LOW-TEMPERATURE GEOTHERMAL WATER IN UTAH: A COMPILATION OF DATA FOR THERMAL WELLS AND SPRINGS THROUGH 1993

by
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ABSTRACT

The Utah Geological Survey compiled a database with information on thermal wells and springs in Utah that have temperatures of 20°C or greater. The database contains 964 records on 792 locations of wells and springs. Each record has 35 data fields and includes the location of the well or spring, its temperature, depth, flow-rate, and chemical constituents. The database was developed for use on DOS-based personal computers, and will provide users with immediate access to specific geothermal information in Utah. Resource maps of thermal wells and springs, derived from the database, are included in the report. The new database and resource maps could eventually include heat-flow information, bottom-hole temperatures from oil and gas wells, traces of Quaternary faults, and locations of young volcanic centers.

Seven areas are recommended in order of priority for additional studies based on development potential and the need for more resource information. Areas identified for likely near-term expansion or development of direct-use applications include Newcastle, the Monroe-Red Hill area, the Meadow-Hatton area, the Midway area, and Crystal (Bluffdale) Hot Springs. Areas with potential for discovery of moderate-temperature resources for possible direct-use applications and/or binary power potential include Newcastle, Thermo Hot Springs, and the Wood's Ranch area.

INTRODUCTION

Background

The U.S. Geological Survey (USGS), in cooperation with the U.S. Department of Energy (DOE), compiled the first comprehensive database of geothermal wells and springs in Utah in support of two national geothermal assessments (Muffler, 1979; and Reed, 1983). The data for these assessments were incorporated into GEOTHERM (Bliss and Rapport, 1983), a main-frame computer system of databases and software used to store, locate, and evaluate information on geothermal systems. GEOTHERM received data until it was taken off-line in 1983. The USGS preserved these data and made them available for public use through a series of Open-File reports presenting information on source location, description, and water chemistry.

The Utah Geological Survey (formerly Utah Geological and Mineral Survey) helped with data compilation for GEOTHERM, and eventually published a state geothermal resource map in cooperation with DOE and the National Oceanic and Atmospheric Administration (Utah Geological and Mineral Survey, 1980). Based primarily on the work of Goode (1978), the map listed about 330 wells and springs included in GEOTHERM, showed heat-flow information from the work of Chapman and others (1978, 1981) and Sass and others (1974), and outlined areas of prospective value for geothermal exploration. Since the national geothermal assessments were completed in the early 1980's, no new resource data have been gathered at a regional scale. The map also showed nine Known Geothermal Resource Areas (KGRAs), a classification for federal leasing based on competitive interests and/or geologic criteria. Since 1980, only three of these areas (Cove Fort-Sulphurdale, Roosevelt Hot Springs, and Crater Springs) still maintain the classification of KGRA. The others (Meadow-Hatton, Monroe-Joseph, Thermo, Lund, Newcastle, and Navajo Lake) were declassified because of either a lack of competitive interests or, in the case of Navajo Lake, a lack of an indicated resource.

Current Program

The Geothermal Division of DOE initiated the Low-Temperature Geothermal Resources and Technology Transfer Program, following a special appropriation by Congress in 1991, to encourage wider use of lower-temperature geothermal resources through direct-use, geothermal heat-pump, and binary-cycle power conversion technologies. The Oregon Institute of Technology (OIT), the University of Utah Research Institute (UURI), and the Idaho Water Resources Research Institute organized the federally-funded program and enlisted the help of ten western states to carry out phase one. This first phase involves updating the inventory of thermal wells and springs with the help of the participating state agencies. The state resource teams inventory thermal wells and springs, and compile relevant information on each source. OIT and UURI cooperatively administer the program. OIT provides overall contract management while UURI provides technical direction to the state teams.

Phase one of the program focuses on replacing part of GEOTHERM by building a new database of low- and moderate-temperature geothermal systems for use on personal computers. For Utah, this involved (1) identifying sources of geothermal data, (2) designing a database structure, (3) entering the new data; (4) checking for errors, inconsistencies, and duplicate records; (5) organizing the data into reporting formats; and (6) generating a map (1:750,000 scale) of Utah showing the locations and record identification numbers of thermal wells and

springs (figure 1; table 1; plate 1). A separate but related task involved gathering and analyzing water samples from selected thermal springs and wells not adequately represented by existing data.

DESCRIPTION OF GEOTHERMAL AREAS

Utah comprises parts of three major physiographic provinces, defined by Fenneman (1931), each with characteristic landforms and geology. These include the Colorado Plateau, the Middle Rocky Mountains, and the Basin and Range provinces (figure 1). The Transition Zone extends through central and southwestern Utah, and contains physiographic and geologic features of both the Basin and Range and Colorado Plateau provinces. The Middle Rocky Mountains include the Wasatch Range and Uinta Mountains in the northeastern part of the state, comprising mainly pre-Cenozoic sedimentary and silicic plutonic rocks. The Colorado Plateau is a broad area of regional uplift in southeastern and south-central Utah characterized by essentially flat-lying, Mesozoic and Paleozoic sedimentary rocks. Scattered Tertiary and Quaternary volcanic rocks are present on the Colorado Plateau in south-central Utah, and some Tertiary intrusive bodies are present in southeastern Utah.

The Basin and Range Province is characterized by numerous north-south oriented, fault-tilted mountain ranges separated by intervening valleys. Typical basin-ranges are asymmetric in cross section having a steep slope on one side and a gentle slope on the other. The steep slope reflects an erosion modified fault scarp and the range a tilted fault block (Hintze, 1988). Rocks within the Basin and Range vary widely in age and composition. Older rocks consist of a variety of Mesozoic and Paleozoic sedimentary rocks and their metamorphic equivalents. Cenozoic volcanic rocks and valley-fill units generally overlie the sedimentary and metamorphic rocks. Valley-fill deposits consist mostly of late Cenozoic and Quaternary lake beds and alluvium as much as 3,000 m (10,000 ft) thick.

Comprising essentially the western half of Utah, the Basin and Range is separated from the Middle Rocky Mountains by the Wasatch Fault zone, and from the Colorado Plateau by the Transition Zone. Within the Basin and Range and the Transition Zone, east-west structural extension is thought to have taken place over the past 17 million years (Hintze, 1988). Prior to Basin and Range extension (during mid-Cenozoic time), voluminous, silicic volcanism with associated hydrothermal mineralization took place within several east-west trending belts (Stewart and others, 1977). After extension began, volcanism patterns changed to less-voluminous rhyolite and basalt spatially controlled by north-south Basin and Range faults. The very young volcanic rocks (less than 1 Ma), potentially related to geothermal resources, are found in a belt extending from west-central Utah through northwestern Arizona.

The worldwide average conductive heat flow to the earth's surface is about 61 milliwatts per square meter (mW/m^2) for the continents (Williams and Von Herzen, 1974). Typical values for heat flow in the Basin and Range Province vary between 80 and 120 mW/m^2. The Colorado Plateau and the Middle Rocky Mountains provinces have heat-flow values near the average for the earth's surface (Sass and others, 1976; Sass and Munroe, 1974).

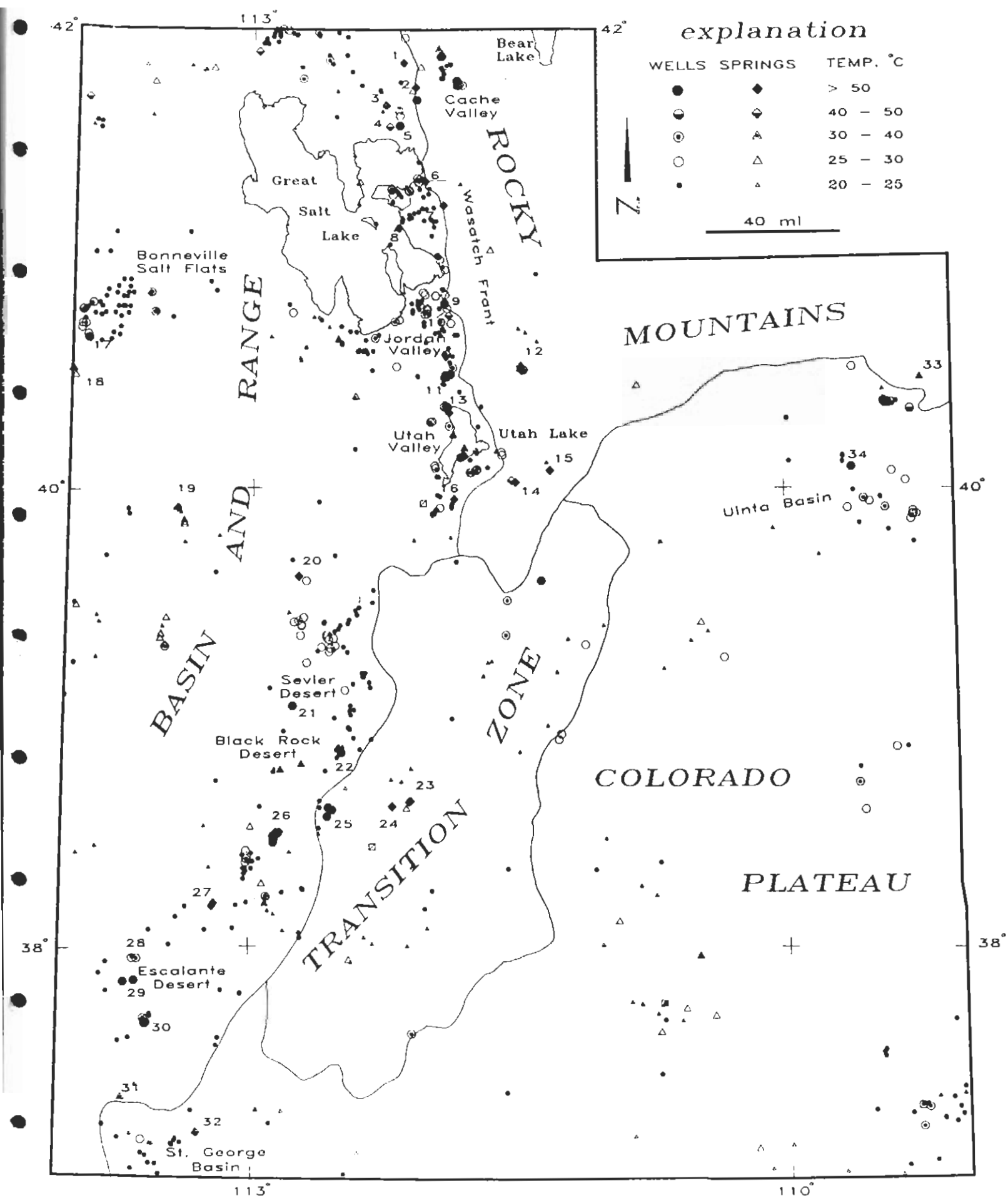

Figure 1. Distribution of thermal springs and wells, principal geothermal areas, and physiographic provinces in Utah.

