

**Compilation of Data for Isotope Mapping of Groundwater in the  
Central Valley of California, 1993-1995**

by

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A major stable isotope mapping project is underway that will provide important baseline information to the State of California in management of their groundwater resources. The results in this compilation represent a new technological application using isotope hydrology to better understand and predict the sustainability of California's groundwater supply for the future.

This project is driven by the fact that Californians inhabit a semi-arid region of seasonal precipitation, but have created a lifestyle and economic infrastructure requiring a sub-tropical climate. They have accomplished this by engineering systems that store and divert alpine runoff, and by utilizing a large, productive alluvial aquifer. In the past, both of these resources appeared to be unlimited. Two recent events have undermined California's confidence: 1) during the 1980's, California experienced a population increase of 6 million people, representing a staggering 2.5% annual growth rate that is comparable to the growth situation in many third-world countries, and 2) the 1987-1992 drought resulted in a prolonged, 40% decrease in annual water supplies.

Today, short-term and long-term water shortages are recognized, regardless of drought conditions (DWR, 1994). Because Californians maintain their current practices of prolific water use, the deep-seated competition between agricultural users and urban consumers has been amplified. This longstanding friction has been aggravated by the new-comer on the scene, environmental interests, that has recently acquired one-third of the available surface water resources for maintenance of aquatic habitats. As a policy, the State of California accepts and encourages the use of groundwater to supplement these diverse water demands.

Stable isotope imaging of the groundwater resources has proven to be the most economical and effective means to diagnose the health of the giant alluvial aquifer of the Central Valley (see Davisson and Criss, 1993, 1995; Davisson et al., 1993; Criss and Davisson, in press). Augmented by radiocarbon analysis and nitrate determinations, stable isotope data can be used to clearly distinguish groundwater recharged from natural or anthropogenic sources. Isotope maps delineate 1) the geographic distribution of various groundwater masses and of preferential recharge zones, 2) the sources and extent of non-point source pollution, and 3) the locations and rates of lateral flow channels. The different recharge rates of natural and modern groundwater bodies can be used to characterize safe yield parameters for aquifers (Davisson and Campbell, 1994, Davisson and Criss, 1995).

The following data tables serve to augment peer-review published literature on recent isotope work from the central Sacramento Valley to the northern San Joaquin Valley (Criss and Davisson, in press; Davisson and Criss, 1993, 1995). Their tabulation

and publication in this lab report provide public access to the results of the on-going isotopic mapping of California's groundwater resources.

**References:**

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**Table 1a: Surface Waters**

SAMPLE	DATE	$\delta^{18}\text{O}$	$\delta\text{D}$	DEPTH (FT)	T°C
10.1 MD	5/10/94	-4.1	-	5	20.5
10.2 MD	5/10/94	-4.2	-	10	21.0
10.3 MD	5/10/94	-4.1	-	15	19.0
10.4 MD	5/10/94	-4.4	-	20	17.8
10.5 MD	5/10/94	-4.5	-	25	14.0
10.6 MD	5/10/94	-4.4	-	30	16.0
10.7 MD	5/10/94	-4.0	-	35	20.0
10.8 MD	5/10/94	-4.4	-	40	15.3
Base of Dam	5/22/94	-4.5	-	-	-
Spr in Dam	5/22/94	-4.8	-	-	-
10.9 Putah Cr	5/11/94	-4.4	-	-	-
MD-1 Putah Cr	4/5/94	-4.4	-35.5	-	-
MD-2A	4/5/94	-4.2	-37.2	0	17.0
MD-2B	4/5/94	-4.3	-	3	16.5
MD-2C	4/5/94	-4.2	-34.6	10	8.0
MD-2D	4/5/94	-4.3	-	25	13.0
MD-2E	4/5/94	-4.5	-	50	12.0
MD-2F	4/5/94	-4.5	-35.8	100	-
MD-3	4/5/94	-4.2	-	0	17.0
MD-4A	4/5/94	-4.5	-	0	16.5
MD-4B	4/5/94	-4.5	-	3	16.5
MD-4C	4/5/94	-4.6	-	10	16.0
MD-4D	4/5/94	-4.5	-	25	12.0
MD-4E	4/5/94	-4.7	-	50	11.0
MD-4F	4/5/94	-4.7	-	100	-
MD-5	4/5/94	-4.5	-	0	17.0
MD-6 CLEAR LK	4/7/94	-2.1	-	0	17.0
MD-7A CLEAR LK	4/7/94	-2.1	-	0	17.0
MD-7B CLEAR LK	4/7/94	-2.1	-	3	15.0
MD-7C CLEAR LK	4/7/94	-2.1	-	10	15.0
MD-7D CLEAR LK	4/7/94	-2.0	-	20	15.0
MD-8A CLEAR LK	4/7/94	-2.0	-	0	17.0
MD-8B CLEAR LK	4/7/94	-2.0	-	3	15.0
MD-8C CLEAR LK	4/7/94	-2.1	-	10	15.0
MD-8D CLEAR LK	4/7/94	-2.1	-	20	15.0
MD-9 CLEAR LK	4/7/94	-2.1	-	0	17.5
Rain-Davis	4/8/94	-8.0	-	-	-

