NW	19	10N	23E	49.85	74.78	74.78	7.32	AFA		
106 N10 E22 22BDAC1	13014	04835	IRR	ELEPHANT, LLC	SE	NW	22	10N	22E	210.75	813.00	1851.40	0.00	AFA	UG *	
106 N10 E22 14ACBD1	13787	05731	IRR	ELEPHANT, LLC	SW	NE	14	10N	22E	165.00	660.00		146.63	AFA	UG *	
106 N10 E22 29DCCC1	16425	05398	QM	TOPAZ LODGE INC.	SW	SE	29	10N	22E		6.44	16.14	6.44	AFA		53073
106 N10 E22 22ADAD1	16789	05732	IRR	ALLRED, EVAN L.	SE	NE	22	10N	22E	80.00	320.00		0.00	AFS	UG *	
106 N10 E22 15DCBB1	16988	05733	IRR	ELEPHANT, LLC	SW	SE	15	10N	22E	108.50	434.00		257.36	AFS	UG *	
106 N10 E22 15ADC1	16989	05734	IRR	ELEPHANT, LLC	SE	NE	15	10N	22E	117.50	470.00		0.00	AFS	UG *	
106 N10 E21 14DDCD1	23243	07202	DOM	AMERICAN TELEPHONE & TELEGRAPH	SE	SE	14	10N	21E		1.63	1.63	1.63	AFA		
106 N10 E22 18ACDA1	24469	07845	IRR	LODATO, JOSEPH S.	SW	NE	18	10N	22E	10.10	40.40	40.40	0.00	AFA		
106 N09 E22 13CCDA1	27311	09639	IRR	PARK, DAVID WALLACE	SW	SW	13	09N	22E	426.80	1,707.20	1707.20	624.32	AFA	WR	
106 N10 E22 10DACC1	28779	PER	QM	TOPAZ RANCH ESTATES G.I.D.	NE	SE	10	10N	22E		891.52	891.52	0.00	AFA	UG **	
106 N10 E22 10BBDA1	28781	PER	QM	TOPAZ RANCH ESTATES G.I.D.	NW	NW	10	10N	22E		891.52		0.00	AFA	UG **	
106 N10 E22 18ABDA1	31341	14132	QM	HOLBROOKE STATION, L.L.C.	NW	NE	18	10N	22E		32.44	32.44	0.02	AFA	UG	41463
106 N10 E22 13CCDA1	33662	10614	COM	TOPAZ LODGE INC.	NW	SW	29	10N	22E		1.44	28.26	1.44	AFA	UG	52865
106 N10 E22 17CCDB1	34649	12452	COM	MOSCHOGIANIS, PETER C.	SW	SW	17	10N	22E		0.31	0.31	0.31	AFA		
106 N10 E22 18ACDA1	34906	PER	COM	DANIEL BRENTS BOLTON & KDM	SW	NE	18	10N	22E		47.08	47.08	0.00	AFA		
106 N10 E22 18BADA1	35246	13017	QM	ROACH, HEIDI D. AND ROY B.	NE	NW	18	10N	22E		7.06	7.06	9.10	AFA	UG	
106 N10 E22 32CBDA1	35495	PER	COM	KAHN, MORRIS.	SW	NW	32	10N	22E		14.45	14.45	0.28	AFA		
106 N10 E22 18ABDD1	41463	14134	QM	HOLBROOKE STATION, L.L.C.	NW	NE	18	10N	22E		32.44		8.01	AFA	UG	31341
106 N09 E22 13CCDA1	46841	11663	IRR	PARK, DAVID WALLACE	SW	SW	13	09N	22E	144.80	579.20	579.20	186.48	AFA	WR	
106 N10 E22 18ABDD1	47318	PER	COM	HEIDI D. & ROY B. ROACH 2002 TRUST	SE	NE	18	10N	22E		5.04	5.04	0.00	AFA		
106 N10 E22 29CCAA1	48040	14943	COM	TOPAZ LODGE, INC.	SW	SW	29	10N	22E		17.86	55.85	9.27	AFA	UG	***
106 N10 E22 29DCCC1	48041	14944	COM	TOPAZ LODGE, INC.	SE	SW	29	10N	22E		6.44		6.44	AFA	UG	***
106 N10 E22 29CCAA1	48299	14945	COM	TOPAZ LODGE, INC.	SW	SW	29	10N	22E		5.16		5.16	AFA	UG	***
106 N10 E22 29DCCC1	48300	14946	COM	TOPAZ LODGE, INC.	SE	SW	29	10N	22E		7.73		7.73	AFA	UG	***