Table 1. Principal geothermal springs (S), wells (W), and areas (A) in Utah.

NO.	NAME	MAP NO.	TYPE	DISCHARGE TEMP, °C	ESTIMATED FLOW, L/min	RESERVOIR TEMP, °C	DEPTH, m
1	Uddy	BO-42	S	53	6,000	55-90	--
2	Crystal Madsen	BO-29	S	56	3,600	60-90	--
3	Little Mtn.	BO-22	S	42	1,700	50-80	--
4	Stinking	BO-18	S	48	100	70-90	--
5	Chesapeak	BO-15	W	74	150	70-80	153
6	Utah	WE-22	S	58	121	70-100	--
7	Ogden	WE-11	S	58	20	70-100	--
8	Hooper	DA-14	S	60	--	80-120	--
9	Beeks	SL-03	S	55	--	60-100	--
10	Wasatch	SL-06	S	42	240	50-90	--
11	Crystal Bluffdale	SL-47	A	58	--	90-120	--
12	Coleman Midway	WS-04	A	45	180	70-75	--
13	Saratoga	UT-11	S	44	700	60-100	--
14	Castilla	UT-63	S	40	--	50-90	--
15	Third Water	UT-70	S	55	--	65-100	--
16	Goshen Valley	UT-66	S	61	--	60-70	--
17	Bonneville DBW 3	TO-96	W	88	--	--	630
18	Blue Lake	TO-103	S	29	--	50-90	--
19	Wilson Health	TO-109	S	55	--	55-100	--
20	Abraham (Crater)	JU-15	S	85	1,200	100-150	--
21	Neels RR	MI-65	W	HOT	--	200 (?)	610
22	Meadow-Hatton	MI-80,84	S	63	20	70-120	--
23	Monroe-Red Hill	SE-04,05	A	82	540	90-120	--
24	Joseph	SE-08	S	63	120	90-150	--
25	Cove Fort	BE-02	A	150	--	180-225	370
26	Roosevelt	BE-05	A	240	--	260-290	2,590
27	Thermo	BE-46,47	A	90	40-70	140-200	--
28	Wood's Ranch	IR-10	W	37	--	110-120	60
29	De Armand	IR-16	W	149	3,785	--	3,750
30	Newcastle	IR-27	A	97	--	140-170	150
31	Veyo	WA-06	S	30	390	40-60	--
32	Dixie, La Verkin	WA-08	S	42	18,000	50-90	--
33	Split Mtn.	UI-03	S	30	10,200	--	--
34	Ashley Valley	UI-21	W	58	--	--	1,710

With few exceptions, the more important geothermal areas in Utah occur either in the Basin and Range Province or within the Transition Zone (figure 1). The most significant known occurrence of geothermal water in eastern Utah is from oil wells of the Ashley Valley oil field, which yield large volumes of nearly fresh water at temperatures between 43°C and 55°C (109°F and 131°F) as a byproduct of oil production. In 1981, the Ashley Valley field yielded 3,360 acre-feet (26.1 million barrels) of water (Goode, 1985).

In central and western Utah, most thermal areas are located in valleys near the margins of mountain blocks, and are thought to be controlled by active Basin and Range faults. Others occur in hydrologic discharge zones at the bottom of valleys. A few thermal areas are situated in mountainous regions.

Wright and others (1990) presented data, including estimated reservoir temperatures, on some Utah geothermal areas based on the work of Swanberg (1974), Cole (1983), and Rush (1983). These data are shown in table 1 along with information from eight additional low-temperature areas. These areas are identified on figure 1.

Using geothermometry and other information, Rush (1983) suggested that six areas in Utah are probably high-temperature geothermal systems with reservoir temperatures above 150°C (302°F). He also suggested that ten other areas could be classified as moderate-temperature geothermal systems with reservoir temperatures between 90°C and 150°C (194°F and 302°F). Known high-temperature systems include the Roosevelt Hot Springs and Cove Fort - Sulphurdale Known Geothermal Resource Areas (KGRA). Other potential high-temperature systems are Thermo Hot Springs, Joseph Hot Springs, the Newcastle area, and the Monroe-Red Hill area.

Wright and others (1990) summarized the present knowledge of Utah's geothermal resources, and discussed how factors such as regional low energy costs contribute to the relative low growth of geothermal energy in the state. Presently, electric power is generated at the Roosevelt Hot Springs and Cove Fort - Sulphurdale KGRAs. The installed gross capacity for the two areas is about 33 MWe. Commercial greenhouses that use thermal water for space heat operate at Newcastle in Iron County, and at Crystal Hot Springs near Bluffdale in Salt Lake County. Ten resorts use geothermal water for the heating of swimming pools, for small space-heating applications, and for therapeutic baths. One of the newer direct-use geothermal developments is a commercial SCUBA-diving and aquaculture facility near Grantsville in Tooele County.

DATA SOURCES

Previous Geothermal Studies

DOE, the USGS, the National Science Foundation (NSF), and the UGS have either funded or co-funded more than 40 geothermal-related projects in Utah over the past 20 years. Budding and Bugden (1986) compiled an annotated bibliography of all published sources for geothermal studies in Utah through 1984, in which they included a summary of the government-funded projects. They categorized the government projects as either statewide, regional, or local. While many of these studies involved mainly surface geological and geophysical surveys,

a number of the projects included the gathering of geochemical and other data from wells and springs.

Basic data on geothermal waters in Utah are included in various government reports, journal papers, water resource databases, and so forth. As part of DOE's geothermal program, the UGS gathered and published detailed information for low-temperature waters throughout Utah. For northern Utah and the East Shore area of the Great Salt Lake, sources of data included Murphy and Gwynn (1979), de Vries (1982), Cole (1981, 1983) and Davis and Kolesar (1984). Well and spring data for the central Wasatch Front are included in Klauk and Davis (1984), Klauk and Prawl (1984), and Kohler (1979). In southwestern Utah, information was available for the Sevier thermal area (Mabey and Budding, 1987), the Escalante Desert (Klauk and Gourley, 1983; Ross and others, 1991, 1993; Blackett and Shubat, 1992), and the St. George Basin (Budding and Sommer, 1986).

The previous geothermal resource map of Utah (Utah Geological and Mineral Survey, 1980) lists general information (temperature, depth, flow rate, location, and TDS) on low-temperature wells and springs. Many of the same sources used to compile the state resource map were also used in compiling the Utah portion of the USGS's file-GEOTHERM database. Bliss (1983) presented the "hard copy" version of GEOTHERM for Utah that included 643 records on roughly 350 wells and springs.

Information on high-temperature geothermal exploration and production wells in the Cove Fort - Sulphurdale and Roosevelt Hot Springs KGRAs was also documented in Union Oil Company (1978), Ash and others (1979), Capuano and Cole (1982), and Ross and others (1982).

The USGS's WATSTORE Database

An additional source of information was the USGS's on-line water information system known as the National Water Data Storage and Retrieval System, or WATSTORE. WATSTORE is composed of various files and databases containing continually-updated records on regularly monitored wells and springs in the United States. WATSTORE's Ground-Water Site Inventory Database includes site location, geohydrologic characteristics, well-construction history, and various field measurements including water temperature. WATSTORE's Water Quality File contains analyses of water samples describing chemical, physical, biological, and radio-chemical characteristics (ReMillard and others, 1992).

DATABASE FORMAT

Data Entry and Record Checking

The principal steps involved in compiling the database and resource maps are illustrated on figure 2. A database format was developed using commercial database-management software so that information could be input manually from published sources. The format comprised three general divisions including location information, descriptive information, and water chemistry. Data from published sources on wells and springs with temperatures of 20°C or greater were entered manually using the commercial software. These records were then checked

