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CHEMICAL ANALYSES OF WATER FROM SELECTED WELLS AND SPRINGS IN THE YUCCA MOUNTAIN AREA, NEVADA AND SOUTHEASTERN CALIFORNIA

U.S. GEOLOGICAL SURVEY

Open-File Report 90-355

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Prepared in cooperation with the
NEVADA OPERATIONS OFFICE,
U.S. DEPARTMENT OF ENERGY under
Interagency Agreement DE-AI08-78ET44802

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By P.W. McKinley, M.P. Long, and L.V. Benson

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Denver, Colorado
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U.S. DEPARTMENT OF THE INTERIOR

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CONTENTS

	Page
Abstract	1
Introduction	1
Presentation of data	1
Explanation of column headings and abbreviations used in tables	3
Amargosa Desert area	8
Death Valley area	18
Nevada Test Site area	24
Oasis Valley area	34
Spring Mountains area	40
References cited	46

PLATE

Plate 1. Map showing the location of wells and springs sampled in the Yucca Mountain area, Nevada and southeastern California----------In pocket

FIGURES

	Page
Figures 1-6. Maps showing:	
1. Location of the sampling areas in Nevada and California	3
2. Location of wells and springs in the Amargosa Desert area	9
3. Location of wells and springs in the Death Valley area	19
4. Location of wells and springs in the Nevada Test Site area	25
5. Location of wells and springs in the Oasis Valley area	35
6. Location of wells and springs in the Spring Mountains area	41

TABLES

	Page
Table 1. Records of selected wells and springs in the Amargosa Desert area	10
2. Chemical analysis of water from selected wells and springs in the Amargosa Desert area	14
3. Records of selected wells and springs in the Death Valley area	20
4. Chemical analysis of water from selected wells and springs in the Death Valley area	22
5. Records of selected wells and springs in the Nevada Test Site area	26

		Page
Table 6.	Chemical analysis of water from selected wells and springs in the Nevada Test Site area	30
7.	Records of selected wells and springs in the Oasis Valley area	36
8.	Chemical analysis of water from selected wells and springs in the Oasis Valley area	38
9.	Records of selected wells and springs in the Spring Mountains area	42
10.	Chemical analysis of water from selected wells and springs in the Spring Mountains area	44

CONVERSION FACTORS

Multiply metric unit	*By*	*To obtain inch-pound unit*
kilometer (km)	0.6214	mile
liter per second (L/s)	15.85	gallon per minute
liter per second (L/s)	0.03531	cubic foot per second
meter (m)	3.281	foot

Temperature in degree Celsius (°C) may be converted to degree Fahrenheit (°F) by using the following equation:

$$°F = 9/5(°C) + 32 .$$

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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ABSTRACT

Chemical analysis of water samples from 279 wells and springs in the Yucca Mountain area are presented. Where data are available, this report includes: site location expressed as Nevada Central Coordinates and latitude and longitude; source of data; name of analyzing laboratory; geologic unit from which water was obtained; lithology; water use; elevation of well or spring; well depth; depth to water; time pumped before taking the sample; yield; type of filtration; sampling method; date the sample was collected; and anion-cation balance.

INTRODUCTION

Yucca Mountain, Nevada (fig. 1), is being investigated by the U.S. Geological Survey, in cooperation with the U.S. Department of Energy, as a possible repository for the disposal of high-level nuclear wastes. Yucca Mountain is underlain by partially altered volcanic tuffs that probably extend to depths greater than 3,000 m (Snyder and Carr, 1982). If approved, the repository will most likely be excavated within the unsaturated zone, 150 to 300 m above the water table. One concern is that radionuclides might be leached from the stored wastes and eventually reach the saturated zone, where they would be transported in the ground-water system away from the repository.

The purpose of this report is to present a data base that consolidates the available ground-water data for the area surrounding the potential Yucca Mountain nuclear-waste repository. The objective of assembling this data is to provide a data base that potentially could be used to help determine: (1) Ground-water flow paths; (2) velocities and residence times of ground water; (3) the degree of vertical and lateral chemical heterogeneity of the ground-water system; and (4) chemical processes that affect the potential movement radionuclide species.

PRESENTATION OF DATA

Data are presented for 279 wells and springs in the Yucca Mountain area. The location of the wells and springs is shown on plate 1. The area covered by this data base (fig. 1) has been divided into five smaller geographic areas: Amargosa Desert, Death Valley, Nevada Test Site, Oasis Valley, and Spring Mountains (figs. 2-6).

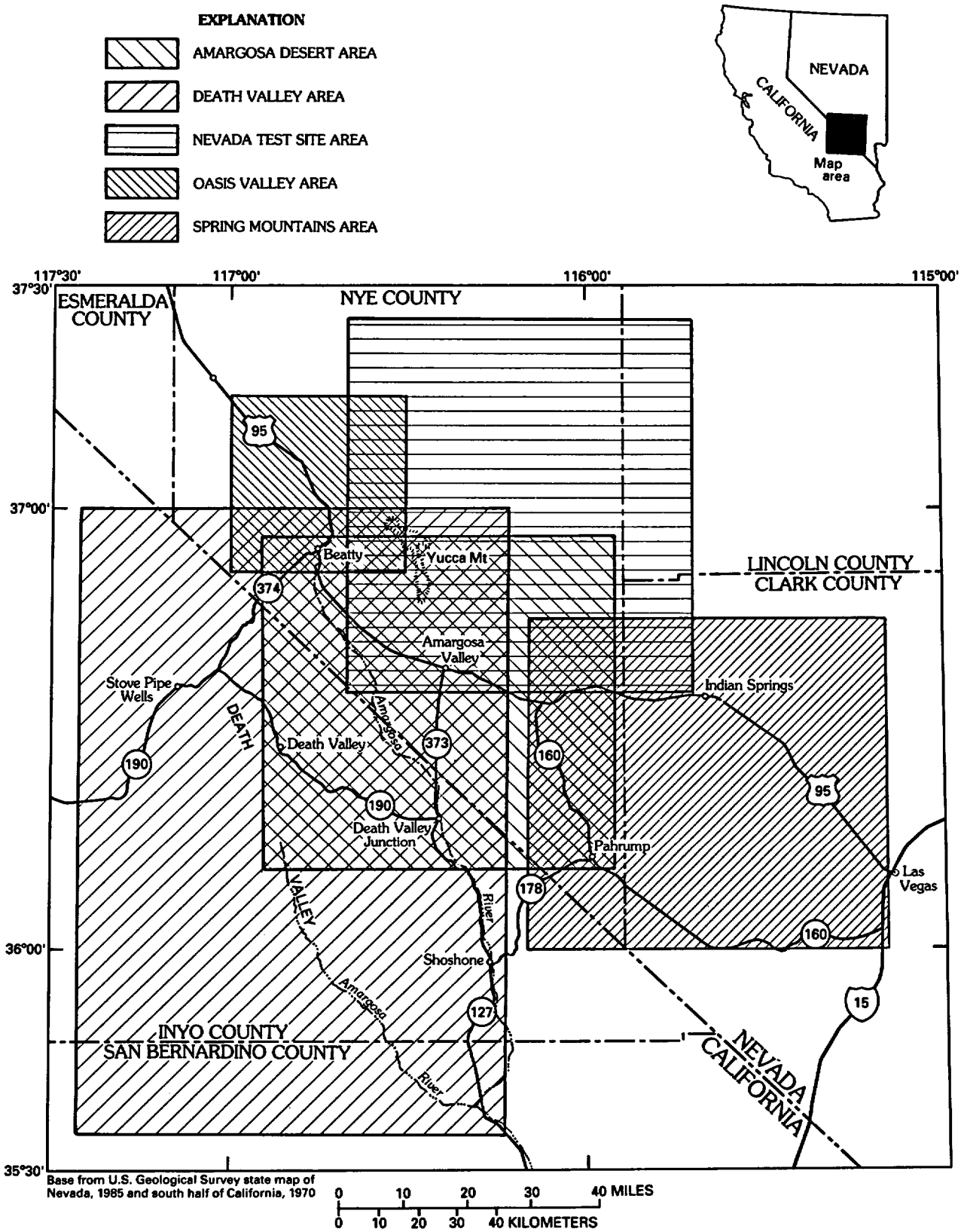

Figure 1.--Location of the sampling areas in Nevada and California.

For each geographic area, the data are divided into two tables. The first table for each area contains information about the sample-site location, source, and well and spring data (tables 1, 3, 5, 7, 9); the second contains information describing the chemical analysis of water from the selected wells and springs (tables 2, 4, 6, 8, 10). For ease of reference, each group of tables is preceded by a figure, as noted above, that shows the location of wells and springs in that geographic area.

The tables include available information on the following topics: site name; location (expressed in Nevada Central Coordinates and latitude and longitude); source of data; name of the analyzing laboratory; geologic unit from which water was obtained; lithology; water use; elevation of well or spring; well depth; depth to water; time pumped before taking the sample; yield; type of filtration; sampling method, date the sample was collected; ion concentrations; anion-cation balance; dissolved solids; field pH; laboratory pH; field-specific conductance, unless noted otherwise in text; and water temperature.

The data source, sampling method, filtration information, name of the analyzing laboratory and anion-cation balance of the analysis are included to aid the user in assessing the quality of the data. Most of the data presented are taken from U.S. Geological Survey sources, and techniques are documented in "Techniques of Water-Resources Investigations" manuals.

Explanation of Column Headings and Abbreviations Used in Tables

Site number: A sequentially assigned number for each sampling site used in figures and tables.

Site name: A local name is given priority; township and range is sometimes used in addition to the local name, if space is available, or if a local name is not given. Wells in the Amargosa Desert, in Pahrump Valley, and elsewhere along the periphery of the study area may be identified by township, range, and section. In the part of the study area in Nevada, the townships are south of the Mount Diablo base line; the ranges are all east of the Mount Diablo meridian. Therefore, these geographic designations are not given in the well designation. For example, a well in the NW¼ sec. 18, T. 18 S., R. 51 E., is identified simply by 18S/51E-18b. The letters a, b, c, or d, which follow the section number, refer respectively to the northeast, northwest, southwest, and southeast quarter sections. Double letters that follow a section number identify a well site in a 40-acre tract. Thus the well number for location SW¼SE¼ sec. 31, T. 25 N., R. 6 E., is 25N/6E-31dc.

The following abbreviations are used as part of some site names.

AFB	Air Force Base
Ca	California
CR	Creek
DVJ	Death Valley Junction
L	Lake
M	Meters
MN DFT	Main Drift
Mtns	Mountains
NR	Near

NV	Nevada
No.	Number
OBS	Observation
R	Ranch
RECS	Records
Spr	Spring
ST	Station
SW	Southwest
USAF	U.S. Air Force
USW	Yucca Mountain Project (formerly Nevada Nuclear Waste Storage Investigations) well

Nevada Central Coordinates: Nevada State Coordinates are used to identify location of wells located within or in the immediate vicinity of the Nevada Test Site. These coordinates are for the central zone of Nevada and are based on a Transverse Mercator projection. The origin of this projection for the central zone of Nevada is latitude 34°45' N., and the central meridian is at longitude 116°40' W. The Nevada State Coordinates given in the section on well data are in feet north of the baseline and in feet plus 500,000 east of the central meridian. Latitude and longitude values of the wells were calculated from the Nevada State Coordinates or determined from map locations for sites off the Nevada Test Site.

Latitude and longitude: Given in degrees, minutes, and seconds. Latitudes are north of the equator; longitudes are west of the prime meridian.

Data source: Author (or authors) and date of publication are given for published reports; see References Cited. Abbreviations are as follows: USGS, previously unpublished U.S. Geological Survey data; EPA, data from the U.S. Environmental Protection Agency office in Las Vegas, Nevada; WATSTORE, data in the U.S. Geological Survey National Water Data Storage and Retrieval System data base.

Analyzing laboratory: Name of the analyzing laboratory, as follows:

CADWR	California Department of Water Resources
DRI	Desert Research Institute
EPA	U.S. Environmental Protection Agency
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey

Aquifer: Geologic unit from which water was obtained.

Є	Cambrian rocks, undivided
Єc	Carrara Formation
Pz	Paleozoic rocks, undivided
pЄ	Precambrian rocks, undivided
Pzc	Paleozoic carbonate rocks
Qal	Quaternary alluvium
Ql	Quaternary lacustrine deposits
QTal	Quaternary-Tertiary alluvium
QTf	Quaternary-Tertiary fanglomerate

QTs	Quaternary-Tertiary sandstone
Qr	Quaternary-alluvial fan deposits
DSlm	Devonian and Silurian Lone Mountain Dolomite
Srm	Silurian Roberts Mountain Formation
Tc	Tertiary conglomerate
Tcb	Tertiary Bullfrog Member of Crater Flat Tuff
Tcp	Tertiary Prow Pass Member of Crater Flat Tuff
Tctt	Tertiary Tram Member of Crater Flat Tuff
Th	Tertiary Tuffaceous beds of Calico Hills
Tlr	Tertiary Lithic Ridge Tuff
Tmr	Tertiary Rainier Mesa Member of Timber Mountain Tuff
Tpt	Tertiary Topopah Spring Member of Paintbrush Tuff
Tos	Tertiary Oak Spring Formation (of former usage)
Tct	Tertiary Crater Flat Tuff
Tv	Tertiary volcanic rocks
Tw	Tertiary Wahmonie Formation

Lithology: Rock type of the water-bearing formation.

DOLO	Dolomite
LS	Limestone
NWTUFF	Nonwelded tuff
PC SED	Paleocarbonate sediment
RHY	Rhyolite
RHY/TUFF	Rhyolite and tuff
RHY & WTUFF	Rhyolite and welded tuff
S/G	Sand and gravel
SS	Sandstone
SILT & DOLO	Siltstone and dolomite
UNCONSOLID	Unconsolidated

Use: Primary use of the well or spring at the time of sampling.

DOM	Domestic supply
EMPLACE	Emplacement
IND	Industrial
IRR	Irrigation
OBS	Observation well
PS	Public supply
STOCK	Stock supply
TEST	Test well

Elevation: Elevation, in meters, above sea level of land surface or well head; NA (not applicable) is used for tunnel samples at the Nevada Test Site.

Well depth: Distance from land surface to the bottom of the well, in meters; springs are noted as NA (not applicable).

Water depth: Depth to water from the land surface, in meters.

Pumping time: Length of time the well was pumped before the sample was taken, in hours.

Yield: The rate at which the well or spring produced water, in liters per second.

Sampling method: The method of collecting samples (pump, bailer).

Filtration: Pore size of the filter paper, in micrometers.

Date: Date the sample was collected.

Anion-cation balance: The difference between the calculated equivalance of anions and cations divided by their sum and multiplied by 100 to give the results in percent.

AMARGOSA DESERT AREA

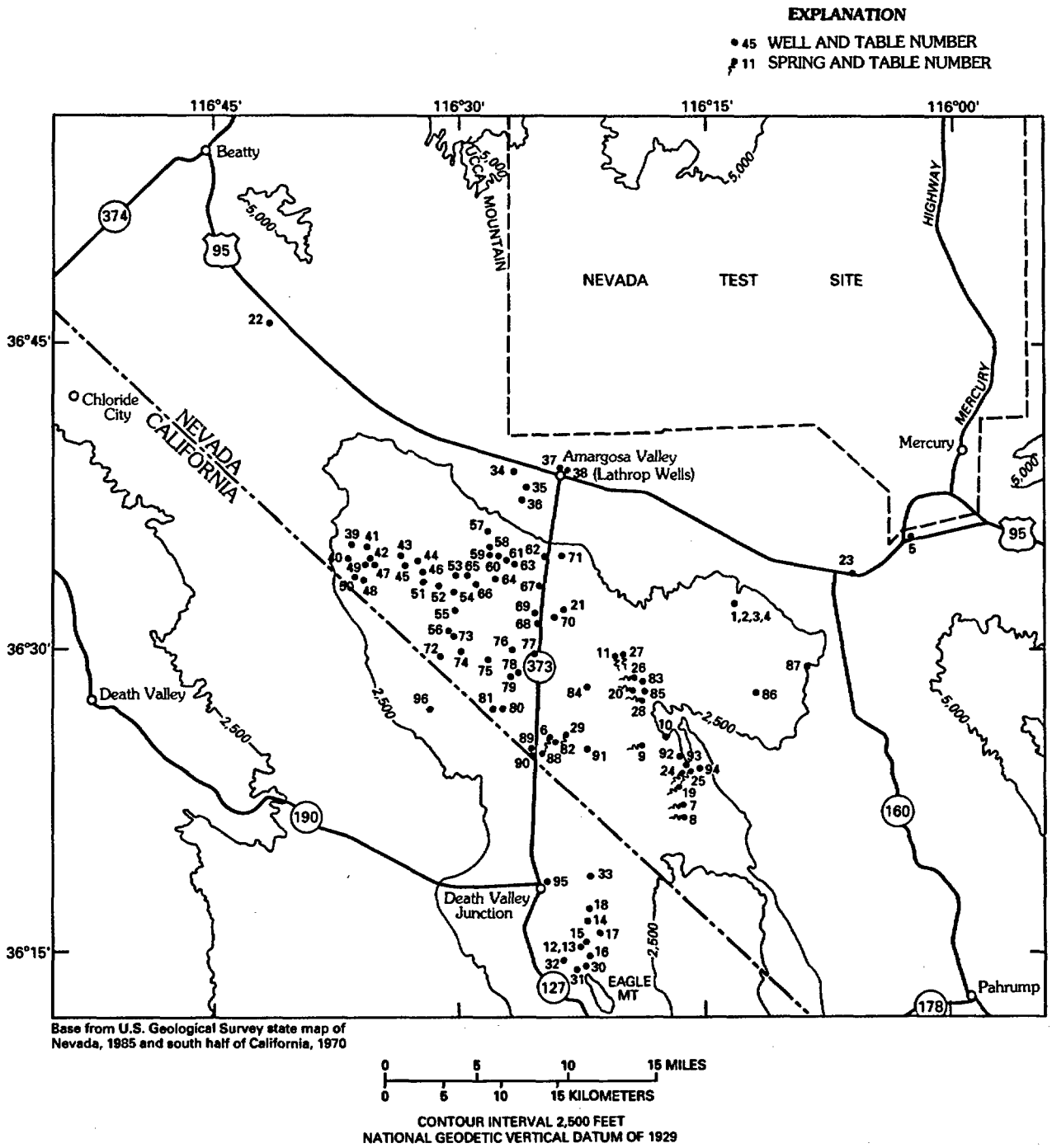

Figure 2.--Location of wells and springs in the Amargosa Desert area.