No POC filed 9/11/2007	52865	PER	COM	TOPAZ LODGE, INC.	NW	SW	29	10N	22E		26.82		0.00	AFA	UG	33662
106 N10 E22 29DCCC1	53073	PER	QM	TOPAZ LODGE, INC.	SW	SE	29	10N	22E		16.14		1.09	AFA		16425
106 N10 E22 18ADAC1	55478	16360	QM	PINION PINES MHC, LLC	SE	NE	18	10N	22E		7.73	7.73	13.11	AFA		
106 N10 E22 12CDCC1	56490	PER	QM	LAZY S LODGE	SE	SW	12	10N	22E		4.00	4.00	9.90	AFA		
106 N10 E22 18ADCD1	56925	PER	COM	HEIDI D. & ROY B. ROACH 2002 TRUST	SE	NE	18	10N	22E		2.97	2.97	0.01	AFA		
106 N10 E22 10BBDA1	57681	PER	QM	TOPAZ RANCH ESTATES G.I.D.	NW	NW	10	10N	22E		38.67		24.22	AFA	UG	**
106 N10 E22 10DACC1	57682	PER	QM	TOPAZ RANCH ESTATES G.I.D.	NE	SE	10	10N	22E		38.67		20.68	AFA	UG	**
106 N10 E22 12CADD1	57683	PER	QM	TOPAZ RANCH ESTATES G.I.D.	NE	SW	12	10N	22E		100.11		0.00	AFA	UG	**
106 N10 E22 09BBAB1	57684	PER	QM	TOPAZ RANCH ESTATES G.I.D.	NW	NW	09	10N	22E		891.52		0.00	AFA	UG	**
106 N10 E22 10ADAB1	57685	PER	QM	TOPAZ RANCH ESTATES G.I.D.	SE	NE	10	10N	22E		891.52		18.92	AFA	UG	**
106 N10 E22 15CADD1	57686	PER	QM	TOPAZ RANCH ESTATES G.I.D.	NE	SW	15	10N	22E		891.52		201.67	AFA	UG	**
106 N10 E22 09BBAB1	57716	PER	QM	TOPAZ RANCH ESTATES G.I.D.	NW	NW	09	10N	22E		150.13		0.00	AFA	UG	**
106 N10 E22 32BBAD1	59892	PER	QM	BAUER, CLYNE P.	NW	NW	32	10N	22E		4.24	4.24	0.00	AFA		
106 N10 E22 29CDCC1	63415	PER	QM	K & K WATER COMPANY, INC.	SE	SW	29	10N	22E		15.68	15.68	0.43	AFA		
106 N10 E22 17DDAD1	65494	PER	COM	SHEERIN, CHRISTOPHER H. & KERI A.	SE	SE	17	10N	22E		4.00	4.00	0.60	AFA		
106 N10 E22 28DDBC1	65918	PER	REC	DOUGLAS COUNTY	SE	SE	28	10N	22E		24.49	24.49	24.49	AFA		
106 N10 E22 29DCCC1	67426	PER	COM	TOPAZ LODGE, INC.	SE	SW	29	10N	22E		21.28		0.96	AFA	UG	***
106 N10 E22 17CCAD1	68739	PER	IRR	KOTTKE LVNG TRST, DENNIS L & DIANE V	SW	SW	17	10N	22E	6.25	25.00	192.90	25.00	AFA	UG	68740
106 N10 E22 17CCAD1	68740	PER	IRR	KOTTKE LVNG TRST, DENNIS L & DIANE V	SW	SW	17	10N	22E	41.98	167.90		42.55	AFA	UG	68739
106 N10 E22 18BADA	69200	CAN	QM	ROACH, HEIDI D. & ROY B.	NE	NW	18	10N	22E		1.00	1.00	0.00	AFA	UG	
106 N10 E22 26ABCD1	70851	PER	IRR	BAWDEN, J.F.	NW	NE	26	10N	22E	147.75	591.00	881.86	299.87	AFA	UG	****
106 N10 E22 25BDAC1	70852	PER	IRR	BAWDEN, J.F.	SE	NW	25	10N	22E	68.59	274.36		580.75	AFA	UG	****
106 N10 E22 25BDAC1	70853	PER	IRR	BAWDEN, J.F.	SE	NW	25	10N	22E	4.13	16.50		16.50	AFA	UG	****
106 N10 E22 18DBDA1	70877	PER	QM	NORTHERN NEVADA URGENT CARE, LLP	NW	SE	18	10N	22E		5.00	5.00	0.16	AFA		