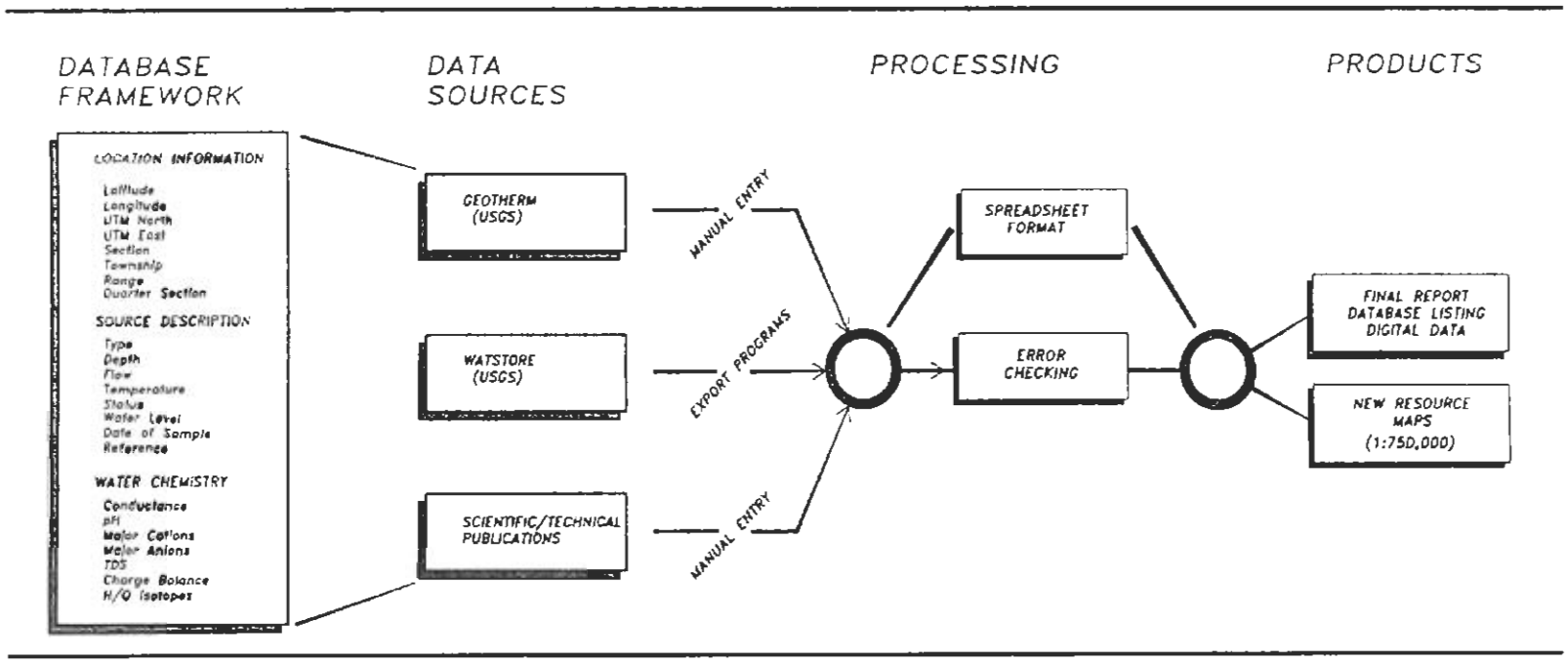

Figure 2. Flow chart showing the steps involved in compiling the geothermal database.

against the original data for accuracy. Sorting routines were used to help identify duplicate records. After manually entering about 380 records, all of the data were then exported to a spreadsheet program for ease of editing and for combining with data from WATSTORE.

The regional office of the USGS Water Resources Division in Salt Lake City provided about 1,100 records from WATSTORE on wells and springs in Utah with temperatures of 20°C (68°F) or greater. The digital data came in two ASCII-file formats. One file format listed line-by-line information from the Ground-Water Site Inventory Database, while the second file included water chemistry from the Water Quality File in an irregular, tabular format. Because neither file could be imported directly into a spreadsheet, they were modified using software for text-editing and programs written specifically to reformat the data. Because the water chemistry in WATSTORE often includes species not needed for geothermal studies (such as trace elements, radioisotopes, amino acids, and so forth), the applications extracted only those species most relevant. Subroutines in the applications checked for errors introduced during file editing and flagged problem records when errors were encountered. After importing the reformatted WATSTORE data into the main spreadsheet, redundant records were eliminated through various sorting routines.

Complete records from the database are listed in Appendices A and B. Appendix A contains location and descriptive information from the database organized by county. Appendix B contains the water chemistry from the database also organized by county. County codes are listed in table 2. The two listings are tied by the "Record ID" and "Map No." data fields.

Table 2: List of county codes used in map numbers.

BE	Beaver	PI	Piute
BO	Box Elder	RI	Rich
CA	Cache	SL	Salt Lake
CR	Carbon	SJ	San Juan
DG	Daggett	SE	Sevier
DA	Davis	SA	Sanpete
DU	Duchesne	SU	Summit
EM	Emery	TO	Tooele
GA	Garfield	UI	Uintah
GR	Grand	UT	Utah
IR	Iron	WS	Wasatch
JU	Juab	WA	Washington
KA	Kane	WY	Wayne
MI	Millard	WE	Weber
MO	Morgan		

Water Analyses Checking Procedure

In order to help identify errors in data entry or possible problem analyses, programs were also written to calculate charge balance, compare measured TDS with calculated TDS, and check on relative concentrations of various dissolved species. A hierarchy (using the relative concentrations of dissolved species) suggested by M. J. Reed (U.S. Department of Energy, written communication, 1993) and listed below was used for checking analyses:

$$Na > K > Li$$
$$Ca > Mg > Sr > Ba$$
$$Cl > F > Br > I$$

Re-checking of the original data for accuracy was necessary whenever an analysis in the database failed to meet these conditions. Records that failed these checks for relative abundances of dissolved species are marked with an asterisk in Appendix B.

Ion concentrations for strontium, barium, bromide, and iodide were not usually reported in published sources, so they were not included in the database. Therefore, in the case of non-WATSTORE records, the ratios in the hierarchy involving only the major ions (Na, K, Ca, Mg, Cl, and F) were checked. In ten of these non-WATSTORE records at least one of the ratios failed a condition of the hierarchy. Checking the original references against these data revealed that the values were entered as reported.

WATSTORE records were checked separately from those from published sources because the original data were digital, and because these data contained values for all of the species in the hierarchy. Checking of ratios revealed that, in 52 of the WATSTORE records, one or more ratios failed one of the conditions listed above. Re-checking of the data entries with the original digital data files revealed that all of the entries were made correctly.

Descriptions of Final Products

The distribution of geothermal sources plotted from the new database is very similar to that of the 1980 resource map (Utah Geological and Mineral Survey, 1980). The majority of thermal wells and springs are located along the eastern margin of the Basin and Range province or within the Transition Zone (figure 1, plates 1 and 2). Thermal wells and some springs occur in eastern and southeastern Utah, often where deep oil and gas wells have been converted to water supply sources. In general, however, temperature gradients in the Colorado Plateau and Rocky Mountain provinces are much less than those in the Basin and Range (Kron and Stix, 1982).

Because of the large number of records that needed to be presented, two resource maps were compiled. Plate 1 is a 1:750,000-scale map of the state showing the locations of all records and the ID numbers for those records with temperatures of 25°C (77°F) or more. Plate 2 shows the locations and ID numbers for those records with temperatures between 20°C and 25°C (68°F and 77°F).

The database is included with this report on DOS-formatted diskette under the file names UTAH.WQ1, UTLOC.DAT, and UTCHEM.DAT. Table 3 lists the data fields, descriptions

Table 3. Utah geothermal database, data field summary.

FIELD NAME	FIELD CONTENTS	UNITS
---------- LOCATION DATA ----------		
RECORD ID	record ID number	NA
MAP NO.	county code plus number	NA
SOURCE NAME	owner or well/spring name	NA
LOCATION	well and spring numbering system for Utah	cadastral coords.
LATITUDE	latitude north	decimal degrees
LONGITUDE	longitude west	decimal degrees
UTM.NORTH	UTM north coordinate for zone 12	meters
UTM.EAST	UTM east coordinate for zone 12	meters
---------- DESCRIPTION DATA ----------		
DESIG	designation from original reference when applicable	NA
TYPE	well (W), spring (S), mine (M), collector (C)	NA
TEMP	measured temperature	degrees Celsius
DEPTH	depth of well	meters
STA(TUS)	pumped (P), flowing (F)	NA
FLOW	flow rate	liters per minute
LEVEL	depth to water level (negative if above ground)	meters
REFERENCE	short citation for source of data	NA
---------- WATER CHEMISTRY DATA ----------		
DATE	date of sample (if available)	mm/dd/yy
Conduct	conductivity	microseimens
pH	pH	pH units
Na	sodium	mg/L
K	potassium	mg/L
Ca	calcium	mg/L
Mg	magnesium	mg/L
Al	aluminum	mg/L
Fe	iron	mg/L
SiO2	silica	mg/L
B	boron	mg/L
Li	lithium	mg/L
HCO3	bicarbonate	mg/L
SO4	sulfate	mg/L
Cl	chloride	mg/L
F	fluoride	mg/L
TDSm	total dissolved solids measured	mg/L
TDSc	total dissolved solids calculated	mg/L
ChgBal	charge balance	(cations/anions) X 100
δD	deuterium	permil
δO18	oxygen-18	permil

of field contents, and units for numeric values. The file UTAH.WQ1 was constructed using Quattro™ Pro, a DOS-compatible spreadsheet software package, and contains the entire database consisting of 964 records for 792 well and spring locations with temperatures of 20°C or more. The UTAH.WQ1 file can be accessed through Quattro™ or similar spreadsheet software, such as Lotus™ 1-2-3. The file UTLOC.DAT is a fixed-field ASCII file containing the record ID numbers, source name, latitude, longitude, UTM coordinates, cadastral locations, descriptive information (such as temperature, well depths, and flow rates), and references. The file UTCHEM.DAT is a fixed-field ASCII file containing the record ID numbers, source names, and chemical analyses.

Figure 3 illustrates the distribution of the number of wells and springs contained in the database for various temperature ranges. The general distribution exhibits an inverse exponential form typical of that seen in other geothermal assessments. Systems in the lower temperature ranges are much more abundant than those in the higher ranges.

FLUID CHEMISTRY

Samples from selected thermal springs and wells, not adequately represented by existing data, were gathered for analysis as part of this study. Chemical analyses were completed by UURI as part of the study. Geothermometer calculations, charge balances, and Piper plots were included as part of the analytical report. These data were also entered into the Utah geothermal database and are identified in the reference field of the database by the entry "This Study." The complete analyses for these samples are listed on table 4. A description follows for each of the seven selected thermal springs and well sites.