Table 1.--*Records of selected wells and*

[m, meters; h, hours; L/s, liters per second; µm,

Site number	Site name	Nevada Coordinates North	Nevada Coordinates East	Latitude	Longitude	Data source	Analyzing laboratory
1	Amargosa Alluvium OBS Hole	650572	629255	36°32'12"	116°13'36"	USGS	USGS
2	Amargosa Tracer Hole No. 1	650795	629206	36°32'13"	116°13'37"	USGS	USGS
3	Amargosa Tracer Hole No. 2	650523	629037	36°32'11"	116°13'39"	USGS	USGS
4	Amargosa Tracer Hole No. 3	650730	629130	36°32'13"	116°13'80"	USGS	USGS
5	Army 1 (Army 6B)	670902	684772	36°35'30"	116°02'14"	USGS	USGS
6	Ash Tree Spring 17S/49E-35ddd	610200	575000	36°25'35"	116°24'42"	(1), USGS	USGS
7	Big Spring 18S/51E-19a	591600	615600	36°22'29"	116°16'26"	USGS	USGS
8	Bole Spring 18S/51E-30a	587500	617000	36°21'47"	116°16'21"	(4)	USGS
9	Crystal Spring 18S/50E-03a	608300	601400	36°25'15"	116°19'19"	USGS	USGS
10	Devils Hole 17S/50E-36ccd	610100	610600	36°25'32"	116°17'27"	(2), USGS	USGS
11	Fairbanks Spring 17S/50E-09adc	633669	595533	36°29'26"	116°20'30"	USGS	USGS
12	Franklin L. FL-1-1 25N/6E-31dc	547594	587796	36°15'15"	116°22'08"	(7)	USGS
13	Franklin L. FL-1-2 25N/6E-31dc	547594	587796	36°15'15"	116°22'08"	(7)	USGS
14	GS-12 Franklin Lake DVJ	554874	587446	36°16'27"	116°22'12"	USGS	USGS
15	GS-15 Franklin Lake DVJ	547697	588369	36°15'16"	116°22'01"	USGS	USGS
16	GS-18 Franklin Lake DVJ	544462	588707	36°14'44"	116°21'57"	USGS	USGS
17	GS-4 Franklin Lake DVJ	551449	591633	36°15'53"	116°21'21"	USGS	USGS
18	GS-8 Franklin Lake DVJ	558213	588255	36°17'00"	116°22'02"	USGS	USGS
19	Jack Rabbit Spring 18S/51E-18b	597100	614400	36°23'24"	116°16'41"	USGS	USGS
20	Longstreet Spring 17S/50E-22aba	625400	600400	36°28'04"	116°19'30"	USGS	USGS
21	Mathew's Well	646358	578351	36°31'32"	116°24'00"	WATSTORE	USGS
22	NECO Well #1 13S/47E-35b	734000	493000	36°46'00"	116°41'30"	USGS	USGS
23	Point of Rocks Highway Well	659000	663000	36°33'33"	116°06'42"	(3), USGS	USGS
24	Point of Rocks Springs (King)	601000	615700	36°24'02"	116°16'25"	USGS	USGS
25	Point of Rocks Springs Rock	601300	616500	36°24'05"	116°16'15"	USGS	USGS
26	Rogers Spring 17S/50E-15a1	629038	601265	36°28'40"	116°19'20"	USGS	USGS
27	Soda Spring 17S/50E-10c--1	633300	597200	36°29'22"	116°20'10"	USGS	USGS
28	Spring 17S/50E-23bbc	624500	602500	36°27'36"	116°19'04	USGS	USGS
29	Spring 18S/49E-01aba Clay Camp	610000	579500	36°25'30"	116°23'50"	(1), USGS	USGS
30	Well 05 Franklin Lake DVJ	541524	586750	36°14'15"	116°22'21"	USGS	USGS
31	Well 10 Franklin Lake DVJ	541219	586014	36°14'12"	116°22'30"	USGS	USGS
32	Well 13 Franklin Lake DVJ	544339	581008	36°14'43"	116°23'31"	USGS	USGS
33	Well 15 Franklin Lake DVJ	567617	588389	36°18'33"	116°22'00"	USGS	USGS
34	Well 15S/49E-22a1 Lathrop Well	688293	566581	36°38'27"	116°26'23"	(6), USGS	USGS
35	Well 15S/49E-22dc Lathrop	683537	565369	36°37'40"	116°26'40"	(1), USGS	USGS
36	Well 15S/49E-27acc Amargosa	680890	564768	36°37'14"	116°26'45"	USGS	USGS
37	Well 15S/50E-18ccc Lathrop	689200	578500	36°38'36"	116°23'57"	(1), USGS	USGS
38	Well 15S/50E-18cdc Lathrop	688831	579211	36°38'32"	116°23'48"	(1)	USGS
39	Well 16S/48E-07bba	667000	516500	36°34'55"	116°36'40"	(1)	USGS
40	Well 16S/48E-07cbc	663500	515500	36°34'25"	116°36'50"	(1), USGS	USGS
41	Well 16S/48E-08ba	666279	522020	36°34'50"	116°35'30"	(1), (5)	USGS
42	Well 16S/48E-08cda Sullivan	662500	523000	36°34'15"	116°35'20"	(1), USGS	USGS
43	Well 16S/48E-10cba Kirker	664000	532500	36°34'25"	116°33'20"	(1), USGS	USGS
44	Well 16S/48E-15aaa Bob Nichols	661500	536000	36°34'03"	116°32'31"	(1), USGS	USGS
45	Well 16S/48E-15ba Amargosa	661032	532792	36°33'58"	116°33'18"	(1)	USGS
46	Well 16S/48E-15dda Amargosa	657699	536304	36°33'25"	116°32'35"	(1)	USGS
47	Well 16S/48E-17abb Amargosa	662000	524000	36°34'00"	116°35'10"	(1)	USGS
48	Well 16S/48E-17ccc Amargosa	656065	520641	36°33'09"	116°35'47"	(1)	USGS
49	Well 16S/48E-18bcc Amargosa	661224	522840	36°34'00"	116°35'20"	(1), (5)	USGS
50	Well 16S/48E-18dad Amargosa	658391	520477	36°33'32"	116°35'49"	(1)	USGS
51	Well 16S/48E-23bdb Lathrop	655173	538347	36°33'00"	116°32'10"	(1)	USGS
52	Well 16S/48E-23da Amargosa	654167	541612	36°32'44"	116°31'35"	(1)	USGS
53	Well 16S/48E-24aaa Amargosa	656500	546900	36°33'13"	116°30'25"	(1)	USGS
54	Well 16S/48E-25aa Jacob's #1	651000	547000	36°32'19"	116°30'24"	(1), USGS	USGS
55	Well 16S/48E-36aaa Smith's	645900	547000	36°31'28"	116°30'24"	(1), USGS	USGS

springs in the Amargosa Desert area

micrometer; --, no data; NA, not applicable]

Aquifer	Lithology	Use	Elevation (m)	Well depth (m)	Water depth (m)	Pumping time (h)	Yield (L/s)	Sampling method	Filtration (µm)
QTal	--	OBS	733	189	13	--	--	--	--
Pzc	--	OBS	733	202	13	--	--	--	--
Pzc	DOLO	OBS	732	252	12	--	--	Pump	0.45
Pzc	--	OBS	732	246	12	--	--	--	--
Pzc	--	OBS	961	593	239	3.0	28	--	.45
Qal	--	--	664	NA	0	--	1	Pump	.45
Qal/Pzc	--	IRR	683	NA	0	--	66	--	--
--	--	--	683	NA	0	--	1	--	--
Qal	--	IRR	671	NA	0	--	178	--	--
Pzc	LS	PS	720	--	--	--	--	--	--
QTal	--	IRR	695	NA	0	--	--	--	.45
Ql	UNCONSOLID	TEST	611	41	--	.1	--	--	--
Ql	UNCONSOLID	TEST	611	102	--	.1	--	Pump	--
Ql	UNCONSOLID	TEST	613	9	1	--	--	Pump	.45
Ql	UNCONSOLID	TEST	611	7	2	--	--	Pump	.45
Ql	UNCONSOLID	TEST	610	8	4	--	--	Pump	.45
Ql	UNCONSOLID	TEST	611	7	1	--	--	Pump	.45
Ql	UNCONSOLID	TEST	611	10	0	--	--	Pump	.45
Qal/Pzc	--	IRR	692	NA	0	.5	37	Pump	.45
Qal/Pzc	--	IRR	701	NA	0	--	66	--	--
--	--	--	707	--	--	--	--	--	--
QTal	--	IND	850	175	86	--	--	Pump	.45
Qal	--	Destroyed	859	244	138	--	5	--	--
Pzc	--	IRR	701	NA	0	--	68	--	--
Qal	--	IRR	707	NA	0	--	1	--	--
Qal	--	IRR	695	NA	--	--	46	--	--
Qal	--	IRR	695	NA	--	--	5	--	--
Qal	--	Unused	715	NA	--	--	12	--	--
QTal	Travertine	Unused	664	NA	0	--	--	Pump	.45
Ql	UNCONSOLID	TEST	610	10	2	--	--	Pump	.45
Ql	UNCONSOLID	TEST	609	11	2	--	--	Pump	.45
Ql	UNCONSOLID	TEST	611	5	3	--	--	Pump	.45
Ql	UNCONSOLID	TEST	622	NA	0	--	--	Pump	.45
Qal	--	DOM/IRR	796	174	90	--	50	--	--
QTal	--	IND	784	148	78	--	1	Pump	.45
--	--	OBS	777	467	73	--	--	--	--
Qal	--	PS	812	120	105	--	--	--	.45
Qal	--	Unused	812	120	105	--	--	--	--
Qal	--	DOM	725	38	0	--	--	Pump	.45
Qal	--	DOM	722	46	23	--	--	Pump	.45
Qal	--	IRR	727	80	34	--	88	--	--
Qal	--	DOM	722	--	40	--	--	Pump	.45
--	Alluvium	DOM	725	46	32	--	8	--	--
QTal	--	DOM/IRR	725	56	29	--	32	Pump	.45
--	--	--	724	50	30	--	--	--	--
Qal	--	--	719	--	--	--	--	--	--
Qal	Gravel	IRR	722	85	31	--	76	--	--
Qal	--	--	718	--	--	--	--	--	--
Qal	--	IRR	720	110	27	--	47	--	--
--	--	--	722	--	--	--	--	--	--
Qal	--	IRR	716	100	29	--	--	--	--
Qal	--	IRR	713	140	24	--	--	--	--
QTal	--	IRR/DOM	722	146	29	--	101	Pump	.45
--	S/G	IRR	714	50	26	--	--	Pump	.45
Qal	--	IRR	709	91	21	--	--	Pump	.45

Table 1.--*Records of selected wells and*

Site number	Site name	Nevada Coordinates North	Nevada Coordinates East	Latitude	Longitude	Data source	Analyzing laboratory
56	Well 16S/48E-36dcc John Mills	640500	545000	36°30'35"	116°30'50"	(1), USGS	USGS
57	Well 16S/49E-05acc A. Sasse	670200	555300	36°35'28"	116°28'42"	(1), USGS	USGS
58	Well 16S/49E-08abb K. Finical	666900	555400	36°34'56"	116°28'41"	(1), USGS	USGS
59	Well 16S/49E-08acc	665000	555500	36°34'35"	116°28'40"	(1), USGS	USGS
60	Well 16S/49E-09cda K. Garey	663100	560200	36°34'18"	116°27'42"	(1), USGS	USGS
61	Well 16S/49E-09dcc School	662300	560750	36°34'10"	116°27'35"	(1), USGS	USGS
62	Well 16S/49E-12ddd Amargosa	663335	574225	36°34'20"	116°24'50"	(1)	USGS
63	Well 16S/49E-15aaa Schoolhouse	661500	568500	36°34'00"	116°26'00"	(1), USGS	USGS
64	Well 16S/49E-16ccc Amargosa	656320	558008	36°33'11"	116°28'09"	(1)	USGS
65	Well 16S/49E-18dc Amargosa	657500	550250	36°33'23"	116°29'44"	(1), USGS	USGS
66	Well 16S/49E-19daa Jacob's #2	654100	552300	36°32'49"	116°29'19"	(1), USGS	USGS
67	Well 16S/49E-23add Amargosa	656252	572612	36°33'10"	116°25'10"	(1), (5)	USGS
68	Well 16S/49E-35aaa Amargosa	644118	572643	36°31'10"	116°25'10"	(1), (5)	USGS
69	Well 16S/49E-35baa Amargosa	646000	571000	36°31'27"	116°25'37"	(1)	USGS
70	Well 16S/49E-36aba Amargosa	645140	576722	36°31'20"	116°24'20"	(1), (5)	USGS
71	Well 16S/50E-07bcd Cook	664000	579000	36°34'25"	116°23'50"	(1), USGS	USGS
72	Well 17S/48E-12bc Lyle Recs.#2	632800	543400	36°29'20"	116°31'10"	USGS	USGS
73	Well 17S/48E-1ab	639850	546950	36°30'28"	116°30'25"	(1), USGS	USGS
74	Well 17S/49E-07bb Lyle Recs.#1	634800	548900	36°29'38"	116°30'01"	(1), USGS	USGS
75	Well 17S/49E-08ddb	631350	558100	36°29'04"	116°28'08"	(1), USGS	USGS
76	Well 17S/49E-09aa Copeland	634950	563850	36°29'40"	116°26'58"	(1), USGS	USGS
77	Well 17S/49E-11ba Mecca Club	634800	571500	36°29'36"	116°25'15"	(1), USGS	USGS
78	Well 17S/49E-15bbd Amargosa	628800	565550	36°28'39"	116°26'37"	(1)	USGS
79	Well 17S/49E-15bc Amargosa	628928	563699	36°28'32"	116°26'43"	(1), (5)	USBR
80	Well 17S/49E-28bcd Amargosa	617600	560920	36°26'50"	116°27'40"	(1)	USGS
81	Well 17S/49E-29acc Amargosa	617792	557433	36°26'50"	116°28'17"	(1)	USGS
82	Well 17S/49E-36ccd	610000	576500	36°25'30"	116°24'25"	USGS	USGS
83	Well 17S/50E-14cac Flowing	627000	603500	36°28'20"	116°18'55"	USGS	USGS
84	Well 17S/50E-19aab Amargosa	624942	585760	36°28'00"	116°22'30"	(1), (5)	DRI
85	Well 17S/50E-23bb2 Flowing	624000	602500	36°27'50"	116°19'05"	USGS	USGS
86	Well 17S/51E-23b Flowing	624000	635000	36°27'40"	116°12'10"	USGS	USGS
87	Well 17S/52E-08c1	631282	651070	36°29'00"	116°09'10"	USGS	USGS
88	Well 18S/49E-02caa Tenneco #2	606600	572700	36°24'59"	116°25'10"	USGS	USGS
89	Well 18S/49E-02cbc Tenneco #3	605800	570200	36°24'51"	116°25'41"	(1), USGS	USGS
90	Well 18S/49E-11bbb Amargosa	604100	572300	36°24'35"	116°25'15"	(1)	USGS
91	Well 18S/50E-06dac	606133	585246	36°24'54"	116°22'37"	(1)	DRI
92	Well 18S/51E-07bbb	604100	614000	36°24'33"	116°16'57"	USGS	USGS
93	Well 18S/51E-07dac Spr Meadows	600787	617307	36°24'00"	116°16'05"	USGS	USGS
94	Well 18S/51E-07db Ash Meadows	601089	617061	36°24'03"	116°16'08"	EPA	EPA
95	Well 25N/5E-14c1 DVJ	566000	575000	36°18'15"	116°24'46"	(4)	USGS
96	Well 27N/4E-27bbb	621000	538000	36°27'00"	116°32'15"	(1)	USGS

[1]Claassen (1985)
[2]Dudley (1976)
[3]Robinson (1975)
[4]Walker (1963)
[5]Thordarson and Robinson (1971)
[6]Young (1972)
[7]Pantea (1980)

springs in the Amargosa Desert area--Continued

Aquifer	Lithology	Use	Elevation (m)	Well depth (m)	Water depth (m)	Pumping time (h)	Yield (L/s)	Sampling method	Filtration (μm)
Qal	--	DOM/IRR	701	124	13	0.1	145	Pump	0.45
--	--	--	746	87	21	--	--	Pump	.45
QTal	--	DOM	739	60	45	.2	5	Pump	.45
QTal	--	DOM	738	62	45	1.0	17	Pump	.45
Qal	--	IRR	741	94	46	--	30	Pump	.45
Qal	--	PS	739	58	49	--	--	Pump	.45
--	--	--	750	--	--	--	0	--	--
Qal	--	DOM	744	120	51	--	0	Pump	.45
--	Tuff	--	726	--	--	--	0	--	--
QTal	S/G	Unused	723	105	33	--	--	Pump	.45
--	S/G	--	720	94	30	--	--	Pump	.45
QTal	Alluvium	IRR	732	116	32	--	--	--	--
Qal	--	IRR	708	52	30	--	47	--	--
Qal	S/G	DOM/IRR	714	100	26	--	--	Pump	.45
Qal	--	IRR	712	--	--	--	--	--	--
Qal	--	DOM/IRR	756	60	42	0.2	--	Pump	.45
Tv	--	--	697	--	--	--	--	Pump	.45
--	S/G	Unused	702	41	16	3.0	1	Pump	.45
--	--	IRR	698	152	12	--	--	Pump	.45
--	S/G	Unused	693	99	15	3.0	1	Pump	.45
Qal	--	Unused	695	6	5	--	--	Pump	.45
Qal	--	DOM	694	56	20	--	20	--	--
--	S/G	Unused	690	110	17	2.2	1	Pump	.45
Qal	--	IRR	690	157	15	--	--	--	--
--	--	--	689	--	--	--	0	--	--
--	--	--	683	--	--	--	0	--	--
Qal	--	IND	671	213	--	4.0	0	Pump	.45
QTal	--	IRR	713	28	0	--	4	Pump	.45
Qal	--	IRR	698	30	5	--	--	--	--
QTal/Pzc	--	IRR	713	46	0	--	35	Pump	.45
QTal	--	DOM	710	7	0	--	--	--	--
Qal	Limestone	DOM/IRR	729	122	10	--	0	Pump	.45
Qal	S/G	IND/PS	664	114	20	.5	9	Pump	.45
QTal	--	IND	658	224	22	2.2	9	Pump	.45
--	--	--	658	--	--	--	--	--	--
--	--	--	658	--	--	--	--	--	--
Qal	PC	IND	707	152	7	4.7	95	Pump	.45
QTal	--	IRR	704	91	5	--	65	Pump	.45
Qal	--	IRR	707	86	0	--	2	--	--
--	--	--	62	45	1	--	13	--	--
Qal	S/G	IRR	685	91	14	--	80	Pump	--