**Table 1b: Southern Sacramento Valley Groundwaters**

SAMPLE	DATE	LOCATION	$\delta^{18}\text{O}$	$\delta\text{D}$	$\text{NO}_3$
SVA-1	6/9/92	T9N R2E 20D	-5.3	-	-
SVA-2	6/9/92	T9N R2E 14N	-5.7	-	-
SVA-2B	6/9/93	T9N R2E 14N	-5.6	-	-
SVA-3	6/9/92	T10N R4E 13R	-6.7	-	-
SVA-4	6/9/92	T9N R2E 32E	-6.3	-	-
SVA-4B	7/13/93	T9N R2E 32E	-6.2	-	-
SVA-4C	4/25/93	T9N R2E 32E	-6.2	-48	-
SVA-6	4/25/93	T8N R2E 7D	-6.2	-46	-
SVA-7	4/25/93	T8N R2E 7M	-6.2	-45	-
SVA-8	4/25/93	T9N R1E 25Q	-7.3	-49	-
SVA-9	4/25/93	T9N R2E 31C	-6.0	-43	-
SVA-11	4/25/93	T9N R2E 35D	-6.6	-45	-
SVA-12	4/25/93	T9N R2E 25M	-6.3	-	-
SVA-13	4/25/93	T10N R2E 35M	-5.4	-	-
SVA-14	4/25/93	T9N R2E 10M	-5.3	-41	-
SVA-15	4/25/93	T9N R2E 31M	-6.6	-46	-
SVA-16	4/29/93	T10N R1W 19	-5.0	-	30
SVA-17	4/29/93	T10N R1W 27C	-6.0	-	25
SVA-19	4/29/93	T9N R1W 22E	-5.1	-	25
SVA-20	4/29/93	T9N R1E 31K	-5.3	-	20
SVA-21	4/29/93	T9N R1E 1M	-5.1	-	25
SVA-22	4/29/93	T9N R1W 36E	-6.5	-	-
SVA-23	4/29/93	T8N R1E 9B	-6.3	-	-
SVA-24	4/29/93	T9N R2E 20M	-5.7	-42	50
SVA-25	4/29/93	T8N R2E 6M	-6.4	-45	-
SVA-26	5/1/93	T8N R1E 3Q	-6.9	-	-
SVA-27	5/1/93	T8N R2E 31E	-6.2	-42	-
SVA-28	5/1/93	T8N R2E 33E	-7.0	-47	-
SVA-29	5/1/93	T7N R2E 5A	-6.9	-51	-
SVA-29B	7/8/93	T7N R2E 5A	-6.9	-	-
SVA-30	5/2/93	T7N R2E 18N	-5.5	-	100
SVA-31	5/2/93	T7N R2E 19N	-6.2	-	-
SVA-32	5/2/93	T8N R2E 31J	-6.8	-46	-
SVA-33	5/2/93	T8N R2E 27N	-6.6	-46	-
SVA-34	5/4/93	T8N R2E 5E	-6.7	-46	-
SVA-34B	7/13/93	T8N R2E 5E	-6.8	-	-
SVA-35	5/16/93	T9N R1E 1M	-5.3	-	50
SVA-36	5/16/93	T9N R1E 17N	-4.9	-	-