Abraham (Baker, Crater) Hot Springs, Juab County

The Crater Springs geothermal area surrounds a Quaternary eruptive center in the northern Sevier Desert known as Fumarole Butte. Early Pleistocene basalt flows (0.9 Ma) erupted from the vent area and formed a broad volcanic apron now known as Crater Bench. The Drum Mountains fault zone, a north-northeast trending zone of high-angle normal faults, offsets basalt flows along the west-central side of Crater Bench at Fumarole Butte. Warm vapor rises from several fissures in the vicinity of Fumarole Butte. Abraham Hot Springs (JU-15), also referred to in literature as "Crater Springs" or "Baker Hot Springs," issues 8 km (5 mi) to the east of Fumarole Butte along the east margin of the Crater Bench basalt flows. Mabey and Budding (1987) postulated that the vapor venting from Fumarole Butte and the thermal waters at Abraham Hot Springs are part of the same geothermal system.

Temperatures at Abraham range up to 87°C (189°F). Rush (1983) estimated total flow rates from about 40 spring orifices at between 90 and 140 liters per second (1,427 and 2,219 gallons per minute). The geologic structure controlling the system is unknown, and the reservoir temperature is uncertain. Samples of cold springs issuing from the same site were collected for analyses as part of this study in order to develop more accurate mixing models. Analyses of the cold water, however, revealed that this water is very similar in composition to that of the hot springs, and suggests that the cold springs are merely cooled hot water. (Analysis of the cold

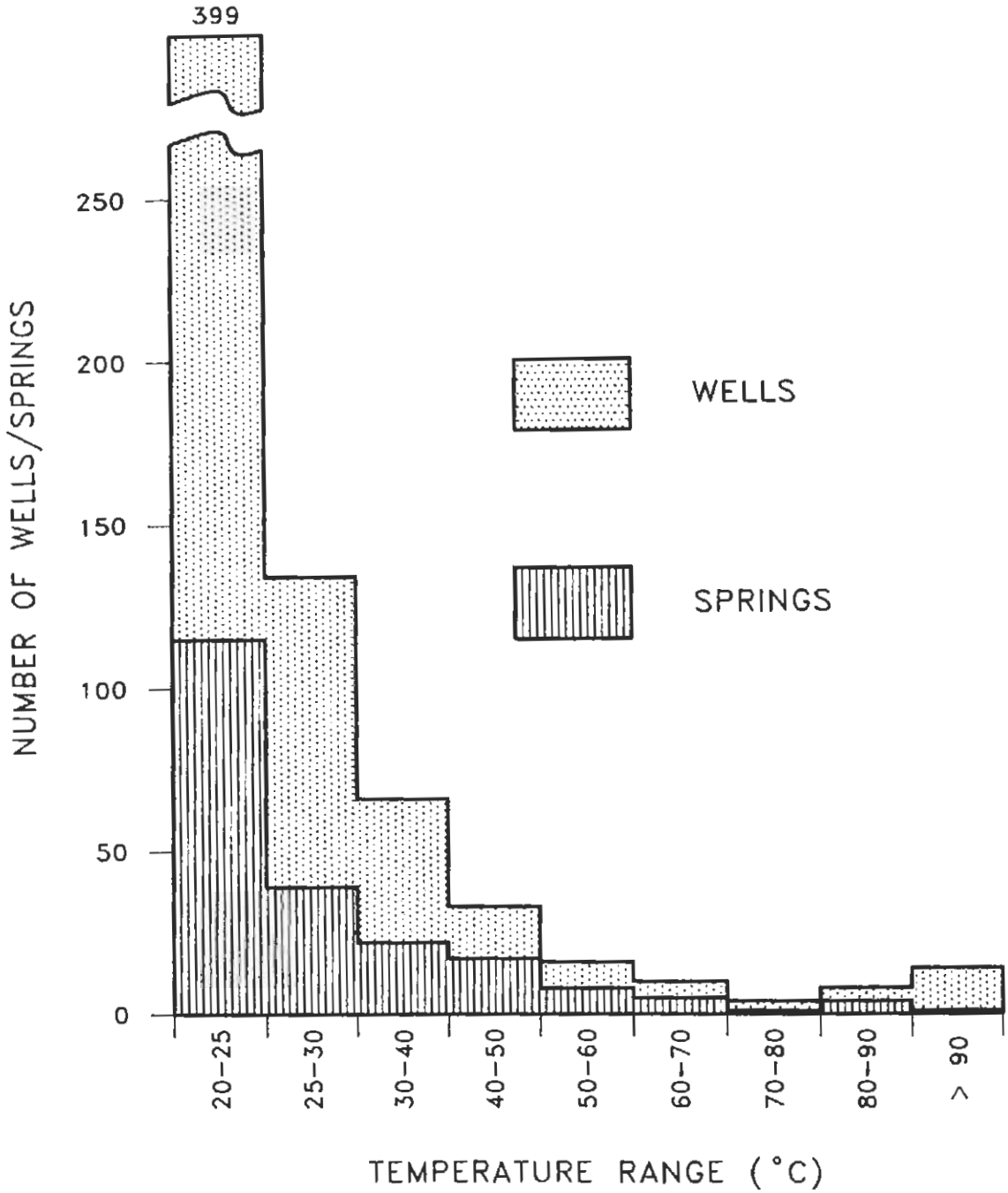

Figure 3. Histogram showing the numbers of wells and springs in various temperature ranges.

Table 4. Complete analyses of water samples gathered as part of this study.

	units					
RECORD ID		327	--------	433	439	719
MAP NO.		JU-15	--------	MI-80	MI-82	TO-103
SOURCE NAME		Abraham	Abraham (cold)	Meadow east	Meadow south	Blue Lake
LOCATION		(C-14-08)10dca	(C-14-08)10dca	(C-22-06)26ccc	(C-22-06)34	(C-04-19)06dcd
LATITUDE	degrees N	39.6133	39.6133	38.8647	38.8605	40.5020
LONGITUDE	degrees W	112.7283	112.7283	112.5019	112.5098	114.0380
UTM.NORTH	meters	4386483	4386483	4302627	4302175	4487701
UTM.EAST	meters	350811	350811	369694	369000	242560
TEMPERATURE	°C	84.0	19.5	41.0	34.0	27.5
DATE	dd-mmm-yy	26-Jun-91	18-Mar-93	28-Aug-92	18-Sep-92	11-Jun-93
Conductance	microsiemens	5800	6350	7300	7500	11000
pH	pH units	7.3	7.5	6.7	6.8	8.0
Na	mg/L	740	991	1058	1054	1698
K	mg/L	51.5	65.9	148.2	149.1	126.0
Ca	mg/L	410.8	373.8	468.4	467.8	190.0
Mg	mg/L	57.4	58.8	92.9	92.3	72.6
Al	mg/L	ND	ND	ND	ND	ND
Fe	mg/L	ND	ND	0.050	ND	0.030
SiO_2	mg/L	88.6	67.2	56.7	56.8	34.6
B	mg/L	1.41	1.22	5.48	5.46	1.02
Li	mg/L	1.17	1.09	3.56	3.61	1.58
Sr	mg/L	7.92	8.17	6.1	5.96	3.05
Zn	mg/L	ND	ND	ND	ND	ND
Ba	mg/L	ND	0.74	ND	ND	0.42
Mn	mg/L	0.25	ND	ND	ND	ND
Sb	mg/L	ND	ND	ND	ND	ND
SO_4	mg/L	710.0	820	1090.0	1090.0	278.0
Cl	mg/L	1470	1681	1803	1795	3063
F	mg/L	2.70	2.75	9.60	9.50	0.75
TDSm	mg/L	3670	4095	4967	4913	5693
TDSc	mg/L	3621	4146	4875	4869	5617
ChgBal	(c/a) x 100	100	102	100	100	96
δD	permil	NA	NA	-124.0	-122.0	NA
δO18	permil	NA	NA	-17.2	-17.0	NA

	units				
RECORD ID		726	861	870	947
MAP NUMBER		TO-109	UT-70	WA-07	WS-02
SOURCE NAME		Wilson	Third Water	Dixie	Mt. Spa
LOCATION		(C-10-14)33cdc	(D-08-05)25dcd	(C-41-13)25cac	(D-03-04)26cca
LATITUDE	degrees N	39.9064	40.0829	37.1900	40.5255
LONGITUDE	degrees W	113.4303	111.3177	113.2717	111.4680
UTM.NORTH	meters	4419986	4436800	4118163	4485592
UTM.EAST	meters	292251	472914	298361	460102
TEMPERATURE	°C	51.0	55.5	41.4	38.0
DATE	dd-mmm-yy	11-Jun-93	30-Sep-93	07-Feb-94	21-May-93
Conductance	microsiemens	39200	1400	11000	1800
pH	pH units	7.3	7.1	6.1	6.7
Na	mg/L	7243	306	2130	107
K	mg/L	216.4	9.9	167.8	23.6
Ca	mg/L	855.7	17.3	760.1	284.2
Mg	mg/L	250.7	4.8	156.1	65.9
Al	mg/L	ND	ND	ND	ND
Fe	mg/L	0.140	0.080	ND	ND
SiO_2	mg/L	45.3	43.1	27.0	24.0
B	mg/L	3.66	0.90	4.80	0.53
Li	mg/L	3.18	0.21	2.39	0.33
Sr	mg/L	14.56	0.79	10.12	3.14
Zn	mg/L	ND	0.19	0.11	ND
Ba	mg/L	0.92	0.52	0.36	ND
Mn	mg/L	ND	ND	ND	ND
Sb	mg/L	1.5	ND	ND	ND
SO_4	mg/L	1389.0	46.0	1841.0	558.0
Cl	mg/L	12530	153	3195	111
F	mg/L	2.75	2.88	3.00	2.80
TDSm	mg/L	22740	928	9075	1525
TDSc	mg/L	22647	887	8907	1478
ChgBal	(c/a) x 100	100	96	100	101
δD	permil	NA	NA	NA	NA
δO18	permil	NA	NA	NA	NA

ND - Not Detected
NA - Not Analyzed

spring water is listed on table 4, however, it is not included in the Utah geothermal database.) According to the classification of Back (1961), the thermal water is sodium calcium-chloride type. Geothermometers suggest equilibration temperatures in the range 87°C to 116°C (189°F to 241°F).