Table 2.--*Chemical analysis of water from selected*

[mg/L, milligrams per liter; µS/cm, microsiemens per centimeter

Site number	Date	Specific conductance (µS/cm)	Field pH (units)	Laboratory pH (units)	Temperature (°C)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity as HCO_3 (mg/L)
1	09/09/1969	[a]400	--	8.4	29.0	5.9	7.6	64	9.7	[b]118
2	09/29/1966	[a]540	--	8.5	--	22	19	60	7.9	188
3	09/09/1969	[a]638	--	7.6	31.0	43	18	64	8.4	285
4	09/28/1966	[a]812	--	8.2	--	52	26	90	11	279
5	04/13/1972	[a]545	--	7.8	31.0	41	21	39	7.7	257
6	03/06/1974	365	8.0	7.9	18.0	14	4.4	[d]46	8.0	[b]155
7	11/21/1966	[a]769	--	7.6	--	44	19	97	8.7	318
8	07/27/1962	[a]776	--	7.1	22.2	38	19	106	9.2	306
9	11/20/1966	[a]658	--	8.2	--	40	20	72	8.6	278
10	12/09/1966	[a]677	--	8.1	33.5	50	24	65	7.6	310
11	08/02/1972	660	7.6	7.2	--	47	20	69	7.9	301
12	06/11/1978	[a]12,600	9.2	9.0	27.0	4.3	2.8	2,200	160	2,220
13	06/11/1978	[a]8,578	9.4	--	23.0	2.4	2.2	2,200	91	2,540
14	11/14/1983	33,000	9.6	9.2	20.9	4.1	16	10,000	590	[b]7,195
15	11/14/1983	59,000	9.5	9.1	22.9	5.0	3.2	24,000	880	[b]9,130
16	11/18/1983	65,000	9.8	9.3	17.0	4.0	6.6	28,000	830	[b]16,000
17	11/16/1983	16,000	9.3	9.0	22.0	2.5	1.6	4,400	76	[b]3,350
18	11/19/1983	3,570	8.5	8.4	18.9	3.9	5.2	760	71	[b]716
19	04/06/1971	2,590	--	8.0	26.2	120	75	330	19	248
20	11/18/1966	[a]669	--	8.2	--	48	19	69	7.8	300
21	05/11/1981	929	7.6	7.8	24.5	50	20	110	1.2	317
22	08/02/1972	1,120	7.6	7.3	27.5	55	14	170	10	328
23	06/30/1964	[a]862	--	7.3	--	32	20	120	11	200
24	11/21/1966	[a]680	--	7.6	--	48	21	67	7.1	304
25	11/21/1966	[a]674	--	7.7	--	46	21	68	7.5	304
26	11/20/1966	[a]677	--	7.6	--	47	21	69	7.8	302
27	11/19/1966	[a]772	--	7.7	--	36	17	110	10	330
28	11/20/1966	[a]691	--	7.6	--	48	22	68	7.7	310
29	04/06/1971	680	8.6	8.0	17.5	24	12	95	19	263
30	11/21/1983	17,000	9.3	9.0	20.2	2.6	2.0	4,500	87	[b]2,350
31	11/21/1983	22,000	9.3	8.8	19.5	4.0	4.4	6,200	230	[b]2,450
32	11/17/1983	3,320	8.4	8.3	20.9	9.3	5.2	750	21	[b]600
33	11/21/1983	1,740	8.4	8.3	20.2	6.4	3.9	370	16	[b]528
34	04/24/1958	[a]336	--	8.0	27.8	25	2.4	41	5.2	145
35	11/20/1972	330	7.8	6.7	--	27	2.0	43	4.6	149
36	03/30/1973	[a]339	--	7.8	42.2	22	1.6	48	2.9	151
37	11/17/1972	487	8.4	7.5	--	17	0.6	93	4.1	157
38	12/15/1968	--	8.0	--	25.1	12	0.7	93	3.9	153
39	03/30/1971	980	7.4	7.9	24.7	53	9.4	140	10	251
40	03/31/1971	960	7.7	7.8	24.2	47	16	130	9.2	239
41	06/24/1971	--	7.9	--	25.0	59	6.3	180	13	296
42	03/31/1971	[a]950	7.6	7.9	23.3	48	6.8	160	10	264
43	03/31/1971	370	8.3	7.8	24.5	9.1	4.0	61	5.4	166
44	03/31/1971	335	8.1	7.9	25.5	9.8	3.2	58	5.9	153
45	06/24/1971	--	8.0	--	25.0	60	7.8	150	9.8	264
46	06/26/1979	--	8.0	--	--	20	5.9	71	7.4	176
47	08/18/1962	[a]1,074	--	7.4	24.0	60	7.8	160	12	302
48	06/25/1979	--	--	7.7	--	66	11	170	12	239
49	06/24/1979	--	8.0	--	--	55	11	150	12	271
50	06/25/1979	--	7.7	--	--	53	8.5	150	11	236

wells and springs in the Amargosa Desert area

at 25 degrees Celsius; °C, degrees Celsius; --, no data]

Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Nitrate (mg/L)	Phosphate (mg/L)	Lithium (mg/L)	Strontium (mg/L)	Dissolved solids (mg/L)	Anion-cation balance (percent)
39	22	1.2	1.9	--	--	0.11	0.69	239	7.1
76	25	1.4	21	0.40	--	0.10	0.74	319	0.3
70	20	1.4	22	0.30	--	0.08	0.85	410	12.7
130	52	1.7	22	4.3	0.74	0.10	1.6	508	0.5
52	16	1.2	21	0.24	--	0.04	0.80	334	1.2
40	6.5	2.3	82	1.5	0.21	0.06	0.21	286	5.9
105	25	1.4	28	0.20	0.00	0.12	1.2	480	0.1
113	27	1.0	33	1.0	0.00	0.17	0.60	500	1.1
81	22	1.7	25	0.00	0.00	0.09	0.97	432	0.3
76	20	1.6	22	0.20	--	0.09	0.89	423	1.2
85	22	2.5	22	0.00	0.00	0.10	0.89	434	1.8
1,300	1,400	20	13	--	--	0.11	0.24	6,380	1.8
1,300	920	25	15	--	--	0.15	0.20	6,040	1.2
8,600	7,000	11	13	11	--	0.04	--	[c]30,300	10.6
15,000	25,000	22	32	10	--	0.02	--	[c]69,900	7.8
19,000	23,000	30	28	200	--	0.01	--	[c]79,700	8.8
3,000	3,300	18	25	0.71	--	0.85	--	[c]12,500	8.4
280	690	6.1	35	0.10	--	0.05	--	[c]2,200	3.1
820	240	1.7	23	14	0.00	0.18	3.2	2,050	1.8
75	17	1.8	22	0.40	0.00	0.08	0.92	419	0.7
170	29	4.4	33	--	--	0.16	1.0	587	4.4
190	79	5.2	70	0.04	0.00	0.27	0.37	792	1.2
160	57	1.6	20	9.2	0.16	--	--	545	2.6
76	21	2.0	22	0.20	0.00	0.08	0.92	408	0.3
78	21	1.5	22	0.20	0.00	0.08	1.1	412	0.7
78	21	1.5	23	0.00	0.00	0.09	0.90	412	0.2
93	27	2.0	35	--	--	0.10	0.76	488	0.1
80	21	2.5	22	0.20	0.00	0.08	0.94	417	0.7
100	18	2.9	73	--	--	0.15	0.65	484	1.5
2,800	3,800	15	8.7	0.17	--	2.0	--	[c]12,400	4.5
3,400	6,700	12	20	35	--	0.24	--	[c]17,900	5.8
550	480	3.4	67	0.09	--	0.41	--	[c]2,190	1.9
270	110	3.6	67	--	--	0.35	--	[c]1,110	1.9
33	8.0	1.4	52	3.5	--	--	--	233	0.0
33	8.5	0.9	49	1.4	0.03	0.04	0.08	270	1.2
36	7.3	0.8	19	0.04	0.28	0.04	0.07	217	1.2
100	13	2.1	34	0.86	0.03	0.09	0.08	368	0.8
78	17	2.5	38	--	--	--	--	--	0.6
180	63	1.9	69	1.9	--	0.18	0.44	643	0.1
180	62	2.0	64	2.5	--	0.16	0.46	617	0.2
200	80	--	38	--	--	--	--	--	1.5
180	67	1.8	68	2.9	--	0.21	0.31	678	0.5
33	8.0	1.9	64	4.5	0.00	0.06	0.08	269	2.2
28	7.3	2.0	68	6.0	0.00	0.06	0.06	246	0.4
200	66	--	37	--	--	--	--	--	0.3
38	17	--	72	--	--	--	--	--	6.8
180	69	1.2	75	1.2	--	0.20	0.60	800	0.9
240	83	--	76	--	--	--	--	--	2.8
190	61	--	80	--	--	--	--	--	1.8
190	63	--	77	--	--	--	--	--	2.8

Table 2.--*Chemical analysis of water from selected*

Site number	Date	Specific conductance (µS/cm)	Field pH (units)	Laboratory pH (units)	Temperature (°C)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity as HCO_3 (mg/L)
51	08/19/1962	[a]346	--	7.3	24.0	9.4	1.0	66	6.8	156
52	02/17/1966	--	8.2	--	24.0	22	2.2	69	6.7	134
53	11/17/1972	321	8.1	7.0	27.0	18	0.7	54	6.9	147
54	03/05/1974	325	8.1	7.9	26.5	19	0.8	43	7.3	133
55	03/04/1974	335	8.4	7.9	--	17	2.0	40	6.1	133
56	04/05/1971	830	7.2	7.9	26.0	55	9.8	100	13	300
57	03/04/1974	300	8.2	7.8	--	29	2.2	35	5.2	135
58	11/17/1972	305	7.5	7.0	23.0	30	2.6	37	5.6	152
59	04/01/1971	316	7.9	7.5	25.8	23	2.4	37	6.5	138
60	11/18/1972	430	7.6	7.4	24.0	33	3.3	56	9.4	144
61	03/01/1974	370	8.2	7.6	23.3	23	2.6	56	9.0	141
62	06/26/1979	--	7.6	--	--	46	17	120	4.3	289
63	03/31/1971	650	7.7	7.9	23.8	41	7.6	80	9.7	195
64	06/26/1979	--	7.9	--	--	30	1.9	40	4.3	132
65	03/01/1974	300	8.1	8.0	--	20	2.7	42	8.8	150
66	03/05/1974	309	8.2	7.9	26.4	24	1.1	36	8.2	134
67	06/25/1979	--	8.2	--	--	16	1.7	56	6.5	127
68	06/24/1979	--	7.7	--	--	44	16	120	16	271
69	06/24/1979	--	7.4	--	--	53	18	110	13	303
70	06/24/1979	--	7.7	--	--	45	20	110	17	293
71	04/01/1971	870	7.5	8.0	30.6	44	17	120	13	295
72	03/03/1974	1,290	7.5	7.7	--	74	24	160	16	404
73	03/05/1974	308	8.2	8.0	24.4	19	1.5	40	7.1	135
74	03/01/1974	350	8.3	8.0	--	24	1.8	48	7.3	153
75	03/06/1974	294	8.4	8.0	24.0	21	2.7	36	7.5	123
76	03/01/1974	375	8.0	7.9	--	25	3.6	48	9.7	131
77	03/07/1974	[a]798	--	8.1	22.0	40	14	97	14	210
78	03/06/1974	280	8.1	8.1	22.5	21	4.0	32	8.2	120
79	02/17/1966	--	8.2	--	24.0	22	9.7	39	6.6	122
80	06/23/1979	--	7.6	--	--	43	10	100	12	294
81	06/23/1979	--	7.6	--	21.0	54	15	160	20	276
82	04/01/1971	3,990	8.9	8.4	23.6	1.3	1	940	10	1,220
83	04/02/1971	670	7.3	8.0	34.5	44	21	60	8.6	286
84	12/27/1971	--	8.6	--	16.0	7.6	8.5	250	27	416
85	04/02/1971	670	7.1	7.9	34.8	42	21	63	8.6	285
86	08/02/1972	610	7.9	7.4	20.8	31	20	72	12	282
87	05/23/1971	[a]2,750	7.2	7.8	28.8	150	75	380	14	290
88	11/18/1972	534	8.3	6.9	23.8	17	5.4	110	8.4	267
89	11/18/1972	700	7.8	7.4	23.8	29	12	120	9.7	352
90	06/23/1979	--	7.6	--	25.0	34	8.5	99	12	224
91	02/12/1972	--	8.2	--	--	24	12	100	14	230
92	04/02/1971	680	7.7	8.0	31.2	46	21	60	9.0	295
93	04/05/1971	3,400	7.5	8.0	26.7	140	98	490	24	211
94	01/13/1976	[a]720	--	7.1	31.0	38	25	83	8.7	415
95	08/29/1952	[a]1,380	--	8.6	23.6	1.9	1.9	325	12	556
96	08/18/1962	[a]943	--	7.3	22.0	58	19	130	19	438

[a]Laboratory conductance.
[b]Field alkalinity.
[c]Calculated value.
[d]Original data.

wells and springs in the Amargosa Desert area--Continued

Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Nitrate (mg/L)	Phosphate (mg/L)	Lithium (mg/L)	Strontium (mg/L)	Dissolved solids (mg/L)	Anion-cation balance (percent)
27	8.8	2.0	74	3.1	--	0.06	1.8	294	1.7
67	27	--	--	--	--	--	--	--	1.1
30	7.8	1.5	79	1.6	0.06	0.08	0.08	320	2.2
28	9.3	1.3	72	1.7	0.21	0.05	0.08	262	6.1
25	6.9	1.6	79	1.6	0.25	0.04	0.06	[c]251	7.1
110	33	2.8	70	9.1	--	0.14	0.46	557	0.3
26	6.0	1.0	62	1.7	0.18	0.05	0.05	233	1.3
30	7.7	0.7	54	1.5	0.03	0.04	0.08	258	1.4
29	6.2	0.7	58	6.6	--	0.04	0.08	235	0.7
76	14	0.8	75	1.7	0.03	0.04	0.20	370	2.4
67	10	0.9	72	1.7	0.21	0.04	0.11	337	4.9
160	24	--	20	--	--	--	--	--	1.6
130	23	0.8	46	0.50	--	0.06	0.35	424	1.5
51	8.2	--	77	--	--	--	--	--	0.7
28	7.4	1.2	59	1.5	0.15	0.04	0.07	269	7.5
33	6.6	1.0	75	1.6	0.21	0.04	0.06	265	7.8
35	8.9	--	76	--	--	--	--	--	7.3
150	29	--	37	--	--	--	--	--	4.3
170	31	--	38	--	--	--	--	--	0.7
160	24	--	43	--	--	--	--	--	1.7
160	28	4.5	26	--	--	0.20	0.89	537	0.3
180	78	6.8	46	6.9	0.15	0.16	0.67	[c]816	3.8
25	6.3	1.7	79	1.5	0.25	0.05	0.08	[c]253	6.3
31	9.5	1.7	80	1.6	0.25	0.06	0.10	[c]286	5.6
27	6.4	1.4	81	1.5	0.25	0.05	0.09	[c]251	4.4
69	10	1.2	70	1.6	0.21	0.05	0.13	321	6.7
160	28	2.9	53	0.10	0.12	0.14	0.76	532	0.1
35	10	1.4	73	1.6	0.21	0.04	0.10	--	1.2
28	11	--	--	--	--	--	--	--	13
89	24	--	70	--	--	--	--	--	1.8
190	70	--	72	--	--	--	--	--	4.3
700	250	15	11	19	0.47	0.09	0.24	2,690	1.3
80	22	1.6	22	0.10	--	0.09	0.92	393	2.2
180	70	--	43	--	--	--	--	--	0.4
82	22	1.7	22	--	--	0.09	0.91	392	2.2
69	20	1.4	27	0.06	0.06	0.12	0.94	398	0.5
860	290	1.5	20	--	24	0.12	2.6	2,040	0.6
52	12	4.5	62	0.92	0.06	0.07	0.53	422	2.1
74	20	3.7	59	0.35	0.03	0.13	0.59	498	1.0
90	31	--	78	--	--	--	--	--	4.4
100	21	--	81	--	--	--	--	--	3.4
77	21	1.7	23	--	--	0.08	0.91	402	1.8
1,200	290	1.7	18	20	--	0.21	4.3	2,630	0.4
80	28	1.3	--	0.10	--	0.03	0.71	[c]390	9.0
149	49	7.9	31	0.20	--	--	--	874	2.4
110	32	3.6	72	0.20	--	0.14	0.60	640	0.2