**Table 1b: Southern Sacramento Valley Groundwaters**

SAMPLE	DATE	LOCATION	$\delta^{18}\text{O}$	$\delta\text{D}$	$\text{NO}_3$
SVA-37	5/15/93	T8N R3E 30D	-6.5	-	-
SVA-38	5/15/93	T8N R3E 5M	-7.4	-	-
SVA-39	5/23/93	T9N R2E 26E	-6.0	-47	-
SVA-40	6/1/93	T8N R2E 35K	-7.1	-51	-
SVA-41	6/9/93	T8N R3E 6K	-6.9	-	-
SVA-42	6/9/93	T9N R2E 21D	-5.8	-46	-
SVA-44	6/9/93	T10N R2E 5K	-6.2	-	-
SVA-45	6/9/93	T10N R2E 6M	-6.3	-	-
SVA-47	6/9/93	T10N R1E 10F	-6.1	-	-
SVA-48	6/9/93	T10N R1E 15E	-6.8	-	-
SVA-49	6/9/93	T10N R1E 33M	-6.4	-	-
SVA-50	6/9/93	T11N R1E 36H	-6.0	-	-
SVA-51	6/9/93	T11N R2E 29D	-6.1	-	-
SVA-52	6/9/93	T11N R2E 20Q	-5.8	-	50
SVA-53	6/9/93	T11N R2E 33E	-5.7	-	10
SVA-54	6/9/93	T11N R1E 14R	-6.4	-	-
SVA-55	6/9/93	T11N R1E 35D	-5.8	-	20
SVA-56	6/9/93	T10N R2E 7N	-6.0	-	-
SVA-57	6/19/93	T11N R1E 16N	-6.8	-	-
SVA-58	7/3/93	T9N R2E 18M	-6.1	-47	-
SVA-59	7/3/93	T9N R1E 1C	-5.1	-	100
SVA-60	7/3/93	T9N R1E 10C	-8.3	-	-
SVA-60B	7/13/93	T9N R1E 10C	-8.9	-	-
SVA-61	7/3/93	T9N R2E 31M	-6.9	-50	-
SVA-62	7/3/93	T8N R1E 12G	-6.4	-48	-
SVA-63	7/3/93	T8N R1W 13E	-5.9	-	40
SVA-64	7/3/93	T8N R1W 11A	-6.1	-47	-
SVA-65	7/3/93	T8N R1W 11F	-6.0	-	-
SVA-66	7/3/93	T8N R2E 31A	-6.9	-51	-
SVA-67	7/3/93	T7N R1E 1C	-6.1	-45	-
SVA-69	7/3/93	T8N R1E 28G	-6.8	-	-
SVA-70	7/3/93	T8N R1E 23Q	-6.6	-47	-
SVA-71	7/3/93	T8N R1E 23G	-5.3	-41	35
SVA-72	7/3/93	T8N R1E 25N	-6.6	-46	-
SVA-73	7/4/93	T8N R1W 23B	-5.7	-	10
SVA-74	7/4/93	T8N R1W 36D	-4.8	-	-
SVA-75	7/4/93	T7N R1W 1B	-6.1	-	-
SVA-76	7/7/93	T9N R3E 32E	-6.3	-	-