Meadow and Hatton Hot Springs, Millard County

Meadow and Hatton Hot Springs are located about 16 km (10 mi) southwest of Fillmore in the eastern Black Rock Desert. Hatton Hot Spring issues from the south end of a large, northeast-trending travertine mound at a temperature of 63°C (145°F). Meadow Hot Springs, comprising several thermal springs in a northeast alignment and located in a marshy area about 2 km (1.25 mi) northwest of the Hatton travertine mound, issue at temperatures up to 41°C (106°F).

Two fluid samples from the Meadow Hot Springs area (MI-80 and MI-82) were collected for this study and described by Ross and others (1993) in conjunction with the results of self-potential surveys completed in the area. The new chemical data show very different values for potassium, silica, and fluoride concentrations compared to previous data, suggesting temporal variations in spring chemistry. Standard geothermometers range between 205°C (Na-K-Ca) and 86°C (Na-K-Ca-Mg), with most likely equilibration temperatures around 108°C (quartz conductive). Based on the results of the new chemical analyses, the fluids appear to be highly evolved with a very complex thermal history (M.C. Adams, University of Utah Research Institute, verbal communication, 1993).

The Mountain Spa Resort, Wasatch County

Thermal springs in and around the community of Midway in Wasatch County issue from several widespread, coalescing travertine mounds covering an area of several square kilometers. Temperatures in these springs range from 38°C to 46°C (100°F to 115°F). Kohler (1979) suggested that thermal water at Midway is the result of deep circulation of meteoric water from recharge zones located to the north near Park City. Geothermometry from water analyses indicates that the maximum reservoir temperature is about 75°C (167°F). At the Mountain Spa Resort thermal water is used for heating a swimming pool and for therapeutic baths. Since Kohler's (1979) study, spring flows, temperatures, and water levels in wells at the Mountain Spa Resort have reportedly declined (Linda Pritchett, 1993, verbal communication). New analyses of thermal water, performed as part of this study, represent the only complete set of chemical data for the springs at the Mountain Spa (WS-02). The Homestead, a hotel and resort complex near Midway, uses thermal water in a therapeutic (Jacuzzi) bath.

Blue Lake Spring and Bonneville Salt Flats, Tooele County

Low-temperature thermal waters are present in the western part of the Great Salt Lake Desert as recorded in wells used for brine production and mineral extraction around the Bonneville Salt Flats, and as thermal springs at Blue Lake and Salt Spring. Turk (1973) presents data on 13 "deep brine wells" drilled to depths ranging from 326 m to 631 m (1,070 ft to 2,070

ft). The highest temperature recorded was 88°C (190°F), measured in the drilling mud of one well designated DBW-3 while circulating at a depth of 499 m (1,637 ft). The brine produced from these deep wells contains from 120,000 to 130,000 mg/L total dissolved solids.

Blue Lake and Salt Spring, located in western Tooele County near the Utah-Nevada border, are small lakes fed by thermal springs. Although the temperature of the spring vents (located beneath Blue Lake) are not known, the temperature of Blue Lake is fairly constant at about 29°C (84°F). The area, which is controlled by the U.S. Bureau of Land Management, is valuable for the recreational opportunities offered in the form of year-round diving, and as a wildlife habitat. Because previously reported analyses were incomplete, an analysis of water from Blue Lake (TO-103) was obtained as part of this study. Applicable geothermometer temperatures range between 35°C and 88°C (95°F and 190°F).

Wilson Health Springs, Tooele County

Hot springs also issue in and along the margins of Snake Valley, Tule Valley, and Fish Springs Flat of western Utah. Wilson Health Springs (TO-109), the site of an abandoned resort of the same name at the north end of the Fish Springs Range, issues from small mounds at temperatures approaching 60°C (140°F), with flow rates varying up to 380 L/min (100 gpm). Thermal fluids at Wilson, analyzed as part of this study, are moderately saline with total dissolved solids content slightly over 21,000 mg/L. Chemical geothermometers suggest equilibration temperatures of less than 100°C (212°F). The Fish Springs National Wildlife Refuge lies along the northeast flank of the Fish Springs Range. These broad wetlands are fed by a number of springs with temperatures ranging between 20°C and 29°C (68°F and 84°F). Wilson Health Springs is the northernmost, and hottest, of a series of north-trending, warm springs.

Dixie (La Verkin) Hot Springs, Washington County

At the Pah Tempe Hot Springs Resort (WA-07), springs flow from a number of vents along the Virgin River, near where the river crosses the Hurricane fault at the mouth of Timpoweap Canyon. The Virgin River has eroded Timpoweap Canyon into a thick sequence of Permian carbonate rocks. The flows have been altered over the past decade possibly due to a combination of man-made and natural causes. In the mid-1980s, construction of a water pipeline for the Quail Creek (off-line storage) reservoir reportedly disrupted the discharge of existing hot springs and new springs emerged at lower levels along the nearby Virgin River (Ben Everitt, Utah Division of Water Resources, verbal communication, 1993). Flows to the original springs were restored after installation of a clay and cement seal in the construction area. In September of 1992, a 5.8 M_L earthquake evidently contributed to another disruption of spring flows as discharge decreased and again new springs emerged at lower levels along the Virgin River (Ken Anderson, Pah Tempe Resort, verbal communication). Available analyses for Dixie Hot Springs, done prior to the earthquake, are variable and possibly reflect differences in sample collection points. A sample collected as part of this study was taken from one of the new spring orifices where the Quail Creek pipeline crosses the Virgin River. The new sample results show similar variability compared with the previous analyses. The water is sodium calcium-chloride,

sulfate, bicarbonate type. Geothermometers suggest equilibration temperatures between 75°C and 80°C (167°F and 176°F).

Third Water Hot Springs, Utah County

Hot springs that are well known to hikers and mountain-bikers and referred to here as "Third Water Hot Springs" (UT-70), are located in the Uinta National Forest of eastern Utah County. Unusual because they occur at an elevation of 1,890 m (6,200 ft) in the Wasatch Mountains, the springs were known only to recreational enthusiasts and were not reported in previous geothermal or water-resource publications. Third Water Hot Springs issue from multiple vents along Third Water Creek, about three miles east of Three Forks Campground in Diamond Fork Canyon. Access to the springs is by hiking, mountain-biking, or on horseback. The springs occur over a distance of about 0.5 kilometer (0.3 mi) in and along the stream course, with many vents located below a 6 m (20 ft) waterfall. Abundant vertical fractures are apparent with some evidence of offset. Bedrock consists mostly of pebble and cobble conglomerate, probably of upper Cretaceous (Price River Formation) or lower Tertiary (North Horn Formation) age.

Spring temperatures range from tepid to a maximum measured temperature of 55.5°C (131.9°F) at a vent located just below the waterfall. The springs give off a pervasive sulfurous odor, and deposit both white and black mineral coatings on the stream bottom. A field pH of 7.03 was measured at the sampled vent, and analyses of a water sample yielded a total dissolved solids content of 932 mg/L. Geothermometers suggest equilibration temperatures between 65°C and 97°C (149°F and 207°F). Results of the laboratory analysis, included in the database, indicate a sodium-bicarbonate, chloride, sulfate type water.

RECOMMENDED FUTURE STUDY AREAS

A list of geothermal areas in Utah recommended for additional resource investigations was developed as part of this project and forwarded to the Oregon Institute of Technology as recommended future study sites. The list, which includes seven areas, will be used in selecting sites for additional work under possible future phases of DOE's Low-temperature Geothermal Program. The list was developed on the basis of resource temperatures and flow rates; and on resource locations with respect to transportation systems, population centers, and agricultural regions.

Newcastle Area, Iron County

The Newcastle area, located near the south end of the Escalante Valley in Iron County, is underlain by an aquifer containing low- and moderate-temperature geothermal fluid. The area is experiencing expanded use of the geothermal aquifer with the construction of new commercial greenhouse facilities. Milgro Nurseries, a California-based company, has completed a (first of seven planned) four-acre greenhouse facility which houses 500,000 flowering plants for distribution to customers throughout the U.S. Couple this expansion with two other established

commercial greenhouse operations and significant fluid and thermal withdrawals from the aquifer can be expected over the next several years. The UGS, UURI, and the University of Utah performed analyses of 27 thermal-gradient drill holes, geophysical surveys, and geologic mapping (Blackett and Shubat, 1992). Still lacking, however is a detailed hydrologic study, so the resource potential of the system is presently undetermined. In order to adequately protect the geothermal aquifer and ensure a continued supply of energy to commercial users, geohydrologic studies and modelling of fluid flow and heat transfer is needed. Additional, slim-hole drilling is also needed to evaluate the center of the geothermal system.

-- The unincorporated town of Newcastle lies just north of the center of the geothermal system. An LDS chapel in the town is heated by the geothermal water. The system is located near state highway 56 which connects Cedar City, 48 km (30 mi) to the east, to a number of small communities in the Escalante Valley to the west. The Escalante Valley is an agricultural region that produces potatoes, alfalfa, corn, and livestock. Cedar City is situated along Interstate 15, and is served by a Union Pacific rail-line and a scheduled-service airport.

A maximum temperature of 130°C (266°F) was measured in a geothermal exploration well which penetrated the geothermal aquifer (outflow plume). Production wells at the greenhouses generally produce fluids in the range of 75°C to 95°C (167°F to 203°F). Geothermometers suggest maximum resource temperatures of up to 166°C (331°F), with more likely temperatures of 140° to 150°C (284° to 302°F).

Geothermal production wells tap an unconfined, alluvial aquifer, which contains hot water and covers an area of several square miles. Thermal water originates from a buried point-source near a range-front fault, and spills into the aquifer. The fluids cool by conduction and probably mix with shallow groundwater at the system margins.