DEATH VALLEY AREA

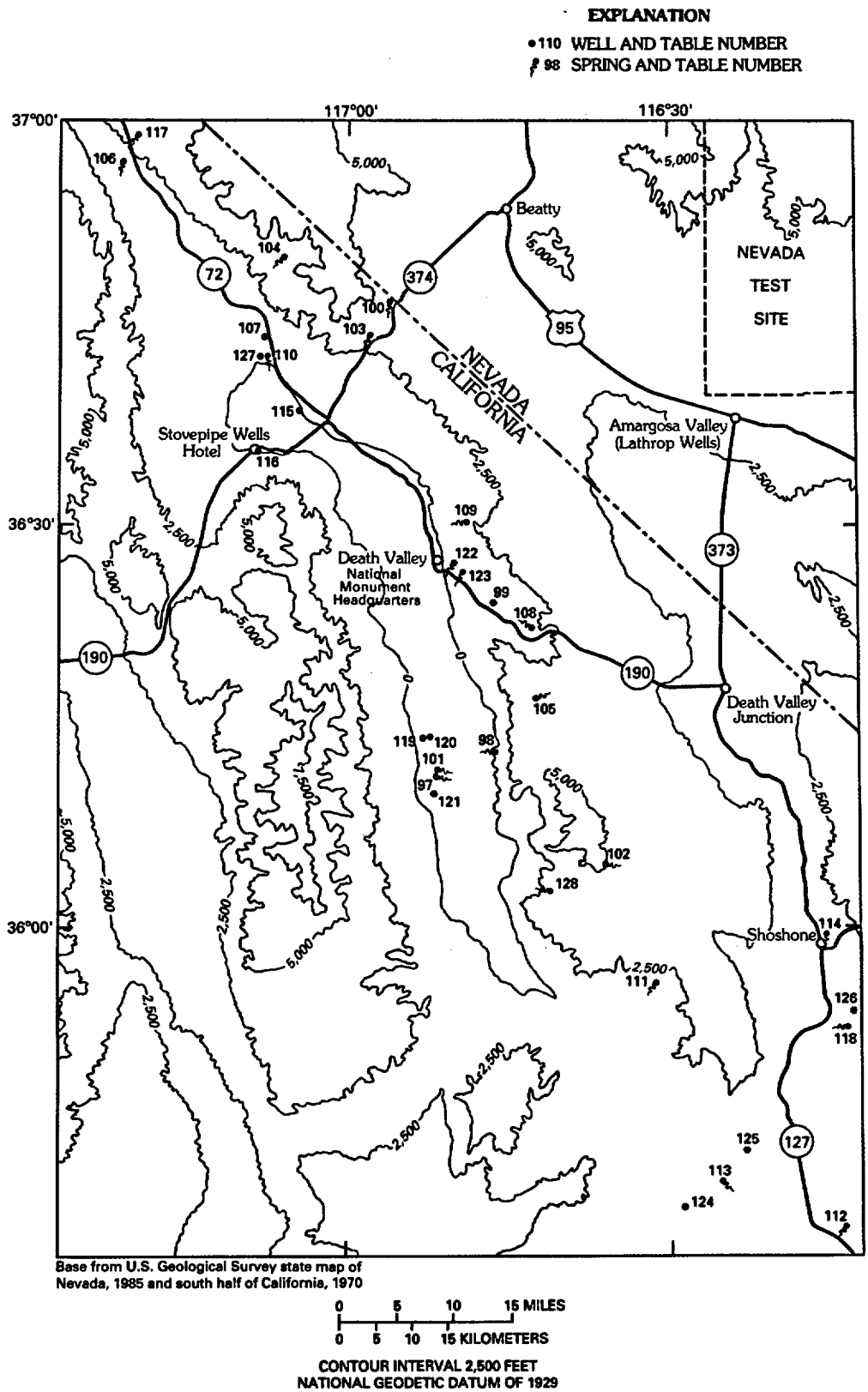

Figure 3.--Location of wells and springs in the Death Valley area.

Table 3.--*Records of selected wells and*

[h, hours; m, meters; L/s, liters per second;

Site number	Site name	Nevada Coordinates		Latitude	Longitude	Data source	Analyzing laboratory
		North	East				
97	Artesian Well Eagle Borax Spr	526791	441400	36°11'50"	116°51'55"	(1)	USGS
98	Badwater Spring Death Valley	538880	469688	36°13'50"	116°46'10"	(1)	USGS
99	Borate Mine in Furnace Creek	604607	468123	36°24'40"	116°46'30"	(1)	USGS
100	Daylight Spring 13S/46E-35aba	742728	421104	36°47'25"	116°56'10"	USGS	USGS
101	Eagle Borax Spring 24N/1E-15DS1	528308	441407	36°12'05"	116°51'55"	(1)	USGS
102	Hidden Spring in Black Mtn	481743	518880	36°04'25"	116°36'10"	(1)	USGS
103	Hole-In-The-Rock Spring Ca.	725800	412100	36°44'37"	116°58'00"	USGS	USGS
104	Klare Spring 13S/45E-04LS1	762008	375234	36°50'34"	117°05'35"	(1)	USGS
105	Lemonade Spring in Black Mtn	562326	487722	36°17'42"	116°42'30"	(1)	USGS
106	Mesquite Spring 11S/42E-26	806565	296306	36°57'50"	117°21'50"	(2)	USGS
107	Midway Well 14S/45E-18D2	728084	363445	36°44'58"	117°07'58"	(1)	USGS
108	Navel Spring 26N/2E-13FS1	593469	488553	36°22'50"	116°42'20"	(1)	USGS
109	Nevares Spring	641432	454777	36°30'44"	116°49'14"	WATSTORE	USGS
110	Palm Tree Spring 14S/45E-30BS1	716924	364800	36°43'09"	117°07'50"	(1)	USGS
111	Rhodes Spring 21N/4E-11MS1	431516	542349	35°56'08"	116°31'25"	(1)	USGS
112	Salt Spring Silurian Valley	316704	627138	35°37'10"	116°14'20"	(1)	CADWR
113	Saratoga Spring 18N/05E-BS2	339772	572592	35°41'00"	116°25'20"	(1)	USGS
114	Shoshone Spring 22N/7E-30bcd	448000	616500	35°58'49"	116°16'23"	USGS	USGS
115	Stovepipe Wells 15S/45E-15D1	694846	378601	36°39'30"	117°04'50"	(1)	CADWR
116	Stovepipe Wells 15S/44E-36K1	676727	360586	36°36'30"	117°08'30"	(1), (3)	USGS
117	Surprise Spring 11S/43E-18ES2	820878	302900	37°00'12"	117°20'30"	(1)	USGS
118	Tecopa Hot Springs	408700	629000	35°52'20"	116°13'52"	(1)	USGS
119	Test Well at Tule Spring	543994	435291	36°14'40"	116°53'10"	(1)	USGS
120	Test Well east of Tule Spring	543480	438976	36°14'35"	116°52'25"	(1)	CADWR
121	Test Well near Bennett's Well	515166	440146	36°09'55"	116°52'10"	(1)	CADWR
122	Texas Spring	621621	450090	36°27'28"	116°50'11"	WATSTORE	USGS
123	Travertine Spring	615449	451876	36°26'27"	116°49'49"	WATSTORE	USGS
124	Well 18N/5E-14J1	326583	551167	35°38'50"	116°29'40"	(1)	CADWR
125	Well 19N/6E-19N1 Black Mtn	351934	583694	35°43'00"	116°23'05"	(1)	USGS
126	Well 21N/7E-28P1 Flowing	416817	630815	35°53'40"	116°13'30"	(1)	USGS
127	Well B6 South of Triangle Spr	717025	359000	36°43'02"	117°08'10"	(1)	USGS
128	Willow Spring near Gold Valley	473345	493431	36°03'02"	116°41'20"	(1)	CADWR

[1]Miller (1977)
[2]Robinson and Beetem (1975)
[3]Buono and Packard (1982)

springs in the Death Valley area

--, no data; NA, not applicable]

Aquifer	Lithology	Use	Elevation (m)	Well depth (m)	Water depth (m)	Pumping time (h)	Yield (L/s)	Sampling method	Filtration (μm)
--	--	TEST	-78	15	--	--	--	--	--
--	--	--	-79	NA	0	--	--	--	--
Ql	Sediment	IND	335	15	--	--	19	--	--
Tv	--	--	1,356	NA	0	--	--	--	0.45
--	--	--	-78	NA	0	--	--	--	--
--	Volcanic	--	1,524	NA	0	--	--	--	--
Qal	--	Unused	878	NA	0	--	--	--	.45
--	Limestone	--	914	NA	0	--	.1	--	--
--	Volcanic	--	1,158	NA	0	--	--	--	--
PS	--	--	540	NA	0	--	--	--	--
QTs/Tc	--	TEST	30	30	5	--	--	--	--
QTf	--	--	610	NA	0	--	--	--	--
--	--	--	280	NA	0	--	--	--	--
QTs/Tc	--	--	9	NA	0	--	--	--	--
--	Crystalline	--	610	NA	0	--	--	--	--
--	PC SED	--	183	NA	0	--	1	--	--
--	PC SED	--	61	NA	0	--	5	--	--
Qal	--	DOM/IND	500	NA	0	--	28	--	.45
Qr	--	DOM	-15	--	--	--	--	--	--
Qr	--	--	0	20	12	--	--	--	.45
--	Volcanic	--	914	NA	0	--	0.3	--	--
--	PC SED	--	427	NA	0	--	11	--	--
--	--	TEST	-76	16	--	--	--	--	--
--	--	TEST	-79	16	0	--	--	--	--
--	--	TEST	-79	10	5	--	--	--	--
--	--	--	122	NA	0	--	--	--	--
--	--	--	98	NA	0	--	--	--	--
Qr	--	--	61	20	10	--	--	--	--
--	PC SED	--	152	82	78	--	--	--	--
--	PC SED	--	457	61	0	--	--	--	--
QTs/Tc	--	TEST	9	18	--	--	--	--	--
--	Crystalline	--	914	NA	0	--	1	--	--

Table 4.--*Chemical analysis of water from selected*

[mg/L, milligrams per liter; µS/cm, microsiemens per

Site number	Date	Specific conductance (µS/cm)	Field pH (units)	Laboratory pH (units)	Temperature (°C)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity as HCO_3 (mg/L)
97	05/17/1974	[a]1,190	--	7.9	28.5	63	35	110	7.5	110
98	01/30/1959	[a]35,000	--	7.5	11.5	830	95	8,050	330	110
99	01/07/1972	[a]5,830	--	8.0	14.0	350	87	990	7.5	460
100	11/19/1972	250	7.5	6.5	--	25	6.1	17	1.5	107
101	11/--/1954	[a]7,730	--	7.1	--	610	270	760	28	320
102	04/07/1967	[a]265	--	7.8	13.0	5.7	1.2	50	5.0	110
103	11/19/1972	2,030	8.1	7.5	--	91	120	200	11	353
104	11/17/1968	[a]880	--	7.8	22.5	44	24	130	4.9	360
105	11/18/1968	[a]800	--	7.1	12.0	2.2	2.1	180	7.4	260
106	03/01/1965	[a]1,240	7.7	7.9	22.0	30	13	230	13	[b]435
107	05/10/1972	[a]1,690	--	6.9	30.0	120	49	190	20	740
108	05/16/1974	[a]1,030	--	8.2	23.0	30	11	160	8.4	300
109	04/22/1982	[a]1,010	7.3	7.8	38.5	44	21	150	11	[b]340
110	05/15/1974	[a]2,210	--	8.1	18.5	58	65	340	23	670
111	03/23/1970	[a]1,010	--	7.8	17.0	45	18	160	5.5	360
112	04/25/1967	[a]10,000	--	7.7	19.0	180	170	2,030	56	534
113	04/08/1967	[a]4,720	--	8.0	29.0	34	21	1,000	40	435
114	03/28/1971	4,700	7.4	8.0	34.0	42	24	230	23	381
115	04/09/1952	[a]3,640	--	8.1	--	16	38	600	--	760
116	06/18/1980	[a]14,200	--	7.6	30.5	82	230	2,700	200	268
117	01/21/1967	[a]710	--	7.9	20.0	7.3	1.3	150	7.6	230
118	11/16/1964	[a]3,480	--	8.6	43.0	6	0	820	17	640
119	03/22/1970	[a]1,840	--	7.4	21.0	75	40	250	7	130
120	03/12/1970	[a]12,100	--	8.1	27.5	14	13	2,400	470	790
121	04/27/1968	[a]692	--	7.5	29.5	48	78	74	4	130
122	04/22/1982	[a]964	7.9	8.1	31.0	38	20	150	11	330
123	04/22/1982	[a]970	7.4	7.9	35.0	36	19	140	10	330
124	05/02/1968	[a]7,360	--	7.6	26.0	130	110	1,400	52	190
125	03/17/1967	[a]5,880	--	8.5	30.5	27	10	1,400	7.8	694
126	04/08/1967	[a]3,900	--	8.8	49.0	2	0	900	17	595
127	04/28/1968	[a]2,180	--	8.3	26.5	37	59	360	21	420
128	01/12/1966	[a]729	--	7.8	20.0	60	14	67	5	360

[a]Laboratory conductance.
[b]Field alkalinity.
[c]Calculated value.

wells and springs in the Death Valley area

centimeter at 25 °Celsius; °C, degrees Celsius]

Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Nitrate (mg/L)	Phosphate (mg/L)	Lithium (mg/L)	Strontium (mg/L)	Dissolved solids (mg/L)	Anion-cation balance (percent)
170	200	0.4	28	0.20	--	--	--	673	0.0
2,800	11,400	9.8	26	--	--	--	--	[c]23,600	3.2
2,900	220	1.1	12	.60	--	--	--	[c]5,390	4.4
16	11	.2	14	2.1	--	0.01	0.18	164	2.4
1,400	1,800	1.2	42	.70	--	--	--	[c]5,130	.7
21	15	.6	59	.60	--	--	--	[c]212	.2
710	130	.5	12	.17	0.03	.12	1.3	1,580	1.8
140	31	5.0	20	.60	--	--	--	572	.0
79	64	.8	57	13	--	--	--	[c]533	3.4
160	80	3.8	58	0.0	.01	.16	.33	804	.1
240	73	1.3	33	.90	--	--	--	1,090	1.2
100	76	2.0	18	31	--	--	--	590	1.7
170	38	3.6	27	--	--	.02	1.1	[c]634	1.7
360	210	1.5	37	2.2	--	--	--	[c]1,430	1.8
200	30	2.6	30	.40	--	--	--	[c]677	1.0
910	2,900	8.1	--	--	--	--	--	[c]6,700	.7
1,000	650	2.4	39	3.4	--	--	--	[c]3,050	1.6
240	140	2.0	41	.30	.00	.36	1.2	938	2.1
460	290	1.1	--	--	--	--	--	[c]2,250	.4
1,200	4,200	.6	22	.06	--	--	--	[c]9,170	.8
93	46	1.9	64	1.7	--	--	--	[c]484	.6
540	460	3.8	8.9	--	--	--	--	[c]2,300	1.2
250	400	.3	21	--	--	--	--	[c]1,100	1.5
470	3,600	5.4	--	--	--	--	--	--	2.6
180	43	.8	--	--	--	--	--	[c]495	25.9
170	37	4.3	33	--	--	.17	1.2	[c]628	.6
160	40	4.4	32	--	--	.17	1.1	[c]606	2.0
760	2,000	4.8	--	3.5	--	--	--	[c]4,760	1.4
1,300	780	6.0	42	5.9	--	--	--	[c]3,900	1.7
590	540	3.0	85	--	--	--	--	[c]2,500	1.8
360	280	1.5	24	--	--	--	--	[c]1,360	1.2
88	57	.5	--	1.0	--	--	--	[c]365	13.2

NEVADA TEST SITE AREA

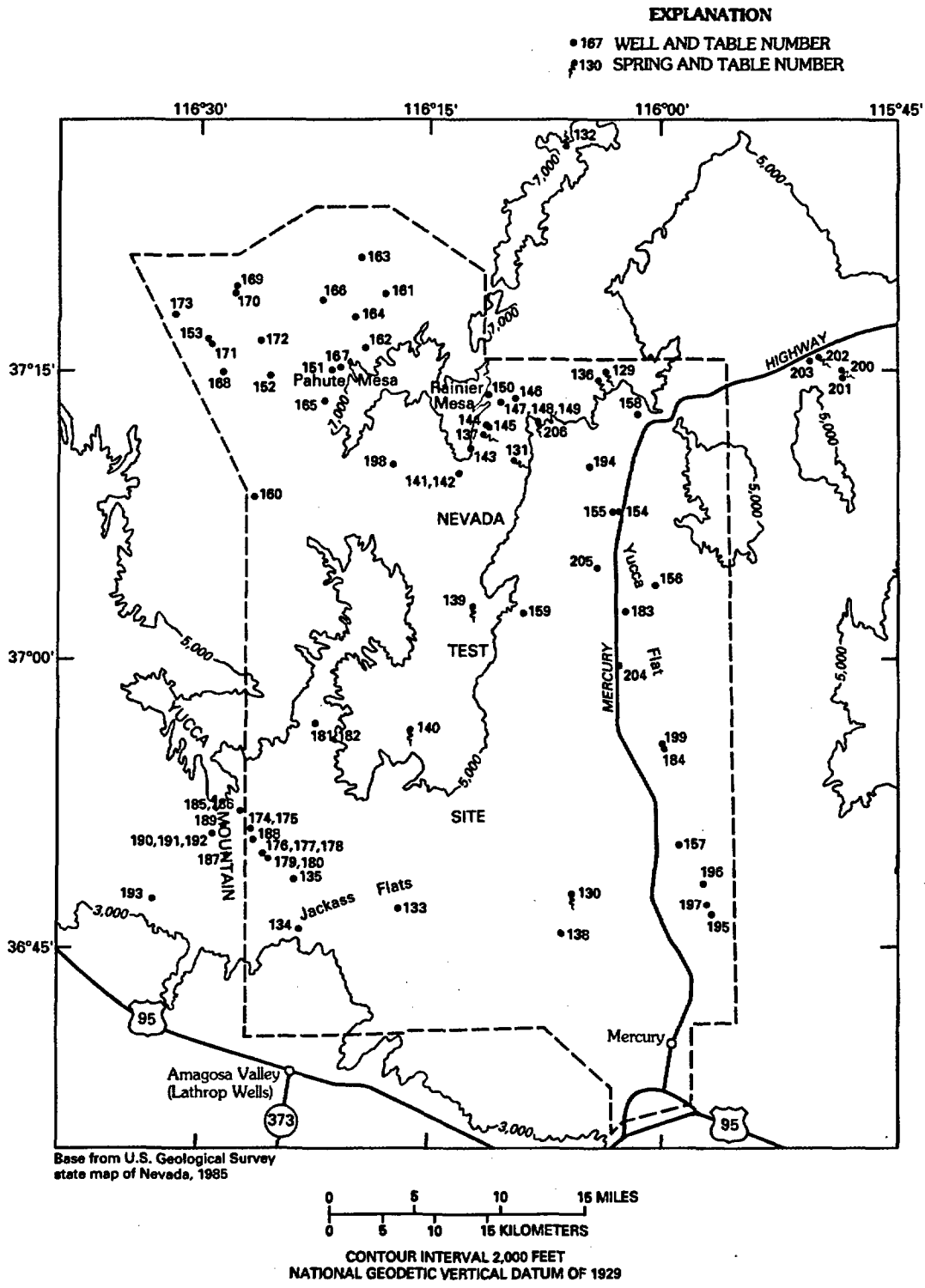

Figure 4.--Location of wells and springs in the Nevada Test Site area.