Table 1

Antelope Valley Groundwater Use 2007 by Permit Number

UNIQUE IDENTIFIER	APP NO.	STATUS	MOU	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES IRR	DUTY (AF)	SUPP ADJ	DUTY USED	UNIT	SUPP SRC	SUPP GW APP NO.
No POC filed 9/11/2007	70902	PER	QM	GREGORY FAMILY TRUST	SW	SE	12	10N	22E		7.84	7.84	0.00	AFA		
No POC filed 9/11/2007	71039	PER	QM	DA DEVELOPMENT, INC	NE	SE	17	10N	22E		5.94	5.94	0.00	AFA		
106 N10 E22 17DDAD1	71130	PER	COM	SHEERIN, CHRIS	SE	SE	17	10N	22E		4.00	4.00	0.00	AFA		
106 N10 E22 18ADB2	74486	PER	COM	SIERRA ROADHOUSE	SE	NE	18	10N	22E		2.02	2.02	0.00	AFA		

* Elephant, LLC/Evan L. Allred total combined duty permit #'s 13014, 13787, 16789, 16988, 16989 = TCD 1851.4 AFA
 ** Topaz Ranch Estates total combined duty permit #'s 28779, 28781, 57681, 57682, 57683, 57684, 57685, 57686, 57716 = TCD 891.51 AFA
 *** Topaz Lodge Inc. total combined duty permit #'s 48040, 48041, 48229, 48300, 67426 = TCD 55.85 AFA
 **** Bawden, J.F. total combined duty permit #'s 70851, 70852, 70853 = TCD 881.86 AFA

APPENDIX C

EXPLANATION OF COLUMN HEADINGS FOR
TABLE 2: PLACE OF USE TABLE FOR GROUNDWATER IRRIGATION RIGHTS

APP NO.	The file number of the Application to Appropriate Water.
STATUS	If a number is in this field, it is the certificate number associated with the permit to appropriate, PER means that the permit has not been certificated.
OWNER OF RECORD	The owner of the water right as recorded in the files of the state engineer.
QQ	The quarter quarter of the section in which the point of diversion is located.
QTR	The quarter of the section in which the point of diversion is located.
SEC	The section in which the point of diversion is located.
T	The township in which the point of diversion is located.
R	The range in which the point of diversion is located.
PER ACRES	The number of acres, by quarter quarter that are permitted to be irrigated.
PER IRR ACRES 2007	The number of acres irrigated within the place of use of the associated permit, during water-year 2007, as determined by field inspection.
SUPP ACRES	The number of acres by quarter quarter that have more than one appropriation appurtenant.
SUPP SOURCE	Source of the supplemental water, UG (ground water) or WR (Walker River).
SUPP GW APP NO.	The file number of the supplemental ground water appropriation.

Table 2

Antelope Valley Inventory 2007 Place of Use Table of Groundwater Permits and Certificates for Irrigation