**Table 1b: Southern Sacramento Valley Groundwaters**

SAMPLE	DATE	LOCATION	$\delta^{18}\text{O}$	$\delta\text{D}$	$\text{NO}_3$
SVA-77	7/7/93	T8N R3E 6M	-6.9	-	-
SVA-78	7/7/93	T8N R2E 36K	-7.2	-	-
SVA-79	7/7/93	T8N R2E 34L	-6.9	-49	-
SVA-80	7/7/93	T7N R2E 10D	-6.9	-50	-
SVA-80B	7/7/93	T7N R2E 10D	-6.4	-	-
SVA-81	7/8/93	T6N R2E 5M	-7.0	-	-
SVA-82	7/8/93	T7N R2E 28C	-6.7	-	-
SVA-83	7/9/93	T7N R2E 7G	-5.7	-41	50
SVA-84	7/9/93	T9N R1E 11B	-6.4	-	-
SVA-85	7/9/93	T9N R2E 8M	-5.4	-43	50
SVA-86	7/10/93	T9N R1E 22M	-4.8	-	35
SVA-87	7/12/93	T8N R1E 10M	-6.7	-	-
SVA-88	7/13/93	T9N R1E 35Q	-5.9	-45	15
SVA-89	7/13/93	T9N R1E 26M	-5.2	-	30
SVA-90	7/13/93	T10N R1E 34D	-7.7	-	-
SVA-91	7/13/93	T9N R2E 29E	-5.1	-41	50
SVA-92	7/14/93	T8N R1W 17M	-7.5	-	-
SVA-93	7/14/93	T8N R2E 13Q	-6.6	-	-
SVA-94	7/15/93	T8N R1E 32E	-5.5	-	-
SVA-95	7/15/93	T7N R1E 5B	-6.2	-	-
SVA-96	7/15/93	T8N R1W 25A	-5.7	-	35
SVA-97	7/15/93	T8N R1E 28D	-6.4	-	-
SVA-98	7/15/93	T8N R2E 29B	-6.5	-	-
SVA-99-1	Jul-93	T8N R1W 22G	-6.3	-	-
SVA-99-2	Jul-93	T8N R1W 22G	-6.3	-	-
SVA-100	7/17/93	T8N R1W 13H	-5.9	-	-
SVA-101	7/17/93	T8N R1W 13G	-5.7	-	50
SVA-102	7/17/93	T11N R3W 36N	-6.9	-	-
SVA-103	7/17/93	T10N R1E 2E	-5.6	-	10
SVA-104	7/17/93	T10N R2E 17B	-5.9	-	25
SVA-105	7/20/93	T10N R2E 18D	-5.8	-	25
SVA-106	7/20/93	T10N R2E 3N	-5.8	-	50
SVA-107	7/20/93	T10N R2E 23D	-5.1	-	25
SVA-108	7/22/93	T11N R1E 24P	-5.6	-	15
SVA-109	7/22/93	T11N R1E 35E	-6.4	-	-
SVA-110	7/22/93	T10N R1E 2R	-6.0	-	-
SVA-111	7/26/93	T10N R2E 8Q	-6.1	-	-
SVA-112	7/26/93	T10N R2E 8L	-6.6	-	-