Table 5.--*Records of selected wells and*

[h, hours; m, meters; L/s, liters per

Site number	Site name	Nevada Coordinates North	Nevada Coordinates East	Latitude	Longitude	Data source	Analyzing laboratory
129	Butte Spring (Tubb Spring)	907700	676000	37°14'50"	116°04'00"	(7), USGS	USGS
130	Cane Spring	746000	668000	36°47'50"	116°05'30"	USGS	USGS
131	Captain Jack Spring	881500	647500	37°10'20"	116°09'32"	(2)	USGS
132	Indian Spring (Belted Range)	980750	664000	37°26'35"	116°06'06"	(3)	USGS
133	J-11 Jackass Flats	740968	611764	36°47'06"	116°17'06"	(3)	USGS
134	J-12 Jackass Flats	733509	581011	36°45'54"	116°23'24"	USGS	USGS
135	J-13 Jackass Flats	749209	579651	36°48'28"	116°23'40"	(7), (13), USGS	USGS
136	Oak Spring North Yucca Flat	907600	675400	37°14'30"	116°03'50"	(7)	USGS
137	Rainer Spring	888300	637300	37°11'22"	116°11'43"	(2)	USGS
138	Test Well F	731853	661153	36°45'34"	116°06'59"	WATSTORE	USGS
139	Tippipah Spring Yucca Flat	835482	634000	37°02'40"	116°12'25"	WATSTORE	USGS
140	Topopah Spring Calico Hills	797100	615750	36°56'21"	116°16'14"	(3)	USGS
141	TW-1 (0-171 M)	876855	629310	37°09'29"	116°13'22"	(7), USGS	USGS
142	TW-1 (0-1282 M)	876855	629310	37°09'29"	116°13'22"	USGS	USGS
143	U-12e.06 ST 14+25 Rainier Mesa	885550	633000	37°10'55"	116°12'36"	USGS	USGS
144	U-12n MN DFT 3+00 Rainier Mesa	892860	638210	37°12'07"	116°11'32"	USGS	USGS
145	U-12n.03 Tunnel Rainier Mesa	892739	638485	37°12'06"	116°11'28"	USGS	USGS
146	U-12t Main Drift Station 18+05	898510	643980	37°13'03"	116°10'20"	USGS	USGS
147	U-12t.03 UG #1 Rainier Mesa	900020	641789	37°13'07"	116°10'41"	(6), USGS	USGS
148	U-12t.03 UG #2 Rainier Mesa	900020	641789	37°13'07"	116°10'41"	(6), USGS	USGS
149	U-12t.03 UG #3 Rainier Mesa	900020	641789	37°13'07"	116°10'41"	USGS	USGS
150	U-12t.04 UG #1 Rainier Mesa	900030	641040	37°13'18"	116°10'56"	USGS	USGS
151	U-19v PS #1D Pahute Mesa	909396	592425	37°14'53"	116°20'57"	USGS	USGS
152	U-20a#2 Pahute Mesa	907395	571439	37°14'34"	116°25'16"	(1), USGS	USGS
153	U-20f Pahute Mesa	917818	551857	37°16'17"	116°29'18"	(4), USGS	USGS
154	U-2bs PS #1db Yucca Flat	864278	678022	37°07'22"	116°03'21"	USGS	USGS
155	U-2bs Yucca Flat	864330	677301	37°07'23"	116°03'31"	USGS	USGS
156	U-3cn#5 Yucca Flat	841255	687997	37°03'34"	116°01'21"	USGS	USGS
157	UE-05c Frenchman Flat	760133	700997	36°50'11"	115°58'47"	USGS	USGS
158	UE-15d Yucca Flat	895709	682084	37°12'33"	116°02'29"	USGS	USGS
159	UE-16f Yucca Flat	832353	648843	37°02'09"	116°09'25"	WATSTORE	USGS
160	UE-18r Pahute Mesa	868100	564700	37°08'06"	116°26'40"	(4), (5)	USGS
161	UE-19b#1 Pahute Mesa	933700	606835	37°18'52"	116°17'57"	(4), (5)	USGS
162	UE-19c Pahute Mesa	917000	601027	37°16'08"	116°19'10"	(4), (5)	USGS
163	UE-19d Pahute Mesa	945991	600202	37°20'54"	116°19'19"	(4), (5), USGS	USGS
164	UE-19e Pahute Mesa	927300	596999	37°17'50"	116°20'02"	(4), (5)	USGS
165	UE-19fs Pahute Mesa	900400	587084	37°13'28"	116°22'03"	(4), (5)	USGS
166	UE-19gs Pahute Mesa	931339	587843	37°18'30"	116°21'53"	(4), (5)	USGS
167	UE-19i Pahute Mesa	910105	593072	37°14'59"	116°20'48"	(4), (5)	USGS
168	UE-20d Pahute Mesa	909200	554280	37°14'52"	116°28'49"	(4), (5)	USGS
169	UE-20e Pahute Mesa	934564	560957	37°19'02"	116°27'25"	USGS	USGS
170	UE-20e#1 Pahute Mesa	934466	560958	37°19'01"	116°27'25"	(4), (5)	USGS
171	UE-20f Pahute Mesa	917825	552007	37°16'17"	116°29'17"	(4), (5)	USGS
172	UE-20h Pahute Mesa	918015	567746	37°16'18"	116°26'02"	(4), (5)	USGS
173	UE-20j Pahute Mesa	928015	538536	37°18'01"	116°32'03"	(4), (5)	USGS
174	UE-25b#1 (0-1220 M) Yucca Mtn	765243	566416	36°51'08"	116°26'23"	(8), (13)	USGS
175	UE-25b#1 (853-914 M) Yucca Mtn	765243	566416	36°51'08"	116°26'23"	(9), (13)	USGS
176	UE-25c#1 Yucca Mtn	757096	569680	36°49'47"	116°25'43"	(13)	USGS
177	UE-25c#2 Yucca Mtn	756849	569634	36°49'47"	116°25'43"	(13)	USGS
178	UE-25c#3 Yucca Mtn	756910	569555	36°49'47"	116°25'43"	(13)	USGS
179	UE-25p#1 (0-1200 M) Yucca Mtn	756171	571485	36°49'38"	116°25'21"	(10), USGS	USGS
180	UE-25p#1 (1300-1800 M)	756171	571485	36°49'38"	116°25'21"	(10), (13), USGS	USGS
181	UE-29a#2 (250-355 M)	797745	585547	36°56'29"	116°22'26"	(11), (13), (5)	USGS
182	UE-29a#2 (87-213 M)	797745	585547	36°56'29"	116°22'26"	(11), (13), (5)	USGS
183	USGS Water Well A Yucca Flat	833000	684000	37°02'13"	116°02'11"	(1), USGS	USGS

springs in the Nevada Test Site area

second; --, no data, NA, not applicable]

Aquifer	Lithology	Use	Elevation (m)	Well depth (m)	Water depth (m)	Pumping time (h)	Yield (L/s)	Sampling method	Filtration (μm)
Tos	--	Unused	1,707	NA	0	--	--	--	--
Tv	--	Unused	1,280	NA	0	--	0.1	Dipped	0.45
Tos	Tuff	Unused	1,670	NA	0	--	--	--	--
Tos	--	Unused	2,036	NA	0	--	--	--	--
Tos	--	PS/IND	1,050	405	316	--	7	--	--
Tv	Tuff	IND	953	347	226	--	57	Pump	.45
Tpt	Tuff	IND	1,011	1,060	283	0.4	42	Pump	.45
Tos	--	Unused	1,768	NA	0	--	.1	--	Coarse
Tos	--	Unused	1,902	NA	0	--	--	--	--
Pzc	--	OBS	1,263	1,036	529	--	--	--	.45
Tv	--	Unused	1,597	NA	0	--	--	--	.45
Tos	--	Unused	1,768	NA	0	--	--	--	--
Tos	Tuff	--	1,876	170	125	--	1	Bailer	--
Tos/Pzc	Tuff&LS	OBS	1,876	1,282	634	--	9.5	Pump	.45
Tv	Tuff	--	2,308	--	--	--	--	--	.45
Tv	Tuff	--	1,836	--	--	--	--	--	.45
Tv	--	--	NA	--	--	--	--	--	--
Tv	Tuff	--	1,707	--	--	--	--	--	--
Tv	--	--	NA	--	--	--	--	--	--
Tv	Tuff	--	NA	--	--	--	--	--	--
--	--	--	NA	--	--	--	--	--	--
--	--	--	2,072	--	--	--	--	--	--
Qal	--	OBS	2,085	1,254	688	--	--	--	--
Tv	RHY	IND	1,973	1,372	630	0.7	11	Pump	.45
Tv	RHY	OBS	1,864	1,281	596	--	6	--	--
Qal	--	OBS	1,289	383	209	--	--	--	--
Tmr	Tuff	EMPLACE	1,288	585	525	--	14	--	--
Pzc	--	TEST	1,223	922	496	--	--	--	--
Tw	Lava Flows	OBS	980	817	75	5.0	21	--	--
Pz/Є/pЄ	DOLO	IND/OBS	1,398	1,673	203	.5	22	Pump	.45
Qal	--	TEST	1,418	394	430	--	--	--	--
Tv	Tuff RHY	OBS	[1]1,688	1,525	418	47	15	Swabbed	--
Tv	RHY&WTUFF	IND	2,073	1,372	645	12	6	--	--
Tv	RHY	OBS	2,144	1,378	715	--	--	--	--
Tv	RHY	OBS	2,094	2,344	664	--	--	--	--
Tv	Tuff	IND	2,109	1,830	683	24	4	Pump	--
Tv	RHY	Plugged	2,053	1,457	703	24	8	Pump	.45
Tv	Tuff	IND	2,048	1,374	623	24	12	Pump	--
Tv	RHY	Unused	2,085	2,438	688	--	9	Pump	--
Tv	RHY	Unused	1,906	1,369	632	--	4	Pump	--
Tv	RHY/Tuff	Unused	1,919	660	--		--	--	--
Tv	RHY	Unused	1,919	1,949	554	28	6	--	--
Tv	RHY	Unused	1,864	4,171	596	47	6	Pump	--
Tv	RHY/Tuff	Unused	1,999	2,197	645		27	--	--
Tv	WTUFF	Unused	1,799	1,734	387		4	Pump	--
Th/Ttc	Tuff	DOM	1,201	1,220	470	72	35	Pump	.45
Tcb	Tuff	TEST	1,201	1,220	470	672	--	Pump	.45
Tcb/Tctt	Tuff	TEST	1,131	914	401	92	16	Pump	.45
Tcb	Tuff	TEST	1,132	914	401	138	15	Pump	.45
Tcb/Tctt	Tuff	TEST	1,132	914	402	112	26	Pump	.45
--	Tuff	TEST	1,114	1,805	382	53	22	Pump	.45
Srm/DSlm	DOLO	TEST	1,114	1,805	361	101	31	Pump	.45
Th	RHY	TEST	1,215	422	29	91	32	Pump	.45
Th	RHY	TEST	1,215	422	28	62	35	Pump	.45
QTal	S/G	IND	1,221	570	492	6.2	8	Pump	.45

Table 5.--*Records of selected wells and*

Site number	Site name	Nevada Coordinates North	Nevada Coordinates East	Latitude	Longitude	Data source	Analyzing laboratory
184	USGS Water Well C Yucca Flat	790083	692061	36°55'08"	116°00'34"	(1)	USGS
185	USW H-1 (572-687 M) Yucca Mtn	770254	562388	36°51'57"	116°27'12"	(8), (13)	USGS
186	USW H-1 (687-1829 M) Yucca Mtn	770254	562388	36°51'57"	116°27'12"	(8), (13)	USGS
187	USW H-3 Yucca Mtn	756542	558452	36°49'42"	116°28'00"	(13)	USGS
188	USW H-4 Yucca Mtn	761644	563911	36°50'32"	116°26'54"	(12), (13)	USGS
189	USW H-5 Yucca Mtn	766634	558909	36°51'22"	116°27'55"	(8), (13)	USGS
190	USW H-6 (525-1220 M)	763298	554074	36°50'49"	116°28'55"	(13)	USGS
191	USW H-6 (600-650 M)	763298	554074	36°50'49"	116°28'55"	(13)	USGS
192	USW H-6 (753-835 M)	763298	554074	36°50'49"	116°28'55"	(13)	USGS
193	USW VH-1 Crater Flat	743356	533626	36°47'32"	116°33'07"	(13)	USGS
194	Water Well 2 Yucca Flat	879999	668720	37°09'58"	116°05'15"	(1), USGS	USGS
195	Water Well 5A Frenchman Flat	738361	707514	36°46'35"	115°57'29"	(1), USGS	USGS
196	Water Well 5B Frenchman Flat	747359	704263	36°48'04"	115°58'08"	(1), USGS	USGS
197	Water Well 5C Frenchman Flat	741644	706305	36°47'08"	115°57'44"	(1), USGS	USGS
198	Water Well 8 Pahute Mesa	879468	609999	37°09'56"	116°17'21"	(1), USGS	USGS
199	Water Well C-1 Yucca Flat	790011	692132	36°55'07"	116°00'34"	(1), USGS	USGS
200	Watertown 1 SW Crystal Spring	909046	749549	37°14'40"	115°48'33"	USGS	USGS
201	Watertown 2 Groom Lake	909062	752226	37°14'39"	115°48'01"	USGS	USGS
202	Watertown 3 SW Crystal Spring	91499C	742272	37°15'39"	115°50'03"	USGS	USGS
203	Watertown 4 Groom Lake	914540	741224	37°15'37"	115°50'20"	USGS	USGS
204	Well 3 Yucca Flat	817795	677762	36°59'43"	116°03'29"	(1), USGS	USGS
205	Well D Yucca Flat	846600	672600	37°04'28"	116°04'30"	USGS	USGS
206	Whiterock Spring	893100	656000	37°12'09"	116°07'52"	USGS	USGS

[1]Claassen (1973)
[2]Schoff and Moore (1964)
[3]Moore (1961)
[4]Blankennagel and Weir (1973)
[5]Fenix and Scisson (1987)
[6]White, Claassen, and Benson (1980)
[7]Claassen (1985)
[8]Benson, Robison, Blankennagel, and Ogard (1983)
[9]Lahoud, Lobmeyer, and Whitfield (1984)
[10]Craig and Robison (1984)
[11]Waddell (1984)
[12]Whitfield, Eshom, Thordarson, and Schaefer (1985)
[13]Benson and McKinley (1985)

springs in the Nevada Test Site area--Continued

Aquifer	Lithology	Use	Elevation (m)	Well depth (m)	Water depth (m)	Pumping time (h)	Yield (L/s)	Sampling method	Filtration (μm)
Єc	LS	IND	1,195	518	470	1.3	29	Pump	0.45
Tcp/Ttc	WTUFF	TEST	1,303	1,829	572	48	4	Pump	.45
Tcb/Ttc	NWTUFF	TEST	1,303	1,829	521	56	2	Pump	.45
Tct/Tlr	Tuff	TEST	1,483	1,219	751	500	.1	Pump	.45
Tcb/Tctt	Tuff	TEST	1,249	1,219	519	210	19	Pump	.45
Tcb/Tctt	Tuff	TEST	1,477	1,219	704	95	10	Pump	.45
Tcb/Tctt	Tuff	TEST	1,302	1,220	526	38	26	Pump	.45
Tct	Tuff	TEST	1,302	1,220	526	168	14	Pump	.45
Tcb	Tuff	TEST	1,302	1,220	526	216	13	Pump	.45
Tcb	Tuff	TEST	954	762	184	24	15	Pump	.45
Qal	SILT&DOLO	DOM	1,362	1,043	626	0.3	10	Pump	.45
Tv	Tuff	IRR	943	277	212	--	6	--	--
QTal	S/G	IND	942	274	208	4.0	16	Pump	.45
QTal	S/G	IND	939	366	211	4.0	20	Pump	.45
Tv	RHY/Tuff	IND	1,736	1,673	328	3.3	37	Pump	.45
Єc	LS	IND	1,195	503	470	4.0	19	Pump	.45
Tv	RHY/Tuff	DOM	1,354	204	149	--	1	--	--
Tv	--	DOM	1,352	333	273	--	1	--	--
QTal	--	IND/PS	1,355	113	33	--	16	Pump	.45
QTal	--	IND/IRR	1,355	165	35	--	16	Pump	.45
Tv	Tuff, SS	IRR	1,210	548	486	4.0	2	Pump	.45
Pzc	DOLO	OBS	1,265	594	528	--	1	Bailer	--
Tv	--	Unused	1,550	NA	0	--	.1	Flowing	.45