APP NO.	STATUS	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES	PER IRR ACRES 2007	SUPP ACRES	SUPP SOURCE	SUPP GW APP NO.
13013	4928	MATHEWSON, CHARLES N. TRUST	N2	NE	19	10N	23E	25.85	0	0		
			N2	NW	19	10N	23E	24	0	0		
			Total Acres Permitted:					49.85				
13014	4835	ELEPHANT, LLC	SE	NW	14	10N	22E	0.13	0	0		
			SW	NW	14	10N	22E	25.27	0	15	UG	16989
			NW	SW	14	10N	22E	14.65	0	11	UG	16989
			SE	NE	15	10N	22E	6.61	0	6.61	UG	16989
			NE	SE	15	10N	22E	37.31	0	36	UG	16989
			NW	SE	15	10N	22E	9.26	0	9.26	UG	16988, 16989
			SE	SE	15	10N	22E	13.36	0	13.36	UG	16988, 16989
			SW	SE	15	10N	22E	38.25	0	37	UG	16988
			SE	SW	15	10N	22E	8.58	0	8.58	UG	16988
			NW	NE	22	10N	22E	24.9	0	3	UG	16988
			SW	NE	22	10N	22E	6.61	0	0		
			NE	NW	22	10N	22E	11.38	0	0		
			SE	NW	22	10N	22E	14.44	0	0		
			Total Acres Permitted:					210.75				
13787	5731	ELEPHANT, LLC	SW	NE	14	10N	22E	28	0.25	0		
			SE	NW	14	10N	22E	3	3	0		
			NW	SE	14	10N	22E	25	4.38	0		
			SW	SE	14	10N	22E	2	0	2	UG	16988, 16989
			NE	SW	14	10N	22E	33	33	5	UG	16988, 16989
			NW	SW	14	10N	22E	2	2	0		
			SE	SW	14	10N	22E	34	10.29	28	UG	16988, 16989
			SW	SW	14	10N	22E	28	4.72	3	UG	16988, 16989
			NW	NW	22	10N	22E	3	0	0		
			NE	NW	23	10N	22E	7	0	5	UG	16789
Total Acres Permitted:					165							
16789	5732	ALLRED, EVAN L.	SE	NE	22	10N	22E	7	0	0		
			NE	SE	22	10N	22E	3	0	0		
			NE	NW	23	10N	22E	5	0	5	UG	13787
			NW	NW	23	10N	22E	8	0	0		
			SE	NW	23	10N	22E	9	0	0		
			SW	NW	23	10N	22E	36	0	0		
			NW	SW	23	10N	22E	12	0	0		
Total Acres Permitted:					80							
16988	5733	ELEPHANT, LLC	SW	SE	14	10N	22E	2	0	2	UG	13787, 16989
			NE	SW	14	10N	22E	5	0	5	UG	13787, 16989
			SE	SW	14	10N	22E	28	0	28	UG	13787, 16989

Table 2

Antelope Valley Inventory 2007 Place of Use Table of Groundwater Permits and Certificates for Irrigation

APP NO.	STATUS	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES	PER IRR ACRES 2007	SUPP ACRES	SUPP SOURCE	SUPP GW APP NO.		
16989	5734	ELEPHANT, LLC	SW	SW	14	10N	22E	3	3	3	UG	13787, 16989		
			NW	SE	15	10N	22E	8.5	6.57	7.87	UG	13014, 16989		
			SE	SE	15	10N	22E	12	12	11.45	UG	13014, 16989		
			SW	SE	15	10N	22E	37	20.65	37	UG	13014		
			SE	SW	15	10N	22E	10	0	8.58	UG	13014		
			NW	NE	22	10N	22E	3	2.67	3	UG	13014		
			Total Acres Permitted:							108.5				
			SW	NW	14	10N	22E	17	0	15	UG	13014		
			SW	SE	14	10N	22E	2	0	2	UG	13787, 16988		
			NE	SW	14	10N	22E	5	0	5	UG	13787, 16988		
			NW	SW	14	10N	22E	11	0	11	UG	13014		
			SE	SW	14	10N	22E	28	0	28	UG	13787, 16988		
			SW	SW	14	10N	22E	3	0	3	UG	13787, 16988		
			SE	NE	15	10N	22E	12	0	6.61	UG	13014		
			NE	SE	15	10N	22E	36	0	36	UG	13014		
NW	SE	15	10N	22E	1.5	0	1.39	UG	13014					
SE	SE	15	10N	22E	2	0	1.91	UG	13014					
Total Acres Permitted:							117.5							
24469*	7845	LODATO, JOSEPH S.	SE	NE	18	10N	22E	4.8	0		UG	1581		
			SW	NE	18	10N	22E	5.3	0		UG	1581		
			Total Acres Permitted:							10.1				
27311**	9639	PARK, DAVID WALLACE	S2	NE	11	09N	22E	21.9	21.9	0				
				SE	11	09N	22E	105.1	103.9	0				
				SW	12	09N	22E	52.8	49.5		WR			
			NW	NW	13	09N	22E	25.4	25.4	0				
			SW	NW	13	09N	22E	25.7	24.2		WR			
			NW	SW	13	09N	22E	27.5	26.0		WR			
				TR41	13	09N	22E	21	20.4		WR			
				NE	14	09N	22E	94	86.2		WR			
				TR42	14	09N	22E	53.4	52.4		WR			
Total Acres Permitted:							426.8							
46841**	11663	PARK, DAVID WALLACE	S2	NW	12	09N	22E	32.3	32.3		WR			
			SW	NE	12	09N	22E	5.7	5.7	0				
			NW	SW	12	09N	22E	12.2	12.2		WR			
			NE	SW	12	09N	22E	40	40.0		WR			
			NW	SE	12	09N	22E	24.2	18.9		WR			
			SE	SW	12	09N	22E	20.9	20.8		WR			
			SW	SE	12	09N	22E	9.5	7.7	0				
Total Acres Permitted:							144.8							