Land ownership is mostly private, although the subsurface source of the system projects beneath federal land. Geothermal users obtain "non-consumptive use" permits from the Utah Division of Water Rights (State Engineer) and return spent geothermal fluid to the aquifer via either injection wells or settling ponds. Because resource temperatures likely exceed 120°C (248°F) in at least part of the system, production of fluids could be regulated by both federal and state agencies, and by private land-owners.

Meadow-Hatton Area, Millard County

The Meadow-Hatton geothermal area, described previously, consists of a large travertine mound, marshland, and thermal springs located about 10 km (7 mi) southwest of the town of Fillmore on the east side of the Black Rock Desert. The Black Rock Desert contains some of the state's youngest volcanic rocks -- some being only a few hundred years old. Virtually no comprehensive geothermal assessment has been performed in the area. Recent self-potential surveys performed by UURI and the UGS revealed a high-amplitude, negative anomaly beneath the southern part of the travertine mound.

The Meadow-Hatton area is located less than 2 km (1.3 mi) west of Interstate 15 in Millard County. Fillmore, the county seat with a population of 2,000 people, is located about 10 km (7 mi) to the northeast. The small community of Meadow (population 250) is situated on Interstate 15, less than 2 km (1.3 mi) from the thermal area. The Pavant Valley and the

Black Rock Desert comprise mostly irrigated croplands. Land ownership in the Pavant Valley and Black Rock Desert is a combination of private, state, and federal parcels.

Spring temperatures range between 30° and 63°C (86° and 145°F). Geothermometers suggest resource temperatures in the range 85° to 114°C (185° to 237°F). Flow rates from the springs are low and reportedly vary from 0 to 4 liters/sec (0 to 60 gallons/min). The spring waters are probably coupled to the regional ground-water flow system of the Pavant Valley and Black Rock Desert.

Midway Area, Wasatch County

Midway is a small farming and resort town located about 8 km (5 mi) west of Heber City in Wasatch County. Thermal water here has been used in pools and spas for several decades. Because the area is growing rapidly, many new residences are beginning to use the geothermal water for space-heating. A DOE-funded study in 1979 showed that the geothermal system extends for several square miles around Midway.

Midway's population was 1,554 during the 1990 Census, an increase of 30 percent over the 1980 Census. U.S. Highways 189 and 40 connect Midway with the larger, nearby communities of Provo, Heber, and Park City. The Heber Valley is an agricultural area producing alfalfa, corn, and cattle.

Maximum measured temperature is about 45°C (113°F). Geothermometers suggest equilibration temperatures around 70°C (158°F). Thermal water is contained within fractured, Paleozoic quartzite in a broad antiform structure. Leakage to the surface is expressed as scattered thermal springs and widespread travertine deposits (Kohler, 1979).

Drawdown of the resource has been observed, and water rights of established users may be compromised as development of the resource continues. Additional work is needed to define the hydrologic controls on the system, and to provide a technical basis for addressing conflicts regarding rights to the thermal water.

Wood's Ranch, Iron County

Wood's Ranch, bearing the name of its owner, Mr. Lehi Wood, is located just south of the Wah Wah Mountains in the northwest part of the Escalante Valley in Iron County. One of the two thermal wells, a 61 m (200 ft) deep water well produces 36.5°C (97.7°F) water. No hot springs are present. A self-potential survey performed by UURI and the UGS revealed a broad, negative SP anomaly interpreted as thermal up-flow. Beyond the SP survey and water analysis performed by UURI and the UGS, no exploration has been carried out on the property.

The area is somewhat remote with no incorporated communities nearby. The Union Pacific rail line connecting Las Vegas with Salt Lake City, crosses the Escalante Valley within 1 mile of Wood's Ranch. Access roads into the area are both improved county and BLM roads, and jeep trails. Land ownership in the vicinity of the thermal wells is private. Surrounding lands are federal and state owned.

Geothermometers suggest equilibration temperatures in the range of 100° to 115°C (212° to 239°C). The warm water produced from the well may be a mixture of thermal water and

normal ground-water from the Escalante Valley aquifer. Thermal gradient drilling and hydrologic testing is needed to determine resource potential.

Thermo Hot Springs, Beaver County

The Thermo Hot Springs geothermal area is located in the northeastern extension of the Escalante Valley in Beaver County. Surface expression consists of two large north-south oriented spring mounds. Companies in the past have performed geothermal exploration activities including geophysics, geochemistry, and exploratory drilling. Geologic maps of the area are available through the U.S. Geological Survey. Recent work by UURI and the UGS has revealed a high-amplitude, self-potential anomaly southeast of the hot springs.

The area is somewhat remote with the nearest community (Minersville) situated about 24 km (15 mi) to the east. Improved BLM and rural county roads provide vehicle access. A Union Pacific rail line, which crosses the Escalante Valley connecting Salt Lake City with Las Vegas, is less than one mile to the west. Land in the northern Escalante Valley is primarily under federal ownership with some large state-owned parcels. Large agricultural areas exist near Minersville to the east, and around Milford to the north.

Spring discharge temperatures range upward to 89.5°C (193°F). Discharge from the springs, observed in 1991, is small, varying from 0.5 to 2 L/s (8 to 32 gallons/min). The spring system is probably coupled with the regional ground-water flow of the Escalante Valley. A deep exploratory drill hole encountered a maximum temperature of 174°C (345°F) at 2,000 m (6,562 ft) (Republic Geothermal, unpublished data). Geothermometers suggest that the equilibration temperatures of the spring waters range from 120°C to 140°C (248°F to 284°F).

Monroe Area, Sevier County

Monroe is a small community located about 5 km (3 mi) miles east of Interstate 70 in Sevier County. It was the site of a number of studies that included geoscience and exploratory drilling sponsored by the U.S. Department of Energy in the late 1970's and early 1980's to assess resource potential (Mabey and Budding, 1987). Although feasibility studies based upon fluid temperatures and flow-rates from a DOE-sponsored production well showed that a district-heating system was not economical, the area could be attractive for process or agricultural direct-heat applications. A re-evaluation of the Monroe area focussing on the hydrology of the system is needed.

Monroe Hot Springs and Red Hill Hot Springs are situated less than 0.5 mile east of the town of Monroe, a community of about 1,470 people. Richfield (population - 5,590), the county seat of Sevier County is located a few miles to the north along Interstate 70. The Sevier-Sanpete Valley is an agricultural region extending for about 80 miles northeastward from the Monroe area. Land ownership in the Sevier Valley is mostly private.

Geothermometers suggest equilibration temperatures of about 110°C (230°F). Maximum measured temperature is 77°C (171°F) at Red Hill Hot Springs and 76°C (169°C) at Monroe Hot Springs. Combined flows for the Monroe-Red Hill system have been estimated at about 20 liters/sec (317 gallons/min.).

Crystal Hot Springs Area, Salt Lake County

Crystal Hot Springs is situated at the southern end of the Jordan Valley in Salt Lake County. Utah Roses, Inc., a commercial greenhouse operator, and the Utah State Prison use thermal water from wells for space-heating. The area is located just west of Interstate 15 near the town of Bluffdale. Bluffdale, a town of 2,150 people, about 30 km (20 mi) south of Salt Lake City, experienced a 65 percent increase in population during the 1980s. This trend continues in the southern Jordan Valley. Rail lines of the Union Pacific Railroad and the Denver and Rio Grande Western Railroad pass through Bluffdale. Land ownership in the Jordan Valley is mostly private.

Surface spring temperatures are about 62°C (144°F), and Utah Roses reports subsurface temperatures of 88+°C (190+°F) in one of their 122 m (400 ft) deep production well. Quartz geothermometers indicate reservoir temperatures possibly up to 115°C (239°F). The springs issue from valley alluvium into several ponds. When one of Utah Roses' production well is in operation, the surface springs and ponds reportedly dry up. Wright and others (1990) also report hydraulic interference between production wells of Utah Roses and the State Prison.

SUMMARY

The 1993 geothermal database for Utah contains data from most of the sources used in the USGS's File-GEOTHERM (Bliss, 1983) plus much new data from other sources that, combined, more than doubles the number of wells and springs previously listed in GEOTHERM. The database is comprehensive and personal-computer oriented to provide users with ready access to detailed geothermal information in Utah. Included in this report are both hard-copy and digital versions of the data (964 records on 792 source locations).

The general goal, as outlined in the contract Statement of Work, was to provide digital data in a spreadsheet format along with a final report and accompanying resource maps. Precautions were taken to minimize errors due to data input or editing and to eliminate poor-quality records. However, errors and erroneous data undoubtedly exist. The database should include all non-proprietary geothermal information available through 1992, however, some references may have been overlooked during the compilation.

By and large, geothermal sources in the database include only those that have in the past or currently produce water. For instance, deep oil and gas wells, and thermal-gradient boreholes do not appear in the database. One exception to this rule is the case of oil and gas wells, mostly in Uinta Basin and southeastern Utah, that have been converted to water wells. Information from deep exploratory wells and temperature-gradient holes will hopefully be included in later versions of the database.