Table 6.--*Chemical analysis of water from selected*

[mg/L, milligrams per liter; µS/cm, microsiemens per

Site number	Date	Specific conductance (µS/cm)	Field pH (units)	Laboratory pH (units)	Temperature (°C)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity as HCO_3 (mg/L)
129	11/10/1960	[a]272	--	7.8	15.0	21	2.4	34	6.0	139
130	03/25/1971	[a]493	6.9	7.8	10.5	44	12	46	6.9	247
131	05/01/1959	[a]188	--	6.9	13.3	3.2	.0	47	2.2	95
132	05/01/1958	[a]358	--	7.2	10.0	42	7.8	17	4.8	148
133	12/16/1958	[a]1,180	--	7.6	35.6	82	13	143	15	102
134	05/01/1974	271	7.2	7.6	27.0	15	2.2	38	4.6	118
135	03/26/1971	285	7.2	7.4	31.0	12	2.1	42	5.0	124
136	04/28/1958	[a]241	--	7.5	12.8	18	4.9	22	6.4	116
137	09/18/1957	[a]346	--	8.3	16.1	7.2	1.0	66	4.0	158
138	03/12/1980	625	--	7.4	64.0	44	16	64	9.7	244
139	08/06/1980	[a]215	6.9	--	13.0	5.1	.4	40	3.1	[b]92
140	03/25/1958	[a]114	--	6.9	11.7	7.2	1.0	14	6.4	48
141	10/01/1960	[a]177	7.6	7.6	--	2.0	.0	36	1.0	82
142	06/22/1965	[a]199	--	8.7	27.8	1.2	.1	49	.0	87
143	08/02/1972	205	8.1	6.4	19.2	3.3	.4	34	6.4	86
144	08/02/1972	570	8.2	7.3	12.5	46	6.8	62	7.4	221
145	09/30/1966	[a]230	--	8.0	5.8	1.1	.2	51	2.8	110
146	11/15/1972	282	7.8	7.1	--	2.4	.1	67	3.5	149
147	11/16/1972	227	7.2	6.8	--	9.1	1.5	38	6.6	113
148	02/15/1973	[a]267	--	7.4	--	20	5.0	33	5.3	136
149	07/12/1974	[a]271	--	7.4	--	27	5.0	24	5.1	133
150	06/22/1973	[a]280	--	7.2	--	20	4.1	30	6.6	133
151	06/12/1973	2,580	9.6	9.5	--	250	.1	330	17	34
152	10/06/1971	270	8.3	7.9	39.0	5.9	.2	55	2.2	110
153	05/27/1966	[a]297	--	9.1	41.6	.4	.0	69	.8	98
154	09/19/1974	[a]170	--	7.4	73.9	11	1.0	21	4.9	85
155	08/23/1972	[a]389	--	6.8	26.0	2.5	.3	79	5.6	188
156	11/15/1974	[a]586	--	--	--	41	17	54	9.7	271
157	03/23/1971	1,380	--	7.8	26.2	8.6	2.2	86	6.3	186
158	03/21/1971	750	7.3	7.9	34.5	56	16	80	15	398
159	09/25/1977	[a]1,363	--	8.2	23.0	5.2	2.0	430	3.0	1,000
160	01/29/1968	449	--	8.0	32.2	26	1.0	81	3.1	252
161	10/13/1964	[a]314	7.1	7.4	30.0	24	2.4	42	3.0	150
162	03/09/1966	[a]644	--	7.9	31.1	13	.1	140	.2	400
163	03/09/1966	950	7.2	7.9	34.4	57	2.8	150	4.3	489
164	08/01/1966	[a]204	--	8.2	35.0	3.7	--	43	.8	80
165	08/18/1965	[a]202	--	8.1	37.7	11	1.6	29	3.0	86
166	03/27/1965	[a]345	--	8.2	41.6	12	--	68	.6	146
167	09/02/1965	[a]228	--	7.7	47.2	5.0	0	75	.5	98
168	08/12/1966	[a]487	--	8.5	40.0	8.5	.1	107	2.6	192
169	06/05/1964	[a]515	--	7.7	47.2	.4	.0	110	3.8	130
170	03/08/1966	[a]352	--	8.5	32.8	.2	--	83	2.0	119
171	08/11/1964	[a]519	--	7.2	48.9	4.8	--	113	2.0	[b]164
172	08/26/1965	[a]301	--	8.1	32.2	.6	--	64	1.8	107
173	10/21/1964	[a]904	7.5	7.0	38.9	46	1.2	140	6.4	150
174	09/01/1981	300	7.5	7.5	36.0	17	.6	46	3.5	[b]139
175	07/20/1982	291	7.1	7.7	37.2	18	.7	46	2.8	[b]133
176	09/30/1983	290	7.6	7.7	41.5	11	.3	56	2.0	[b]151
177	03/13/1984	295	7.7	7.8	40.5	12	.4	54	2.1	[b]139
178	05/09/1984	298	7.7	7.8	40.8	11	.4	55	1.9	[b]137

wells and springs in the Nevada Test Site area

centimeter at 25° Celsius; °C, degrees Celsius; --, no data]

Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Nitrate (mg/L)	Phosphate (mg/L)	Lithium (mg/L)	Strontium (mg/L)	Dissolved solids (mg/L)	Anion-cation balance (percent)
12	12	0.4	30	0.80	12	--	--	185	0.2
34	23	.8	65	6.2	--	0.02	0.13	347	0.8
25	4.0	.4	43	--	1.2	--	--	178	1.1
36	12	.4	61	--	--	--	--	[c]254	0.9
449	18	1.1	68	8.0	--	--	--	[c]847	0.1
23	7.7	1.6	58	1.9	.18	.04	.02	215	0.3
17	7.1	2.4	57	7.2	.00	.04	.02	202	0.2
14	9.0	.3	57	--	.10	--	--	180	0.8
18	14.0	.6	65	.60	2.2	--	.20	250	0.1
75	20.0	3.0	38	.08	--	.11	.62	372	2.0
19	8.0	.3	48	--	--	--	.01	191	.7
15	3.0	.3	50	2.0	.90	--	--	123	.6
11	7.0	.6	39	1.9	11	--	--	240	7.4
9.0	2.5	1.8	29	1.6	--	.04	--	139	5.4
11	9.1	.2	46	--	.15	.02	.03	184	1.8
64	32	.6	41	.60	.51	.03	.05	408	1.3
12	9.6	.3	51	1.3	.00	.03	.02	180	.5
16	12	.1	41	.46	.12	.02	--	248	0.2
16	10	.1	50	.55	.03	.01	.01	220	1.5
14	9.0	--	81	.36	1.0	.02	.01	214	3.6
15	11	.2	67	.48	.09	--	--	197	2.1
16	11	.3	60	.60	.28	.01	.02	219	0.5
1,100	100	.5	130	.03	.25	.33	3.2	2,220	1.8
28	10	2.8	44	.70	.01	.05	.01	194	1.0
23	7.0	3.7	39	.70	.12	--	--	194	5.8
8.4	3.4	.2	26	.09	.21	.05	.06	124	.1
28	8.6	1.3	52	.80	.12	.03	.05	278	3.2
41	32	.8	38	.02	.21	.06	.21	352	1.6
44	11	1.8	59	7.4	.00	.01	.06	303	1.6
44	15	1.4	19	.00	.00	.16	.45	413	0.2
110	18	4.3	7.2	--	--	--	--	1,080	.5
24	7.8	2.9	45	.60	--	.10	.18	313	0.2
21	6.8	3.2	41	0.40	--	0.04	--	229	1.4
0	7.7	4.3	30	.20	0.00	.28	0.09	390	1.8
57	20	4.9	55	.60	--	.38	.19	578	1.6
16	3.7	5.3	56	1.7	--	.06	.02	169	1.2
9.0	6.3	3.6	56	2.2	--	.02	.02	186	1.4
36	9.0	2.0	46	1.3	--	--	--	248	1.0
70	7.0	5.5	39	.20	--	.05	.04	230	.4
40	24	3.0	45	--	--	.08	--	327	3.4
43	57	4.6	44	1.0	.00	--	--	336	.3
42	20	4.5	36	.50	.00	.07	.03	245	.2
48	40	5.0	47	.10	.02	--	--	368	1.2
30	15	2.7	49	1.3	.01	.08	.02	231	1.4
135	120	2.2	44	.90	.00	--	--	583	.1
22	8.5	1.6	52	4.0	--	.22	.04	225	1.2
21	7.5	1.6	51	--	--	.12	.05	221	1.9
23	7.4	2.1	56	4.9	--	.12	.03	[c]229	3.4
22	7.1	2.0	54	5.3	.03	.09	.04	[c]233	.1
22	7.2	2.0	53	5.8	--	.11	.04	[c]229	.2

Table 6.--*Chemical analysis of water from selected*

Site number	Date	Specific conductance (µS/cm)	Field pH (units)	Laboratory pH (units)	Temperature (°C)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity as HCO_3 (mg/L)
179	02/11/1983	[d]1,115	6.7	7.8	57	94	31	150	12	753
180	05/12/1983	[d]1,549	6.6	7.2	56.0	100	39	150	12	694
181	01/08/1982	240	7.2	7.6	25.1	10	.2	44	1.1	[b]107
182	01/15/1982	258	7.0	7.4	22.7	10	.3	44	1.3	[b]107
183	03/23/1971	390	7.7	7.8	26.6	21	7.4	49	8.8	215
184	03/29/1971	1,020	7.5	7.5	36.7	72	30	120	14	589
185	10/20/1980	255	7.7	7.8	33.0	4.5	--	51	2.4	115
186	12/08/1980	247	7.5	8.0	34.7	6.2	--	51	1.6	122
187	03/14/1984	523	9.2	9.0	26.5	0.8	0.0	120	1.1	274
188	05/17/1982	340	7.4	7.9	34.8	17	.3	73	2.6	[b]173
189	07/03/1982	275	7.8	7.8	36.5	1.9	.0	60	2.1	[b]126
190	10/16/1982	379	8.1	8.3	37.8	4.1	.1	86	1.3	[b]182
191	07/06/1984	402	8.3	8.3	37.2	4.7	.1	88	1.4	[b]234
192	06/20/1984	360	8.3	8.4	41.6	1.4	.0	88	1.3	[b]217
193	02/11/1981	388	7.5	8.0	35.5	9.9	1.5	78	1.8	[b]162
194	03/21/1971	376	7.5	7.8	34.5	31	14	27	6.7	197
195	06/04/1964	[a]687	8.9	8.2	23.0	2.7	.4	160	6.4	384
196	03/25/1971	490	8.2	7.9	25.0	7.0	2.2	90	11	181
197	03/22/1971	560	8.7	8.1	24.5	1.0	.4	130	6.8	316
198	03/24/1971	205	7.2	7.4	26.5	8.3	1.1	31	3.6	80
199	03/29/1971	1,030	7.0	7.6	38.0	72	30	120	14	589
200	04/21/1966	[a]338	--	7.8	24.4	5.5	1.6	73	9.0	165
201	09/04/1969	[a]380	--	7.5	29.6	3.0	1.0	83	10	207
202	09/04/1969	[a]340	--	7.5	24.6	15	3.5	55	7.4	176
203	09/04/1969	[a]905	--	6.9	35.7	83	22	82	23	508
204	04/16/1969	[a]369	--	7.7	21.5	19	13	40	8.5	197
205	10/07/1965	[a]449	--	8.1	--	11	4.9	90	8.4	276
206	07/31/1972	241	7.7	6.2	18.0	3.8	.0	44	5.2	79

[a]Laboratory conductivity.
[b]Field alkalinity.
[c]Calculated value.
[d]Original data.

wells and springs in the Nevada Test Site area--Continued

Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Nitrate (mg/L)	Phosphate (mg/L)	Lithium (mg/L)	Strontium (mg/L)	Dissolved solids (mg/L)	Anion-cation balance (percent)
78	26	4.9	44	--	--	0.31	0.49	812	1.8
160	28	4.7	41	--	--	.59	.45	854	2.9
22	11	1.0	44	9.3	--	.10	.04	194	2.3
21	8.8	.9	44	9.7	--	.11	.03	192	0.3
17	4.7	.6	69	6.9	--	.02	.21	266	0.4
66	33	1.1	29	.10	.00	.30	.77	628	1.6
18	5.7	1.2	47	--	--	.04	.01	176	0.4
19	5.8	1.0	40	--	--	.04	.02	188	0.8
31	9.5	5.5	43	.10	--	.22	--	[c]347	3.7
26	6.9	4.6	46	--	--	.13	.03	248	3.8
16	6.1	1.4	48	--	--	.06	.01	220	2.1
29	7.6	4.7	48	--	--	.08	.01	263	.8
32	7.4	4.7	49	--	.06	.06	.01	--	9.4
25	7.2	3.9	47	--	.18	.07	--	[c]269	6.6
44	10	2.7	49	--	--	.09	.06	277	.8
21	6.0	0.4	44	5.1	--	.01	.08	228	2.4
27	11	2.3	50	7.5	.01	--	--	456	0.0
52	21	.7	41	11	.00	.04	.04	336	0.5
23	8.3	.8	47	5.5	--	--	.02	362	0.2
14	7.4	.8	41	4.3	.00	.02	.02	135	2.4
66	33	1.0	29	.00	.00	.30	.78	621	1.6
38	5.9	2.1	71	1.8	.01	.11	.03	272	0.5
15	6.7	2.2	59	1.7	.00	.06	.06	296	1.1
20	7.2	1.1	75	5.0	--	.09	.16	288	0.8
69	11	1.5	21	.00	.00	.33	1.0	565	0.2
19	4.0	.9	64	12	--	.04	.31	268	2.5
17	9.5	1.4	43	--	--	.04	.10	324	1.3
28	10	.5	47	1.5	--	.03	.03	208	1.1

OASIS VALLEY AREA

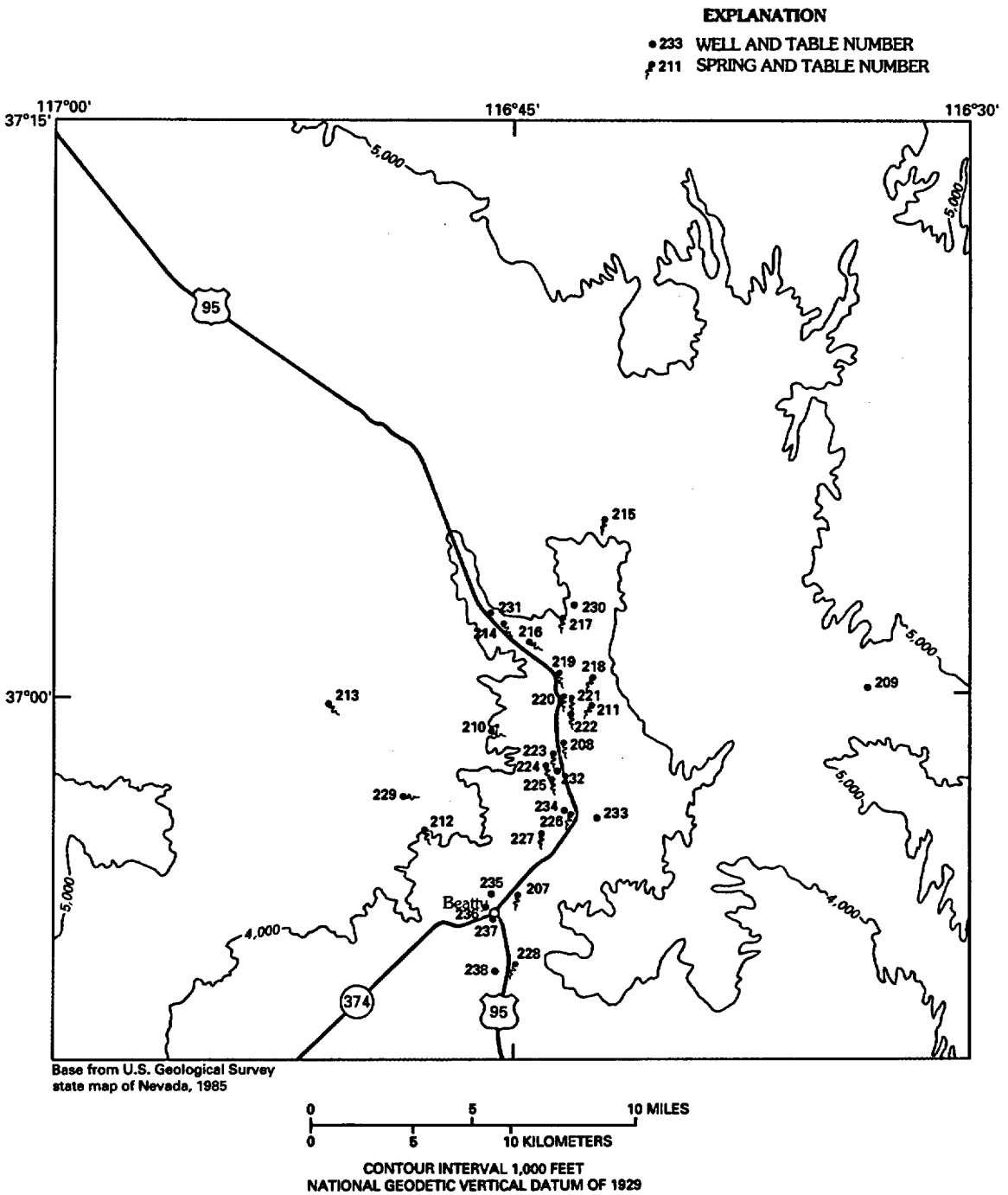

Figure 5.--Location of wells and springs in the Oasis Valley area.