Table 2 Antelope Valley Inventory 2007 Place of Use Table of Groundwater Permits and Certificates for Irrigation

APP NO.	STATUS	OWNER OF RECORD	QQ	QTR	SEC	T	R	PER ACRES	PER IRR ACRES 2007	SUPP ACRES	SUPP SOURCE	SUPP GW APP NO.
68739***	PER	KOTTKE LVNG TRST, DENNIS L & DIANE V		SW	17	10N	22E		17.42		UG	68740
			W2	SE	17	10N	22E		0		UG	68740
			E2	SE	18	10N	22E		0		UG	68740
			NE	NE	19	10N	22E		0		UG	68740
			Total Acres Permitted:							6.25		UG
68740***	PER	KOTTKE LVNG TRST, DENNIS L & DIANE V		SW	17	10N	22E		17.42		UG	68739
			W2	SE	17	10N	22E		0		UG	68739
			E2	SE	18	10N	22E		0		UG	68739
			NE	NE	19	10N	22E		0		UG	68739
			Total Acres Permitted:							41.975		UG
70851****	PER	BAWDEN, J.F.	S2	SE	23	10N	22E		2		UG	70852, 70853
				NW	25	10N	22E		102		UG	70852, 70853
			N2	SW	25	10N	22E		8		UG	70852, 70853
				NE	26	10N	22E		89		UG	70852, 70853
			NE	SE	26	10N	22E		0		UG	70852, 70853
Total Acres Permitted:							147.75					
70852****	PER	BAWDEN, J.F.	S2	SE	23	10N	22E		2		UG	70851, 70853
				NW	25	10N	22E		102		UG	70851, 70853
			N2	SW	25	10N	22E		8		UG	70851, 70853
				NE	26	10N	22E		89		UG	70851, 70853
			NE	SE	26	10N	22E		0		UG	70851, 70853
Total Acres Permitted:							68.59		UG	70851, 70853		
70853****	PER	BAWDEN, J.F.	S2	SE	23	10N	22E		2		UG	70851, 70852
				NW	25	10N	22E		102		UG	70851, 70852
			N2	SW	25	10N	22E		8		UG	70851, 70852
				NE	26	10N	22E		89		UG	70851, 70852
			NE	SE	26	10N	22E		0		UG	70851, 70852
Total Acres Permitted:							4.13		UG	70851, 70852		

* Permit # 24469 may be supplemental to permit # 1581.