**Table 1b: Southern Sacramento Valley Groundwaters**

SAMPLE	DATE	LOCATION	$\delta^{18}\text{O}$	$\delta\text{D}$	$\text{NO}_3$
SVA-113	7/26/93	T10N R2E 8E	-5.8	-	25
SVA-114	7/26/93	T10N R2E 8D	-5.9	-	40
SVA-115	Jul-93	T9N R2W 1	-7.3	-	-
SVA-116	Jul-93	T8N R1W 11D	-5.7	-	35
SVA-117	Jul-93	T9N R1E 4N	-3.9	-	35
SVA-118	Jul-93	T10N R2W 25D	-7.9	-	-
SVA-119	Jul-93	T9N R1E 1C	-5.1	-	-
SVA-120	Jul-93	T8N R1E 2B	-5.7	-	-
SVA-122	8/3/93	T8N R1E 7Q	-5.4	-	25
SVA-124	8/3/93	T8N R1W 34G	-4.3	-	-
SVA-125	8/8/93	T10 R1E 24E	-5.6	-	25
SVA-126	8/8/93	T10 R1E 13	-5.4	-	15
SVA-127	8/8/93	T10 R2E 18D	-6.4	-	-
SVA-128	8/10/93	T7N R1E 11	-5.1	-	-
SVA-129	8/10/93	T8N R1W 26F	-5.1	-	-
SVA-130	8/10/93	T8N R1W 27F	-3.4	-	-
SVA-131	8/10/93	T8N R1W 34B	-5.2	-	5
SVA-132	8/10/93	T8N R1W 29F	-7.1	-	-
SVA-133	8/14/93	T10N R1W 16	-5.7	-	25
SVA-134	8/14/93	T10N R1E 27J	-5.6	-	25
SVA-135	8/15/93	T10N R2E 3P	-6.0	-	-
SVA-137	8/18/93	T8N R1W 20J	-7.4	-	-
SVA-138	8/18/93	T10N R1W 27Q	-6.1	-	-
SVA-139	8/18/93	T8N R1W 28Q	-3.3	-	-
SVA-140	8/18/93	T10N R1W 33L	-6.9	-	-
SVA-141	8/18/93	T10N R1W 26N	-6.0	-	-
SVA-142	8/18/93	T11N R1W 33N	-6.4	-	-
SVA-143	8/18/93	T8N R2E 1K	-6.8	-	-
SVA-144	9/20/93	T9N R2E 14	-5.4	-	0
SV-JF-9-91	Sep-91		-8.7	-	-
DH-JF-2-320'	2/21/91		-8.8	-61	-
GT-HW	2/21/91		-7.7	-51	-
GT-IW	2/21/91		-7.5	-	-
BH-1	2/21/91	T11N R1W 13	-7.6	-51	-
BH-2	2/21/91	T11N R1W 19	-7.7	-	-
24SV-230'	1/27/91	T11N R1W 19	-5.8	-45	-
9-1-34N1	8/18/93	T9N R1E 34N	-5.0	-	-
8-1-7R1	8/18/93	T8N R1E 7R	-5.2	-	-

**Table 1b: Southern Sacramento Valley Groundwaters**

SAMPLE	DATE	LOCATION	$\delta^{18}\text{O}$	$\delta\text{D}$	$\text{NO}_3$
8-1-20J2	8/18/93	T8N R1W 20J	-7.5	-	-
9-1-21E1	8/18/93	T9N R1W 21E	-5.0	-	-
M7	1/27/91	T8N R3E 20H	-7.3	-	-
17-3	1/27/91	T9N R3E 17N	-5.9	-	-
MW-1	1/27/91	T10N R2E 36E	-5.5	-	-
MW-4	1/27/91	T9N R3E 19R	-6.3	-	-
7W1	1/27/91	T9N R3E 7D	-5.9	-	-
33NW3	1/27/91	T10N R3E 33C	-6.0	-	-
LR-25	1/27/91	T8N R3E 28J	-6.9	-	-
G5	1/27/91	T8N R3E 15E	-7.3	-	-
33NW2	1/27/91	T10N R3E 33C	-5.9	-	-
SW1	1/27/91	T9N R3E 25J	-7.0	-	-
DW-1	1/27/91	T10N R3E 28Q	-7.5	-	-
49SW	1/27/91	T8N R3E 15R	-7.5	-	-
57SW	1/27/91	T8N R3E 23L	-7.1	-	-
20-1	1/27/91	T9N R3E 20A	-6.3	-	-
LR-24	1/27/91	T8N R3E 29H	-6.8	-	-
21-3	1/27/91	T9N R3E 21B	-6.8	-	-
LR-27	1/27/91	T8N R3E 27J	-7.0	-	-
55SE	1/27/91	T8N R3E 12B	-7.3	-	-
MW-1 DEEP	1/27/91	T10N R2E 36E	-5.6	-	-
SW4	1/27/91	T9N R3E 26E	-6.7	-	-
MW5	1/27/91	T9N R3E 33B	-6.2	-	-
ROSA	1/27/91	T10N R3E 35E	-9.1	-64	-
LR-33	Jun-92	T8N R3E 33A	-7.1	-50	-
CHILES	Jun-92	T8N R3E 9B	-7.0	-50	-
57NW	Jun-92	T8N R3E 23C	-7.6	-55	-
LR-29	Jun-92	T8N R3E 26E	-7.2	-51	-
LR-G3	Jun-92	T8N R3E 121P	-6.9	-49	-
LR-22	Jun-92	T8N R3E 120Q	-7.6	-54	-
MW-9-S	Jun-92	T10N R3E 12B	-6.9	-58	-
OW-2	Jun-92	T10N R3E 28Q	-9.3	-69	-
MW-9	Jun-92	T10N R3E 33B	-6.4	-53	-
MW-15	Jun-92	T10N R3E 35N	-10.4	-75	-
MW-10 S	Jun-92	T10N R3E 32D	-7.6	-60	-
MW-10 D	Jun-92	T10N R3E 32D	-5.3	-44	-
DW-5	Jun-92	T10N R3E 28R	-9.5	-71	-
MW-8 S	Jun-92	T10N R3E 28R	-10.8	-81	-