Table 7.--*Records of selected wells*

[h, hours; m, meters; L/s, liters per

Site number	Site name	Nevada Coordinates North	Nevada Coordinates East	Latitude	Longitude	Data source	Analyzing laboratory
207	Beatty Spring 12S/47E-05cda	789300	477500	36°55'07"	116°44'37"	(1), USGS	USGS
208	Burro Hot Spring 11S/47E-16dcd	809500	484000	36°58'26"	116°43'17"	(1), USGS	USGS
209	Coffer's Well 11S/48E-1dd	820480	532640	37°00'15"	116°33'18"	EPA	EPA
210	Crystal Spring 11S/47E-18acb	813500	473200	36°59'06"	116°45'30"	USGS	USGS
211	Goss Spring 11S/47E-10db	816946	488238	36°59'40"	116°42'25"	EPA	EPA
212	Indian Springs 11S/46E-26dcc	798800	462700	36°56'40"	116°47'30"	(1), USGS	USGS
213	Mud Spring 11S/46E-08bdc	817500	444900	36°59'40"	116°51'20"	USGS	USGS
214	Peacock R. Spr. 10S/47E-31aab	830200	474300	37°01'51"	116°45'17"	(1), USGS	USGS
215	Spring 10S/47E-14bab	846000	493200	37°04'27"	116°41'24"	(1), USGS	USGS
216	Spring 10S/47E-32dda	826200	480500	37°01'11"	116°44'00"	(1), USGS	USGS
217	Spring 10S/47E-33aab	830000	484800	37°01'49"	116°43'07"	(1), USGS	USGS
218	Spring 11S/47E-03cdb	821000	487800	37°00'20"	116°42'30"	(1), USGS	USGS
219	Spring 11S/47E-04cad	821200	483100	37°00'30"	116°43'30"	(1), USGS	USGS
220	Spring 11S/47E-10bcc	817500	486100	36°59'45"	116°42'51"	(1), USGS	USGS
221	Spring 11S/47E-10caa	817200	488200	36°59'42"	116°42'25"	(1), USGS	USGS
222	Spring 11S/47E-10ccb	815400	486000	36°59'24"	116°42'53"	(1), USGS	USGS
223	Spring 11S/47E-21aba	809000	484600	36°58'21"	116°43'10"	(1), USGS	USGS
224	Spring 11S/47E-21acc (Well)	807100	483700	36°58'03"	116°43'21"	(1), USGS	USGS
225	Spring 11S/47E-21dbb2	806400	483800	36°57'56"	116°43'20"	USGS	USGS
226	Spring 11S/47E-28dac	800400	485100	36°57'00"	116°43'00"	(1), (2), USGS	USGS
227	Spring 11S/47E-33bac	797900	481900	36°56'31"	116°43'43"	(1), USGS	USGS
228	Spring 12S/47E-20bbb	777100	475600	36°53'06"	116°45'00"	(1), USGS	USGS
229	Upper Indian Springs	801300	459500	36°57'05"	116°48'19"	(1), USGS	USGS
230	Well 10S/47E-27cba	832700	486900	37°02'16"	116°42'42"	(1), USGS	USGS
231	Well 10S/47E-30dcc	831100	473200	37°02'00"	116°45'30"	(1), USGS	USGS
232	Well 11S/47E-21dbb1	806400	483500	36°57'56"	116°43'20"	(1), USGS	USGS
233	Well 11S/47E-27cba	800600	486500	36°56'58"	116°42'46"	(1), USGS	USGS
234	Well 11S/47E-28aac	802600	484600	36°57'18"	116°43'10"	(1), USGS	USGS
235	Well 12S/47E-06cdd	788200	472400	36°54'55"	116°45'40"	(1), USGS	USGS
236	Well 12S/47E-07bdb	786500	471500	36°54'35"	116°45'50"	USGS	USGS
237	Well 12S/47E-07dbd	784500	473600	36°54'20"	116°45'25"	(1), USGS	USGS
238	Well 12S/47E-19adc	775000	474200	36°52'45"	116°45'18"	(1), USGS	USGS

[1]White (1979)
[2]Thordarson and Robinson (1971)

and springs in the Oasis Valley area

second; --, no data, NA, not applicable]

Aquifer	Lithology	Use	Elevation (m)	Well depth (m)	Water depth (m)	Pumping time (h)	Yield (L/s)	Sampling method	Filtration (μm)
Tv	--	DOM	1,027	NA	0	--	--	--	--
Tv	--	Unused	1,097	NA	0	--	--	--	--
--	--	--	1,122	--	--	--	--	--	--
Tv	--	Unused	1,207	NA	0	--	--	--	--
--	--	IRR	1,158	NA	0	--	3	--	--
Tv	--	DOM	1,219	NA	0	--	1	--	--
Qal	--	Stock	1,294	NA	0	--	--	--	--
Qal	--	DOM/IND	1,170	NA	0	--	1	--	--
Qal	--	IRR	1,214	NA	0	--	22	--	--
Qal	--	DOM	1,134	NA	0	--	14	--	--
Tv	--	DOM/IRR	1,183	NA	0	--	16	--	--
Tv	--	DOM/IND	1,170	NA	0	--	3	--	--
Qal	--	DOM	1,122	NA	0	--	1	--	--
Tv	--	DOM	1,122	NA	0	--	--	--	--
Tv	--	IRR	1,158	NA	0	--	3	--	--
Qal	--	DOM	1,113	NA	0	--	--	--	--
Qal	--	DOM	1,097	NA	0	--	1	--	--
Qal	--	IRR	1,085	NA	3	--	2	--	--
Qal	--	DOM	1,082	NA	0	--	2	--	--
Qal	--	IRR	1,061	NA	0	--	2	--	--
Tv	--	DOM	1,061	NA	0	--	2	--	--
Qal	--	DOM/IND	975	NA	0	--	25	--	--
Tv	--	DOM	1,280	NA	0	--	--	--	--
Qal	--	DOM	1,167	2	0	--	1	--	--
Qal	--	DOM	1,183	37	9.0	--	3	--	--
Qal	--	Stock	1,079	--	1	--	2	--	--
Qal	--	DOM	1,061	17	9	--	1	--	--
Qal	--	DOM	1,073	8	--	--	.1	--	--
Qal	--	DOM	1,030	55	24	--	5	--	--
Qal	--	DOM	1,024	76	30	0.5	.3	--	--
Qal	--	DOM	1,000	91	7	--	15	--	--
Qal	--	IRR/DOM	969	55	--	--	16	Pump	0.45

Table 8.--*Chemical analysis of water from selected*

[mg/L, milligrams per liter; µS/cm, microsiemens per centimeter

Site number	Date	Specific conductance (µS/cm)	Field pH (units)	Laboratory pH (units)	Temperature (°C)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity as HCO_3 (mg/L)
207	07/03/1967	534	8.2	7.9	24.0	13	2.8	106	5.8	[b]196
208	02/05/1974	268	--	7.8	36.5	18	.5	173	7.8	268
209	07/15/1976	[a]340	--	6.8	24.0	12	.2	69	.8	160
210	07/05/1967	355	7.7	7.5	24.0	22	3.5	50	3.6	[b]143
211	01/21/1975	[a]700	--	7.1	16.0	4.8	5.3	170	13	290
212	07/03/1967	316	7.9	7.4	21.0	6.3	1.0	57	1.6	[b]127
213	07/06/1967	416	7.8	7.4	19.5	5	2.1	75	3.2	[b]125
214	07/05/1967	597	7.6	7.7	19.5	23	4.3	100	7.9	[b]232
215	07/05/1967	[a]701	8.1	7.8	29.0	7.5	.3	143	8.1	[b]212
216	07/05/1967	593	7.6	7.7	22.0	30	5.4	137	.1	[b]314
217	07/05/1967	889	7.8	7.6	22.0	26	4.5	169	9.0	[b]304
218	07/05/1967	562	8.2	7.7	23.0	16	1.1	122	4.8	[b]188
219	07/06/1967	1,100	7.7	7.8	21.0	26	4.5	223	8.7	[b]388
220	07/06/1967	742	7.6	7.7	18.5	14	.4	156	7.1	[b]294
221	07/06/1967	915	8.1	8.1	24.0	14	.7	196	2.3	[b]306
222	07/06/1967	616	8.3	8.1	21.0	12	.9	124	4.6	[b]185
223	07/04/1967	735	7.6	7.8	41.0	13	.5	150	7.7	[b]228
224	07/04/1967	1,110	7.7	8.0	31.5	23	2.9	232	8.5	372
225	07/04/1967	1,180	7.9	8.2	26.0	26	3.1	246	8.2	[b]396
226	07/04/1967	1,110	9.1	8.9	21.0	10	3.3	249	8.8	[b]360
227	07/04/1967	538	8.2	7.9	34.0	8.7	.1	112	2.4	[b]178
228	07/23/1967	1,210	7.7	8.0	18.5	27	3.6	254	10	[b]392
229	07/03/1967	291	8.7	7.8	26.5	.0	.4	59	1.7	[b]116
230	07/05/1967	893	7.7	7.8	16.0	22	1.5	171	8.5	[b]288
231	07/05/1967	592	7.8	7.6	22.5	24	4.6	100	8.0	[b]234
232	07/04/1967	1,150	7.7	8.1	29.0	25	3.2	243	8.3	[b]372
233	07/03/1967	561	8.2	7.9	21.5	10	.4	115	6.1	[b]185
234	07/04/1967	1,510	8.0	8.3	18.0	36	5.2	315	11	[b]524
235	07/03/1967	661	7.9	7.9	21.5	32	4.4	105	7.3	[b]216
236	05/20/1968	[a]501	--	8.2	23.5	7.5	1.0	103	1.2	160
237	07/03/1967	1,190	7.9	8.0	20.0	25	3.3	256	10	[b]368
238	11/19/1972	1,430	7.8	7.3	--	38	5.6	290	10	439

[a]Laboratory conductance.
[b]Field alkalinity.
[c]Calculated value.

wells and springs in the Oasis Valley area

at 25 degrees Celsius; °C, degrees Celsius; --, no data]

Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Nitrate (mg/L)	Phosphate (mg/L)	Lithium (mg/L)	Strontium (mg/L)	Dissolved solids (mg/L)	Anion-cation balance (percent)
70	26	3.8	60	0.50	0.00	0.11	0.08	408	1.8
127	47	6.1	60	0.0	.00	--	.12	572	1.2
30	10	3.6	--	.37	--	.11	.16	[c]240	1.1
22	21	.6	45	13	.00	.06	.09	261	3.2
80	65	3.1	--	1.2	--	.07	--	[c]150	.1
17	15	.4	48	4.5	.00	.04	.06	236	.6
10	34	.9	53	2.1	.00	.06	.06	287	7.2
53	42	2.5	75	1.2	.00	.08	.23	443	1.4
83	51	4.2	57	.10	.00	.17	.04	458	1.2
96	37	2.2	62	.0	.00	.11	.42	530	1.7
103	68	4.3	54	.20	.00	.11	.19	601	.5
90	45	2.9	47	.70	.00	.15	.10	430	1.2
129	80	5.1	62	.40	.00	.15	.35	722	.6
91	42	4.6	51	.40	.00	.18	.07	522	1.7
109	54	6.1	38	.20	.00	.22	.21	599	2.0
82	45	2.7	50	1.4	.00	.16	.13	422	1.2
116	35	6.1	70	.10	.00	.25	.10	516	.9
159	69	6.0	60	.0	.00	.27	.23	750	0.4
167	72	6.0	54	.0	.00	.28	.26	803	.6
169	68	6.4	45	.0	.00	.29	.10	721	.7
70	27	3.8	46	.10	.00	.14	.03	339	.4
184	77	5.8	66	.0	.00	.10	.15	803	.5
14	14	.4	44	1.2	.00	.04	.03	222	.7
102	65	3.6	62	.10	.00	.19	.19	603	.2
59	40	1.8	72	.70	.00	.08	.23	448	1.3
167	72	6.0	56	.0	.00	.28	.26	783	1.5
72	36	3.2	62	.0	.00	.14	.03	381	1.7
218	93	7.0	59	.0	.00	.36	.38	982	.8
93	38	.3	54	2.0	.00	.08	.13	456	2.7
46	33	.9	24	10	.00	.06	--	322	3.0
179	73	6.0	66	.0	.00	.21	.15	801	3.7
250	100	6.3	67	.48	.09	.22	.20	1,040	1.1

SPRING MOUNTAINS AREA

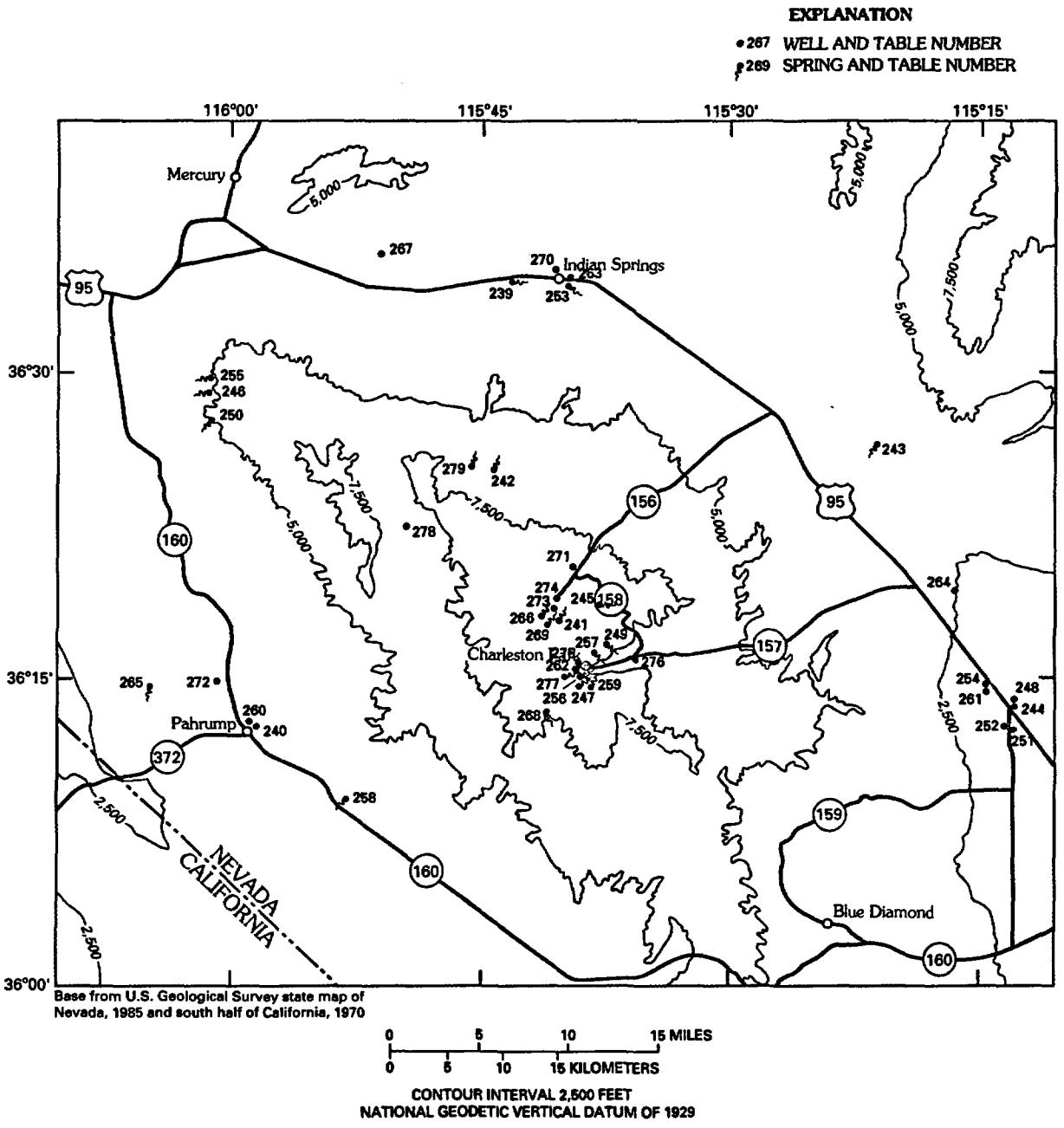

Figure 6.--Location of wells and springs in the Spring Mountains area.

Table 9.--*Records of selected wells*

[h, hours; m, meters; L/s, liters per

Site number	Site name	Nevada Coordinates North	Nevada Coordinates East	Latitude	Longitude	Data source	Analyzing laboratory
239	Cactus Spring 16S/55.5E-11a	665896	775521	36°34'33"	115°43'42"	USGS	USGS
240	Calvada Well 3 Pahrump	530972	700366	36°12'25"	115°59'15"	EPA	EPA
241	Cave Spring 19S/56E-14c	563647	795100	36°17'40"	115°39'55"	WATSTORE	USGS
242	Cold CR Spring 18S/55E-01daa	607410	772167	36°24'55"	115°44'30"	USGS	USGS
243	Corn CR Spring 17S/59E-34abb	615000	886000	36°25'57"	115°21'16"	USGS	USGS
244	Crump Well 20S/60E-12bab	542050	926756	36°13'39"	115°13'05"	USGS	USGS
245	Deer Creek Spring 19S/57E-07c	566900	805800	36°18'26"	115°37'40"	(1), (2)	USGS
246	Diebert Spring 17S/53E-17adc	628800	685700	36°28'33"	116°02'06"	USGS	USGS
247	East Spring #2	545993	799215	36°14'45"	115°39'07"	(3), WATSTORE	USGS
248	Ellul's Well 20S/60E-12bab	542054	927001	36°13'50"	115°13'08"	USGS	USGS
249	Fletcher Spring	556287	806805	36°16'26"	115°37'33"	(3), WATSTORE	USGS
250	Grapevine Spring (Labbie Mine)	623000	688000	36°27'36"	116°01'38"	USGS	USGS
251	Hillcrest Manor 1 20S/60E-13cd	533676	928192	36°12'27"	115°12'55"	USGS	USGS
252	Hillcrest Manor 2 20S/60E-13bc	534045	925809	36°12'31"	115°13'24"	USGS	USGS
253	Indian Springs 16S/56E-16b--1	662028	793400	36°33'53"	115°40'07"	USGS	USGS
254	Klosowski's Well 20S/60E-03ad	547200	919386	36°14'42"	115°14'40"	USGS	USGS
255	Kwichup Spring 17S/53E-17dcd	627500	684800	36°28'21"	116°02'16"	USGS	USGS
256	Little Falls Spring 19S/56E-35	548810	797875	36°15'13"	115°39'23"	WATSTORE	USGS
257	Lower Stanley B Spring	555034	803133	36°16'14"	115°38'18"	(3), WATSTORE	USGS
258	Manse Spring near Pahrump	509500	729000	36°08'50"	115°53'35"	USGS	USGS
259	Mazie Spring 20S/56E-01adc	544503	801770	36°14'30"	115°38'36"	(3), WATSTORE	USGS
260	Pahrump Church 20S/53E-14cb	531197	698720	36°12'42"	115°59'18"	USGS	USGS
261	Pfister's Well 20S/60E-03ad	546257	919444	36°14'33"	115°14'40"	USGS	USGS
262	Rainbow Spring 19S/56E-35ac	548911	797873	36°15'14"	115°39'23"	(3), WATSTORE	USGS
263	Sewer Company Well 1	660000	795000	36°34'27"	115°40'04"	EPA	EPA
264	Shultz's Well 19S/60E-08aab	574248	908348	36°19'11"	115°16'50"	USGS	USGS
265	Six Mile Spring 20S/52E-01bdb	544200	672800	36°14'38"	116°05'00"	(1)	USGS
266	T-Bar Spring 19S/56E-15c	563391	789781	36°17'38"	115°41'00"	WATSTORE	USGS
267	Test Well 10 near Mercury	671051	739075	36°35'27"	115°51'08"	(1)	USGS
268	Trout Spring 20S/56E-10ca	538750	790625	36°13'15"	115°40'56"	USGS	USGS
269	Two Spring 19S/56E-15c	562375	789382	36°17'28"	115°41'05"	(3), WATSTORE	USGS
270	USAF #2 Indian Springs AFB	666749	789951	36°34'40"	115°40'45"	EPA	EPA
271	Well 18S/56E-35dca	579852	797386	36°20'20"	115°39'25"	(3)	USGS
272	Well 19S/53E-34ca Wilcox Well	545000	696000	36°14'40"	116°00'15"	(1)	USGS
273	Well 19S/56E-10aaa Lee's Crest	572130	792800	36°19'08"	115°40'24"	(3)	USGS
274	Well 19S/56E-15aba Ski Lodge	567155	791953	36°18'15"	115°40'33"	(3)	USGS
275	Well 19S/56E-36bdb	551266	800634	36°15'37"	115°38'49"	(3)	USGS
276	Well 19S/57E-28caa	554670	816158	36°16'09"	115°35'39"	(3)	USGS
277	West Spring 19S/56E-35d	548592	796320	36°15'11"	115°39'42"	(3)	USGS
278	Wheeler Well 18S/55E-20abc	590000	746000	36°22'05"	115°49'52"	(1)	USGS
279	Willow Spring 18S/55E-02a	608000	765500	36°25'01"	115°45'51"	USGS	USGS