** Permit #s 27311, 46841 are supplemental to a portion of Walker River Decree, Claim #2.

*** Permit #s 68739, 68740 have same proposed place of use, with a total combined acreage of 48.23

**** Permit #s 70851, 70852, 70853 have same proposed place of use, with a total combined acreage of 220.46

APPENDIX D

ANTELOPE VALLEY HISTORICAL PUMPAGE BY POINT OF DIVERSION

UNIQUE IDENTIFIER	OWNER OF RECORD	DUTY	DUTY	PERMITS
		USED 2006	USED 2007	
106 N09 E22 13CCDA1	PARK, DAVID WALLACE	58.31	810.80	27311, 46841
106 N10 E21 14DDCD1	AMERICAN TELEPHONE & TELEGRAPH	1.63	1.63	23243
106 N10 E22 09BBAB1	TOPAZ RANCH ESTATES G.I.D.	0.00	0.00	57684, 57716
106 N10 E22 10ADAB1	TOPAZ RANCH ESTATES G.I.D.	5.65	18.92	57685
106 N10 E22 10BBDA1	TOPAZ RANCH ESTATES G.I.D.	7.13	24.22	28781, 57681
106 N10 E22 10DACC1	TOPAZ RANCH ESTATES G.I.D.	6.15	20.68	28779, 57682
106 N10 E22 12CADD1	TOPAZ RANCH ESTATES G.I.D.	0.00	0.00	57683
106 N10 E22 12CDCC1	LAZY S LODGE	4.00	9.90	56490
106 N10 E22 14ACBD1	ELEPHANT, LLC	0.00	146.63	13787
106 N10 E22 15ADC1	ELEPHANT, LLC	0.00	0.00	16989
106 N10 E22 15CADD1	TOPAZ RANCH ESTATES G.I.D.	59.25	201.67	57686
106 N10 E22 15DCBB1	ELEPHANT, LLC	0.00	257.36	16988
106 N10 E22 17CCAD1	KOTTKE LVNG TRST, DENNIS L & DIANE V	73.40	67.55	68739, 68740
106 N10 E22 17CCDB1	MOSCHOGLIANIS, PETER C.	0.00	0.31	34649
106 N10 E22 17DDAD1	SHEERIN, CHRISTOPHER H. & KERI A.	4.00	0.60	65494, 71130
106 N10 E22 18ABDA1	HOLBROOKE STATION, L.L.C.	0.00	0.02	31341
106 N10 E22 18ABDD1	HOLBROOKE STATION, L.L.C.	32.44	8.01	41463
106 N10 E22 18ACDA1	LODATO, JOSEPH S.	1.12	0.00	24469, 34906
106 N10 E22 18ADAC1	PINION PINES MHC, LLC	7.73	13.11	55478
106 N10 E22 18ABDB1	HEIDI D. & ROY B. ROACH 2002 TRUST	0.00	0.00	47318
106 N10 E22 18ABDB2	SIERRA ROADHOUSE	N/A	0.00	74486
106 N10 E22 18ADCD1	HEIDI D. & ROY B. ROACH 2002 TRUST	0.00	0.01	56925
106 N10 E22 18BADA1	ROACH, HEIDI D. AND ROY B.	7.06	9.10	35246
106 N10 E22 18BADA1	ROACH, HEIDI D. & ROY B.	1.00	0.00	69200
106 N10 E22 18DBDA1	NORTHERN NEVADA URGENT CARE, LLP	5.00	0.16	70877
106 N10 E22 22ADAD1	ALLRED, EVAN L.	0.00	0.00	16789
106 N10 E22 22BDAC1	ELEPHANT, LLC	0.00	0.00	13014
106 N10 E22 25BDAC1	BAWDEN, J.F.	204.00	597.25	70852, 70853
106 N10 E22 26ABCD1	BAWDEN, J.F.	204.00	299.87	70851
106 N10 E22 28DDBC1	DOUGLAS COUNTY	24.49	24.49	65918
106 N10 E22 29CBDB1	TOPAZ LODGE INC.	1.44	1.44	33662
106 N10 E22 29CCAA1	TOPAZ LODGE, INC.	23.02	14.43	48040, 48299
106 N10 E22 29CDCC1	TOPAZ LODGE, INC.	35.47	15.13	48041, 48300, 67426
106 N10 E22 29CDCD1	K & K WATER COMPANY, INC.	15.68	0.43	63415
106 N10 E22 29DCCC1	TOPAZ LODGE INC.	22.58	7.53	16425, 53073
106 N10 E22 32BBAD1	BAUER, CLYNE P.	0.00	0.00	59892
106 N10 E22 32BCDA1	KAHN, MORRIS.	14.45	0.28	35495
106 N10 E23 19BABA1	MATHEWSON, CHARLES N. TRUST	0.00	7.32	13013
No POC filed 9/11/2007	TOPAZ LODGE, INC.	0.00	0.00	52865
No POC filed 9/11/2007	GREGORY FAMILY TRUST	0.00	0.00	70902
No POC filed 9/11/2007	DA DEVELOPMENT, INC	0.00	0.00	71039