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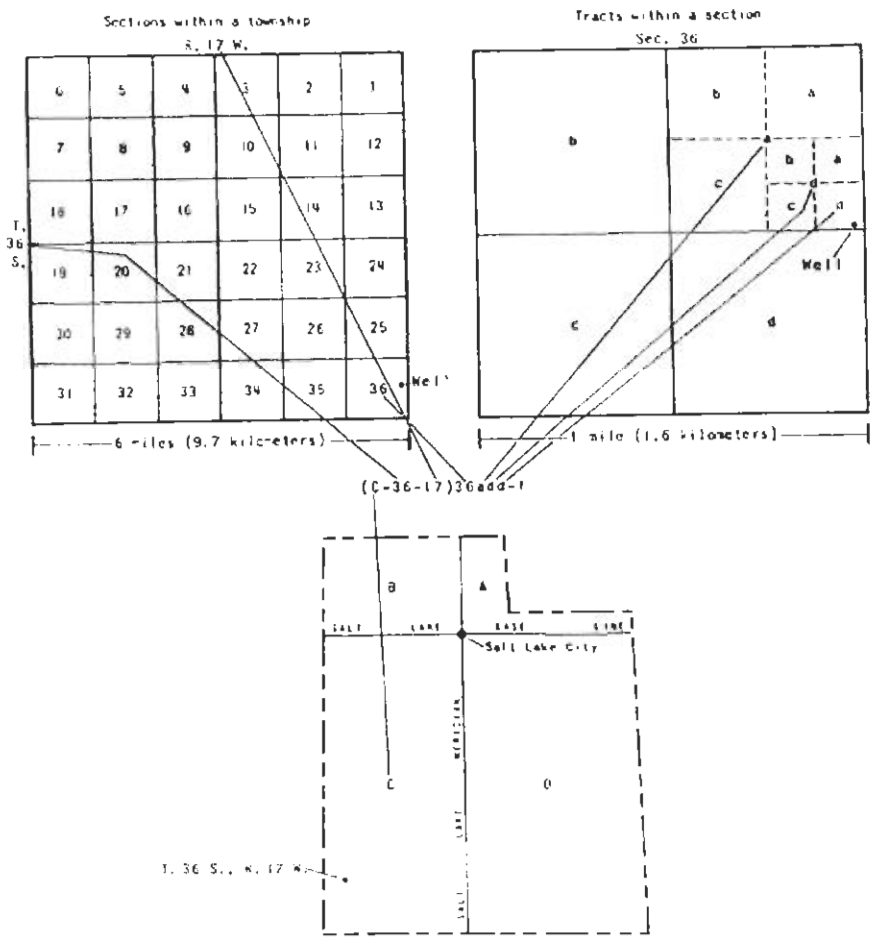
WELL AND SPRING NUMBERING-SYSTEM USED IN UTAH

The system of numbering wells and springs in Utah is based on the cadastral land-survey system of the U.S. Government. The number designates a location and describes its position in the land net. The land-survey system divides the state into four quadrants by the Salt Lake Base Line and Meridian, and these quadrants are designated by uppercase letters as follows: A, northeast, B., northwest; C, southwest; and D, southeast. Numbers designating the township and range (in that order) follow the quadrant letter, and all three are enclosed in parentheses. The number after the parentheses indicates the section and is followed by the three letters indicating the quarter section, the quarter-quarter section, and the quarter-quarter-quarter section (generally 4 km^2 or 10 acres). The quarters of each subdivision are designated by lowercase letters as follows: a, northeast; b, northwest; c, southwest; and d, southeast.



APPENDIX A
LOCATION AND DESCRIPTION INFORMATION FOR GEOTHERMAL WELLS AND SPRINGS IN UTAH

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
1	BE-01	unnamed	W	(C-25-10)26dbb	38.6089	112.9431	4274961	330810	21.0					McHugh and Miller, 1981
2	BE-02	Utah State 42-7	W	(C-26-06)07bad	38.5685	112.5668	4269850	363500	178.0	2357.6				Ash and others, 1979
3	BE-03	C. Anderson	W	(C-26-07)26cac	38.5169	112.6147	4264197	359227	21.0	76.2				WATSTORE
4	BE-04	Salt Spr.	S	(C-26-09)34bdd	38.5075	112.8522	4263544	338498	24.5					Mower and Cordova, 1974
5	BE-04	Salt Spr.	S	(C-26-09)34bdd	38.5075	112.8522	4263544	338498	24.0					McHugh and others, 1981
6	BE-05	Roosevelt Hot Spr.	S	(C-26-09)34dcb	38.5000	112.8333	4262679	340127	55.0					Mower and Cordova, 1974
7	BE-05	Roosevelt Hot Spr.	S	(C-26-09)34dcb	38.5000	112.8333	4262679	340127	55.0					Ross and others, 1982
8	BE-05	Roosevelt Hot Spr.	S	(C-26-09)34dcb	38.5000	112.8333	4262679	340127	85.0					Mower and Cordova, 1974
9	BE-05	Roosevelt Hot Spr.	S	(C-26-09)34dcb	38.5000	112.8333	4262679	340127	25.0					Mariner and others, 1983
10	BE-06	unnamed	S	(C-26-10)29dbd	38.5186	112.9953	4265037	326046	26.5					McHugh and Miller, 1981
11	BE-07	Tub Spr.	S	(C-26-13)25acc	38.5200	113.2556	4265717	303354	20.0					McHugh and others, 1981
12	BE-08	unnamed	S?	(C-27-07)02bcc	38.4914	112.6131	4261365	359317	20.0					McHugh and others, 1981
13	BE-09	unnamed	S	(C-27-08)32ccc	38.4122	112.7761	4252838	344930	23.0					McHugh and others, 1981
14	BE-10	Thermal Power 14-2	W	(C-27-09)02bcc	38.4938	112.8409	4262000	339450	268.0	1862.0				Capuano and Cole, 1982
15	BE-10	Thermal Power 14-2	W	(C-27-09)02bcc	38.4938	112.8409	4262000	339450	254.0	1862.0				Ross and others, 1982
16	BE-11	Phillips 54-3	W	(C-27-09)03aca	38.4941	112.8490	4262050	338750	260.0	878.0				Ross and others, 1982
17	BE-11	Phillips 54-3	W	(C-27-09)03aca	38.4941	112.8490	4262050	338750	260.0	878.0				Capuano and Cole, 1982
18	BE-12	Phillips 3-1	W	(C-27-09)03acb	38.4922	112.8512	4261850	338550						Mariner and others, 1983
19	BE-13	Phillips 9-1	W	(C-27-09)09abd	38.4816	112.8687	4260700	337000	225.0	2098.0				Capuano and Cole, 1982
20	BE-14	Utah State 72-16	W	(C-27-09)16ad	38.4670	112.8649	4259075	337300	243.0	382.0				Ross and others, 1982
21	BE-14	Utah State 72-16	W	(C-27-09)16ad	38.4670	112.8649	4259075	337300	243.0	382.0				Capuano and Cole, 1982
22	BE-15	Utah State 52-21	W	(C-27-09)21abb	38.4537	112.8674	4257600	337050	206.0	2289.0				Ross and others, 1992
23	BE-15	Utah State 52-21	W	(C-27-09)21abb	38.4537	112.8674	4257600	337050	204.0	2289.0				Capuano and Cole, 1982
24	BE-16	Sullivan L. & L.	W	(C-27-10)31dcb	38.4156	113.0181	4253650	323808	27.0	700.0		2915.0		Mower and Cordova, 1974
25	BE-16	unnamed	W	(C-27-10)31dcb	38.4156	113.0181	4253650	323808	27.0	213.4	P	2914.8	28.0	WATSTORE
26	BE-17	Mud Spr.	S	(C-27-18)28ddc	38.4258	113.8592	4256726	250398	21.0					McHugh and others, 1981
27	BE-18	G. Sullivan	W	(C-28-10)05add	38.4083	112.9914	4252500	326318	20.5	93.0			5.0	WATSTORE
28	BE-19	Town of Milford	W	(C-28-10)07adb	38.3920	113.0120	4251020	324283	25.5	163.0		2328.0		Mower and Cordova, 1974
29	BE-20	Hanson L. & L.	W	(C-28-10)14bba	38.3830	112.9490	4249903	329765	20.5	78.0				Mower and Cordova, 1974
30	BE-21	unnamed	W	(C-28-10)16dcc	38.3700	112.9817	4248521	326877	20.0	134.0				McHugh and Miller, 1981
31	BE-22	E. Davie	W	(C-28-10)17cdc	38.3678	113.0036	4248318	324959	20.5	67.0				McHugh and Miller, 1981
32	BE-22	E. Davie	W	(C-28-10)17cdc	38.3678	113.0036	4248318	324959	24.5	67.1				WATSTORE
33	BE-23	G. Goodwin	W	(C-28-10)18aca	38.3790	113.0140	4249581	324077	21.0					Mower and Cordova, 1974
34	BE-24	J. Forgie	W	(C-28-10)18ad	38.3810	113.0160	4249807	323907	25.6			95.0		Lee, 1908
35	BE-25	T. Walker	W	(C-28-10)19abc	38.3650	113.0190	4248037	323606	25.5	79.0		23.0		Mower and Cordova, 1974
36	BE-26	unnamed	W	(C-28-10)28ccc	38.3386	112.9881	4245048	326243	21.0	96.3				WATSTORE
37	BE-26	unnamed	W	(C-28-10)28ccc	38.3386	112.9881	4245048	326243	20.0	96.3				WATSTORE
38	BE-27	L. Paice	W	(C-28-10)30cdc	38.3389	113.0225	4245147	323237	20.0	48.8	P	1892.7	8.7	WATSTORE
39	BE-28	unnamed	W	(C-28-10)31cad	38.3286	113.0189	4243997	323527	20.0	46.0				McHugh and Miller, 1981
40	BE-29	Prov. Holy Name	W	(C-28-11)12abb	38.3963	113.0377	4251545	322045	20.0	134.0		2233.0		Mower and Cordova, 1974
41	BE-30	Green Diamond Ranch	W	(C-28-11)25dcd	38.3389	113.0325	4245166	322363	20.5	131.4	P	9463.5	4.4	WATSTORE
42	BE-30	Green Diamond Ranch	W	(C-28-11)25dcd	38.3389	113.0325	4245166	322363	20.0	131.4	P	9463.5	4.4	WATSTORE
43	BE-30	Green Diamond Ranch	W	(C-28-11)25dcd	38.3389	113.0325	4245166	322363	20.5	131.0		9464.0		Mower and Cordova, 1974
44	BE-31	Green Diamond Ranch	W	(C-28-11)25ddd	38.3389	113.0283	4245158	322730	20.0	45.7	P	1817.0	6.7	WATSTORE
45	BE-32	Woodhouse Spr.	S	(C-28-12)29dcc	38.3420	113.2230	4245894	305720	22.0					Mower and Cordova, 1974
46	BE-33	Sulphur Spr.	S	(C-28-19)03ccc	38.3939	113.9625	4253470	241265	21.0					McHugh and others, 1981
47	BE-34	Beaver School Dist.	W	(C-29-08)25cac	38.2544	112.7061	4235212	350719	20.0	76.2	P	26.5	3.7	WATSTORE
48	BE-35	S.R. Barton well	W	(C-29-08)36aa	38.2490	112.7000	4234603	351242	23.3			26.0		Lee, 1908
49	BE-36	Minersville Res. Co.	W	(C-29-09)36bc	38.2370	112.8160	4233464	341064	21.1					Sandberg, 1963
50	BE-37	unnamed	S	(C-29-10)24cab	38.2690	112.9090	4237500	331250	28.0			189.0		Lee, 1908
51	BE-38	J. Mayer	W	(C-29-11)01add	38.3169	113.0281	4242716	322694	20.0	19.5	P	1741.3	9.4	WATSTORE
52	BE-39	unnamed	W	(C-29-11)12ddc	38.2950	113.0314	4240292	322352	20.5	73.2	P	2119.8	10.7	WATSTORE
53	BE-39	unnamed	W	(C-29-11)12ddc	38.2950	113.0314	4240292	322352	20.5	73.0				McHugh and Miller, 1981