[1]Robinson and Beetem (1975)
[2]Thordarson and Robinson (1971)
[3]Nichols and Davis (1979)

and springs in the Spring Mountains area

second; --, no data; NA, not applicable]

Aquifer	Lithology	Use	Elevation (m)	Well depth (m)	Water depth (m)	Pumping time (h)	Yield (L/s)	Sampling method	Filtration (μm)
Qal	--	DOM	987	122	110	--	0.31	--	--
--	--	--	817	--	--	--	--	--	--
--	--	--	3,048	NA	0	--	--	--	--
--	LS	DOM	1,896	NA	0	--	44	--	--
QTal	--	IND	890	NA	0	--	3	--	0.45
Qal	--	DOM	683	91	--	--	--	--	--
Qal	--	DOM	2,646	NA	0	--	3	--	--
Qal	--	DOM	1,225	NA	0	--	--	--	.45
--	--	--	2,780	NA	0	--	2	--	--
QTal	--	DOM	684	91	--	--	--	--	--
--	--	--	2,310	NA	0	--	2	--	--
Qal	--	IND	1,463	NA	0	--	1	--	--
Qal	--	DOM	681	209	--	--	--	--	--
QTal	--	DOM	687	117	--	--	--	--	--
Pzc	--	DOM	969	NA	0	--	28	--	--
Qal	--	DOM	708	91	--	--	--	--	--
--	UNCONSOLID	STOCK	1,204	NA	0	--	--	--	.45
--	--	--	2,621	NA	--	--	--	--	--
--	--	--	2,461	NA	--	--	--	--	--
Qal	--	DOM/IRR	866	NA	--	--	85	--	--
--	Sediment	Unused	2,783	NA	0	--	1	--	--
Qal	--	DOM	806	61	--	--	--	--	--
QTal	--	DOM	708	104	--	--	--	--	--
--	--	--	2,612	NA	0	--	2	--	--
--	--	--	948	--	--	--	--	--	--
QTal	--	DOM	780	--	--	--	--	--	--
Qal/Pzc	--	--	779	NA	.6	--	3	--	--
--	--	--	2,890	NA	--	--	--	--	--
Pzc (311-397)	DOLO	IND/OBS	1,088	397	256	--	25	--	--
--	--	DOM	2,268	NA	0	--	14	--	--
--	--	--	3,048	NA	0	--	--	--	--
--	--	--	956	NA	--	--	--	--	--
--	Sediment	DOM	2,441	--	--	--	--	--	--
--	--	IRR	805	137	--	--	--	--	--
--	Sediment	DOM	2,536	--	--	--	--	--	--
--	Sediment	DOM	2,646	--	79	--	--	--	--
--	Sediment	PS	2,316	47	14	--	--	--	--
--	Sediment	DOM	2,071	91	20	--	--	--	--
--	--	--	2,804	NA	0	--	2	--	--
Qal	--	Stock	1,318	--	--	--	--	--	--
Qal	--	DOM	1,826	NA	0	--	21	--	--

Table 10.--*Chemical analysis of water from selected*

[mg/L, milligrams per liter; µS/cm, microsiemens per centimeter

Site number	Date	Specific conductance (µS/cm)	Field pH (units)	Laboratory pH (units)	Temperature (°C)	Calcium (mg/L)	Magnesium (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Alkalinity as HCO_3 (mg/L)
239	12/10/1966	[a]364	--	8.0	20.6	40	22	5.0	1.3	[b]234
240	07/19/1976	[a]750	--	6.5	18.0	91	65	27	1.8	200
241	07/24/1980	[a]295	--	--	5.0	48	10	1.2	.4	195
242	12/12/1966	[a]439	--	7.9	10.0	71	18	1.5	.4	288
243	12/08/1968	[a]484	--	7.8	21.0	46	31	6.2	1.8	290
244	01/17/1976	[a]402	--	--	20.0	43	23	5.7	.9	222
245	10/25/1964	[a]440	7.4	7.4	7.8	61	21	1.0	.3	[b]288
246	11/16/1972	1,720	7.4	7.9	16.0	150	150	74	2.8	394
247	08/24/1978	[a]102	--	--	4.0	40	8.0	.9	.2	146
248	01/17/1976	[a]472	--	--	14.4	47	27	7.7	1.3	243
249	08/23/1978	[a]375	--	--	11.5	84	24	2.5	.7	341
250	12/13/1966	[a]916	--	8.0	18.9	89	59	28	1.9	294
251	01/17/1976	[a]435	--	--	23.0	49	23	5.9	.9	244
252	01/17/1976	[a]438	--	--	21.0	53	28	10	2.0	246
253	12/08/1968	[a]385	--	7.9	26.0	42	22	3.8	1.2	232
254	01/17/1976	[a]424	--	--	18.9	45	23	5.7	1.0	233
255	11/16/1972	1,600	7.4	6.9	12.5	130	120	94	2.8	408
256	07/23/1980	--	--	--	5.0	49	7.8	.6	.4	183
257	08/18/1978	[a]430	--	--	10.0	81	41	1.4	.4	--
258	10/28/1964	[a]414	7.4	7.3	23.8	50	22	4.7	.9	[b]228
259	08/25/1978	[a]120	--	--	3.0	37	7.8	.7	.2	146
260	01/09/1976	[a]430	--	--	27.0	47	23	5.7	1.2	235
261	01/17/1976	[a]432	--	--	18.9	49	23	5.1	1.1	246
262	08/24/1978	[a]160	--	--	5.0	53	7.4	.7	.3	183
263	01/12/1976	[a]540	--	7.1	23.0	57	35	7.0	2.4	270
264	01/17/1976	[a]538	--	--	17.8	45	24	5.4	1.0	250
265	11/01/1964	[a]868	--	7.2	--	78	41	40	10	247
266	07/24/1980	[a]242	--	--	6.0	41	8.3	.8	.4	171
267	06/28/1964	331	--	7.2	27.2	41	17	7.6	1.0	200
268	03/08/1977	264	8.5	8.4	8.2	35	11	.8	.4	160
269	08/19/1978	[a]142	--	--	4.0	47	.1	.7	.3	1
270	01/12/1976	[a]920	--	7.3	22.0	90	57	47	5.0	200
271	08/22/1978	[a]407	--	--	--	54	23	1.4	.8	256
272	10/28/1964	[a]437	7.5	7.2	25.6	56	22	5.5	1.6	[b]258
273	08/22/1978	[a]442	--	--	10.0	46	31	1.9	.7	268
274	08/23/1978	[a]336	--	--	8.0	47	14	.9	.4	207
275	08/21/1978	[a]282	--	--	--	48	8.6	.8	.3	171
276	08/21/1978	[a]397	--	--	--	62	14	1.4	.5	244
277	08/24/1978	322	--	--	5.5	56	8.9	.7	.3	207
278	10/29/1964	[a]575	7.7	7.0	10.0	63	29	10	9.6	362
279	12/14/1966	[a]442	--	7.9	10.6	67	17	4.8	.5	[b]302

[a]Laboratory conductance.
[b]Field alkalinity.
[c]Calculated value.

wells and springs in the Spring Mountains area

at 25 degrees Celsius; °C, degrees Celsius; --, no data]

Sulfate (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Silica (mg/L)	Nitrate (mg/L)	Phosphate (mg/L)	Lithium (mg/L)	Strontium (mg/L)	Dissolved solids (mg/L)	Anion-cation balance (percent)
14	3.7	0.3	15	2.0	--	0.01	0.29	209	2.3
240	76	--	--	2.5	--	--	.83	[c]440	3.2
.8	.3	.2	3.8	--	--	--	--	165	0.7
18	1.1	.2	9.4	--	--	--	.22	255	0.4
17	8.2	.2	18	2.9	--	--	.26	270	1.8
30	2.6	.2	15	.31	--	--	--	[c]231	0.4
5.9	1.1	.0	6.5	--	--	--	--	232	.5
770	26	.3	27	.0	0.03	.20	3.6	1,680	0.3
4.6	.8	.1	3.8	--	--	--	--	[c]130	3.5
47	6.3	.2	9.4	--	2.5	--	--	[c]269	2.1
19	2.9	.1	7.7	--	--	--	--	[c]309	1.8
246	16	.3	20	.0	.0	.02	.78	635	0.3
34	3.2	.2	12	--	1.3	--	--	[c]250	2.0
69	13	.2	13	--	5.2	--	--	[c]315	3.6
15	4.5	.1	12	1.3	--	--	.25	203	1.7
34	3.3	.2	14	--	1.7	--	--	[c]243	2.4
660	21	.3	29	.02	.03	.21	5.7	1,430	1.2
1.0	.4	.2	2.7	--	--	--	--	150	1.3
14	2.5	--	7.1	--	--	--	--	--	91
27	3.1	.0	13	.80	.0	--	--	232	1.6
3.7	.7	.1	3.2	--	--	--	--	[c]126	.6
35	4.5	.2	13	--	1.6	--	--	[c]247	2.2
35	2.6	.2	13	--	1.1	--	--	[c]251	2.7
5.1	.7	.1	4.1	--	--	--	--	[c]161	2.5
36	17	.4	--	.78	--	.01	.05	[c]280	3.5
26	3.1	.2	13	--	1.1	--	--	[c]242	2.8
209	32	1.1	13	.20	.07	--	--	602	0.6
3.4	.3	.2	3.1	--	--	--	--	142	2.1
14	5.3	.2	15	1.6	.0	--	--	200	.9
8.5	.6	.2	3.0	--	--	--	--	[c]142	3.5
24	.1	.1	3.6	--	--	--	--	[c]76	64
270	65	0.4	--	3.8	--	0.01	6.6	[c]680	2.7
14	1.6	.1	6.3	--	--	--	--	[c]227	1.4
18	4.3	.1	16	1.5	--	--	--	237	1.6
23	1.9	.1	7.9	--	--	--	--	[c]244	.2
9.9	1.4	.1	4.9	--	--	--	--	[c]181	1.4
5.7	.8	.1	4.5	--	--	--	--	[c]153	3.2
12	1.7	.2	5.7	--	--	--	--	[c]218	.1
5.9	3.7	.2	4.6	--	--	--	--	[c]182	0.9
8.8	12	.2	33	21	.44	--	--	351	2.0
13	1.8	.3	7.8	2.0	.0	--	.35	253	3.2

REFERENCES CITED

Benson, L.V., Robison, J.H., Blankennagel, R.K., and Ogard, A.E., 1983, Chemical composition of ground water and the locations of permeable zones in the Yucca Mountain area, Nevada: U.S. Geological Survey Open-File Report 83-854, 19 p. (NNA.890511.0102)

Benson, L.V., and McKinley, P.W., 1985, Chemical composition of ground water in the Yucca Mountain area, Nevada--an update: U.S. Geological Survey Open-File Report 85-484, 10 p. (HQS.880517.1890)

Blankennagel, R.K., and Weir, J.E., Jr., 1973, Geohydrology of the eastern part of Pahute Mesa, Nevada Test Site: U.S. Geological Survey Professional Paper 712-B, p. B1-B35. (HQS.880517.1733)

Buono, Anthony, and Packard, E.M., 1982, Evaluation of increases in dissolved solids in ground water, Stovepipe Wells Hotel, Death Valley Monument, California: U.S. Geological Survey Open-File Report 82-513, 19 p. (NNA.901024.0032)

Claassen, Hans C., 1973, Water quality and physical characteristics of Nevada Test Site water-supply wells: U.S. Geological Survey USGS 474-158, 145 p. (HQS 880517.1740)

_____1985, Sources and mechanisms of recharge for ground-water in the west-central Amargosa Desert, Nevada--A geochemical interpretation: U.S. Geological Survey Professional Paper 712-F, 31 p. (NNA.900124.0031)

Craig, R.W., and Robison, J.H., 1984, Geohydrology of rocks penetrated by test well UE-25 #1, Yucca Mountain area, Nye County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 84-4248, 57 p. (HQS.880517.1133)

Dudley, W.W., and Larson, J.D., 1976, Effect of irrigation pumping on Desert Pupfish habitats in Ash Meadows, Nye County, Nevada: U.S. Geological Survey Professional Paper 927, 26 p. (NNa.870518.0076)

Lahoud, R.G., Lobmeyer, D.H., and Whitfield, M.S., Jr., 1984, Geohydrology of volcanic tuff penetrated by test well UE-25b #1, Yucca Mountain, Nye County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 84-4253, 44 p. (NNA.890511.0117)

Miller, G.A., 1977, Appraisal of the water resources of Death Valley, California-Nevada: U.S. Geological Survey Open-File Report 77-728, 70 p. (HQS.880517.1934)

Moore, J.E., 1961, Records of wells, test holes, and springs in the Nevada Test Site and surrounding area: U.S. Geological Survey Trace Elements Investigations Report 781, 22 p. (NNA.901026.0052)

Nichols, W.D., and Davis, L.E., 1979, Data on ground-water resources of the Spring Mountain area, Toiyabe National Forest, Nevada: U.S. Geological Survey Open-File Report 79-1638, 16 p. (NNA.901026.0054)

Pantea, M.P., 1980, Lithology and lithium content of sediments drilled in a test hole on Alkali Flat (Franklin Lake), Inyo County, California: U.S. Geological Survey Open-File Report 80-1164, 20 p. (NNA.900124.0170)

Robinson, B.P., and Beetem, W.A., 1975, Quality of water in aquifers of the Amargosa Desert and vicinity, Nevada: U.S. Geological Survey report USGS-474-215, 64 p. (NNA.901026.0056)

Schoff, S.L., and Moore, J.E., 1964, Chemistry and movement of ground water, Nevada Test Site: U.S. Geological Survey Trace Elements Investigations Report 838, 75 p. (NNA.870518.0062)

Snyder, D.B. and Carr, W.J., 1982, Preliminary results of gravity investigations at Yucca Mountain and Vicinity, southern Nye County, Nevada: U.S. Geological Survey Open-File Report 82-701, 36 p. (HQS.880517.1418)

Technical Support Division, 1987, NTS Drilling and Mining Summary: Fenix & Scisson, Inc., Statistical Report. (NNA.901026.0057)

Thordarson, William, and Robinson, B.P. 1971, Wells and springs in California and Nevada within 100 miles of the point 37 15 N., 116 25 W., on the Nevada Test Site: U.S. Geological Survey report USGS-474-85, 174 p. (NNA.8700406.0223)

Waddell, R.K., 1984, Hydrologic and drill-hole data for test wells UE-29a #1 and UE-29a #2, Fortymile Canyon, Nevada Test Site: U.S. Geological Survey Open-File Report 84-142, 25 p. (NNA.870406.0055)

Walker, G.E., and Eakin, T.E., 1963, Geology and ground water of Amargosa Desert, Nevada-California: State of Nevada Ground Water Resources--Reconnaissance Series Report 14, 45 p. (HQS.880517.1862)

White, A.F., 1979, Geochemistry of ground water associated with tuffaceous rocks, Oasis Valley, Nevada: U.S. Geological Survey Professional Paper 712-E, p. E1-E25. (NNA.870517.0034)

White, A.F., Claassen, H.C., and Benson, L.V., 1980, The effect of dissolution of volcanic glass on the water chemistry in a tuffaceious aquifer, Rainer Mesa, Nevada: U.S. Geological Survey Water-Supply Paper 1535-Q, 34 p. (NNA.870519.0065)

Whitfield, M.S., Eshom, E.P., Thordarson, William, and Schaefer, D.H., 1985, Geohydrology of test well USW H-4, Yucca Mountain, Nye County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 85-4030, 33 p. (HQS.880517.1870)

Young, R.A., 1972, Water supply for Nuclear Rocket Development Station at the U.S. Atomic Energy Commission's Nevada Test Site: U.S. Geological Survey Water-Supply Paper 1938, 19 p. (NNA.870519.0007)

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Plate 1. Map showing locations of wells and springs sampled in the Yucca Mountain area, Nevada and southeastern California.

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