**Table 1b: Southern Sacramento Valley Groundwaters**

SAMPLE	DATE	LOCATION	$\delta^{18}\text{O}$	$\delta\text{D}$	$\text{NO}_3$
MW-8 D	Jun-92	T10N R3E 28R	-9.9	-74	-
33NW1	Jun-92	T10N R3E 33D	-5.9	-	-
33NW4	Jun-92	T10N R3E 33C	-6.8	-	-
SW-3	Jun-92	T9N R3E 23Q	-6.9	-	-
SW-5	Jun-92	T9N R3E 34Q	-7.7	-	-
6N1	Jun-92	T9N R3E 6N	-6.9	-	-
31W2	Jun-92	T9N R3E 6H	-5.6	-	-
31W1	Jun-92	T10N R3E 31H	-5.9	-	-
32NW1	Jun-92	T10N R3E 32B	-5.5	-	-

**Table 1c: Municipal Wells, Southern Sacramento Valley**

SAMPLE	DATE	LOCATION	$\delta^{18}\text{O}$	APPARENT $^{14}\text{C}$ AGE	$\text{NO}_3$	DIC
<b>Sacramento</b>						
SAC. R.	3/16/93	T9N R4E 35	-10.6	>modern	-	57
SCW-RC	3/16/93	T8N R4E 11L	-10.5	>modern	-	136
SCW-1	3/16/93	T8N R4E 14H	-10.2	-	-	-
SCW-4	3/16/93	T8N R4E 24D	-9.6	-	-	-
SCW-10	3/16/93	T8N R4E 23P	-10.9	-	-	-
SCW-20	3/16/93	T8N R5E 16K	-8.3	-	-	-
SCW-41	3/16/93	T8N R5E 20R	-7.3	16,000	-	106
SCW-46	3/16/93	T8N R4E 36E	-9.3	-	-	-
SCW-83	3/16/93	T7N R5E 10N	-7.1	-	-	-
SCW-85	3/16/93	T8N R5E 27R	-7.0	9,000	-	92
SCW-92	3/11/93	T9N R5E 19J	-7.9	-	-	-
SCW-94	3/11/93	T9N R5E 18R	-7.1	-	-	-
SCW-107	3/16/93	T7N R5E 9R	-6.9	-	-	-
SCW-108	3/16/93	T8N R4E 36L	-8.0	-	-	-
SCW-120	3/11/93	DEL PASO 13A	-7.3	-	-	-
SCW-122	3/11/93	DEL PASO 16F	-7.3	-	-	-
SCW-129	3/11/93	DEL PASO 12B	-7.3	-	-	-
SCW-133	3/11/93	DEL PASO 4E	-7.4	-	-	-
SCW-142	3/11/93	DEL PASO 2R	-7.6	-	-	-
SCW-144	3/11/93	DEL PASO 16B	-7.5	-	-	-
SCW-146	3/16/93	T8N R5E 14B	-9.6	-	-	-
SCW-151	3/11/93	DEL PASO 1E	-9.2	360	-	112
SCW-154	3/11/93	DEL PASO 19D	-7.2	-	-	-
SCW-155	3/11/93	DEL PASO 26F	-7.5	-	-	-
SCW-156	3/11/93	DEL PASO 14R	-7.9	-	-	-
SCW-157	3/11/93	DEL PASO 68B	-8.5	-	-	-
SCW-158	3/11/93	DEL PASO 15Q	-8.0	-	-	-
SCW-159	3/11/93	DEL PASO 2L	-7.8	-	-	-
SCW-160	3/16/93	T7N R4E 9B	-10.8	>modern	-	52
<b>Davis</b>						
DCW-18	Nov-92	T8N R2E 8N	-6.2	330	38	520
DCW-19	Nov-92	T8N R2E 4K	-7.4	3560	12	430
DCW-21	Nov-92	T8N R3E 7F	-7.3	4250	4	400
DCW-22	Nov-92	T8N R2E 11A	-7.1	3850	18	410
DCW-26	8/25/93	T8N R2E 11R	-7.3	-	-	520
DCW-EM3	8/25/93	T8N R3E 7N	-7.1	-	-	520

**Table 1c: Municipal Wells, Southern Sacramento Valley**

SAMPLE	DATE	LOCATION	$\delta^{18}\text{O}$	APPARENT $^{14}\text{C}$ AGE	$\text{NO}_3$	DIC
UCD-DW-2	4/23/93	T8N R2E 15M	-8.8	17,500	0	300
UCD-DW4	4/23/93	T8N R2E 21Q	-6.2	-	-	-
UCD-DW-5	4/23/93	T8N R2E 16R	-8.1	14,100	1	300
UCD-DW-6A	4/23/93	T8N R2E 20B	-8.0	10,900	3	305
UCD-UW 2	4/23/93	T8N R2E 16H	-6.2	-	-	-
UCD-UW 3	4/23/93	T8N R2E 15M	-6.4	-	-	-
UCD-UW 4	4/23/93	T8N R2E 16C	-6.3	-	-	-
UCD-UW 7	4/23/93	T8N R2E 16N	-5.9	-	-	-
<b>Woodland</b>						
CW-1	6/23/93	T10N R2E 32A	-5.4	-	-	-
CW-4	6/23/93	T10N R2E 29M	-5.3	2,500	-	285
CW-5	6/23/93	T10N R2E 32P	-5.2	-	-	-
CW-6	6/23/93	T10N R2E 32D	-5.3	-	-	-
CW-9	6/23/93	T9N R2E 5H	-5.2	1,500	35	510
CW-10	6/23/93	T10N R2E 30F	-5.4	-	-	-
CW-11	6/23/93	T10N R2E 31F	-5.2	-	-	-
CW-12	6/23/93	T10N R2E 21Q	-5.0	-	-	-
CW-13	6/23/93	T9N R2E 6C	-5.1	720	23	380
CW-14	6/23/93	T10N R2E 28R	-5.0	2,250	6	260
CW-15	6/23/93	T10N R2E 33E	-5.4	1,750	26	330
CW-17	6/23/93	T9N R2E 6E	-5.1	-	-	-
CW-19	6/23/93	T10N R2E 29H	-5.3	1,250	18	330
CW-20	6/23/93	T10N R2E 30N	-5.1	-	-	-
CW-21	6/23/93	T10N R2E 30C	-5.4	2,100	14	270