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
54	BE-40	Town of Minersville	W	(C-30-09)07adb	38.2180	112.9060	4231514	333143	33.5					Mower and Cordova, 1974
55	BE-41	Dotson Warm Spr.	S	(C-30-09)07aca	38.2172	112.9039	4231422	333325	35.5					McHugh and Miller, 1981
56	BE-41	Dotson Warm Spr.	S	(C-30-09)07aca	38.2172	112.9039	4231422	333325	32.5					Mower and Cordova, 1974
57	BE-41	Dotson Warm Spr.	S	(C-30-09)07aca	38.2172	112.9039	4231422	333325	33.5					McHugh and others, 1981
58	BE-41	Dotson Warm Spr.	S	(C-30-09)07aca	38.2172	112.9039	4231422	333325	31.5					Mower and Cordova, 1974
59	BE-42	Bureau of Land Mgmt.	S	(C-30-09)19bdc	38.1862	112.9113	4228000	332606	33.0					Mower and Cordova, 1974
60	BE-43	Willow Spr.	S	(C-30-09)31daa	38.1550	112.8960	4224505	333876	21.5					Mower and Cordova, 1974
61	BE-44	Neb Craw	W	(C-30-10)19abd	38.1910	113.0140	4228718	323623	21.0	89.0		3785.0		Mower and Cordova, 1974
62	BE-45	Bureau of Land Mgmt.	W	(C-30-11)22ddc	38.1790	113.0700	4227495	318688	22.5	50.0		34.0		Mower and Cordova, 1974
63	BE-46	Thermo Hot Spr.	S	(C-30-12)21add	38.1860	113.1950	4228523	307757	78.0					Klauk and Gourley, 1983
64	BE-46	Thermo Hot Spr.	S	(C-30-12)21add	38.1860	113.1950	4228523	307757	85.0			41.0		Mower and Cordova, 1974
65	BE-46	Thermo Hot Spr.	S	(C-30-12)21add	38.1860	113.1950	4228523	307757	50.0					Klauk and Gourley, 1983
66	BE-46	Thermo Hot Spr.	S	(C-30-12)21add	38.1860	113.1950	4228523	307757	56.0					Klauk and Gourley, 1983
67	BE-46	Thermo Hot Spr.	S	(C-30-12)21add	38.1860	113.1950	4228523	307757	42.0					Klauk and Gourley, 1983
68	BE-46	Thermo Hot Spr.	S	(C-30-12)21add	38.1860	113.1950	4228523	307757	89.5			910.0		Cole, 1983
69	BE-47	Thermo Hot Spr.	S	(C-30-12)28add	38.1730	113.2050	4227102	306846	89.5					Mariner and others, 1983
70	BE-47	Thermo Hot Spr.	S	(C-30-12)28add	38.1730	113.2050	4227102	306846	66.0					McHugh and others, 1981
71	BE-47	Thermo Hot Spr.	S	(C-30-12)28add	38.1730	113.2050	4227102	306846	93.0					McHugh and Miller, 1981
72	BE-47	Thermo Hot Spr.	S	(C-30-12)28add	38.1730	113.2050	4227102	306846	76.5			73.1		Mower and Cordova, 1974
73	BE-48	Moonshine Well	W	(C-30-13)30bdc	38.1703	113.3533	4227122	293846	24.0					McHugh and others, 1981
74	BE-49	unnamed	W	(C-31-15)32aca	38.0656	113.5511	4215961	276196	23.0					McHugh and others, 1981
75	BO-01	Bureau of Land Mgmt.	W	(B-04-17)04bbb	41.0997	113.8089	4553416	264104	20.0	2.7			0.7	WATSTORE
76	BO-02	Bureau of Land Mgmt.	W	(B-04-17)31ccc	41.0117	113.8469	4543749	260593	21.5	2.7			0.4	WATSTORE
77	BO-03	Bureau of Land Mgmt.	W	(B-04-18)33ccc	41.0117	113.9236	4543962	254143	21.5	2.7			0.3	WATSTORE
78	BO-04	L.W. Keller Corp. #2	W	(B-05-13)31ac	41.1080	113.3850	4553275	299732	22.0	61.0				Stephens, 1974a
79	BO-05	Compton	S	(B-06-05)21aa	41.2380	112.4130	4565928	381588	21.0			159.0		Hood, 1972
80	BO-06	Bureau of Rec. WRW 2	W	(B-07-02)09cda	41.3539	112.0750	4578389	410073	25.5	393.2	F	177.9	-15.8	WATSTORE
81	BO-07	Wells & Larkin	W	(B-07-02)10dbd	41.3536	112.0481	4578329	412323	24.0	238.0		3570.0		Bolke and Waddell, 1972
82	BO-07	W & L	W	(B-07-02)10dbd	41.3536	112.0481	4578329	412323	23.5	238.4	P	3569.6	-20.0	WATSTORE
83	BO-07	W & L	W	(B-07-02)10dbd	41.3536	112.0481	4578329	412323	24.0	238.4	P	3569.6	-20.0	WATSTORE
84	BO-08	Utah Hot Springs	S	(B-07-02)14dca	41.3387	112.0310	4576801	413819	58.3					Mundorff, 1970
85	BO-09	LDS Church	W	(B-07-02)16ba	41.3410	112.0660	4576948	410808	24.0	311.0				Bolke and Waddell, 1972
86	BO-10	R. Penton	W	(B-07-02)16bc	41.3370	112.0640	4576502	410970	25.0	358.0		159.0		Bolke and Waddell, 1972
87	BO-11	LDS Church	W	(B-07-02)16dab	41.3422	112.0678	4577083	410659	22.0	237.7	F	113.6	-9.1	WATSTORE
88	BO-12	unnamed	S	(B-07-05)15cd	41.3320	112.4050	4576353	382428	25.0			1173.0		Hood, 1972
89	BO-13	Willard Bay Gun Club	W	(B-08-02)21aa	41.4240	112.0680	4586165	410755	20.0	173.0		45.0		Bjorklund and McGreevy, 1973
90	BO-14	V. Poulsen	S	(B-08-05)05ca	41.4510	112.4390	4589611	379802	22.0			833.0		Hood, 1972
91	BO-15	Chesapeake Duck Club	W	(B-09-03)27cd	41.5817	112.1770	4603787	401884	74.0	153.0		151.0		Bjorklund and McGreevy, 1973
92	BO-15	Chesapeake Duck Club	W	(B-09-03)27cd	41.5817	112.1770	4603787	401884	74.0			151.0		Bjorklund and others, 1977
93	BO-16	Davis 1	W	(B-10-02)16dc	41.6937	112.0820	4616118	409960	107.0	3354.0				Goode, 1978
94	BO-17	Jepperson	W	(B-10-03)04bb	41.6240	112.1780	4608488	401865	25.0	155.0				Bjorklund and McGreevy, 1973
95	BO-18	Stinking Spr.	S	(B-10-03)30bba	41.5770	112.2350	4603336	397042	47.5					Bjorklund and others, 1977
96	BO-18	Stinking Spr.	S	(B-10-03)30bbd	41.5769	112.2325	4603322	397250	47.0		F	94.6		WATSTORE
97	BO-19	L. Anderson	W	(B-10-03)33ba	41.6455	112.1845	4610882	401356	28.0			76.0		Bjorklund and others, 1977
98	BO-20	Spr. near Little Mtn.	S	(B-10-04)23ba	41.6737	112.2600	4614099	395114	24.5			57.0		Bjorklund and others, 1977
99	BO-21	unnamed	S	(B-10-04)23bb	41.6720	112.2600	4613914	395112	26.0			7.6		Bjorklund and McGreevy, 1973
100	BO-22	Little Mtn. Warm Spr.	S	(B-10-04)24cc	41.6703	112.2575	4613726	395317	42.0					Bjorklund and others, 1977
101	BO-23	National Park Service	W	(B-10-06)09dd	41.6190	112.5460	4608417	371198	22.5	129.0		91.0		Hood, 1972
102	BO-24	Warm Spr. #2	S	(B-10-15)06cb	41.6130	113.6130	4609895	282276	20.0			1461.0		Hood, 1971
103	BO-25	R. Warburton	W	(B-10-18)17dbb	41.5867	113.9344	4607836	255394	24.5	160.3	P	3785.4	34.7	WATSTORE
104	BO-26	M. Tanner	W	(B-10-18)21aa	41.5810	113.9090	4607132	257490	20.0	19.0		1325.0		Hood and Price, 1970
105	BO-27	Kimber (Rose) Spr.	S	(B-10-18)30da	41.5640	113.9540	4605372	253674	20.0			814.0		Hood and Price, 1970
106	BO-28	B. Kimber	W	(B-10-18)33ca	41.5540	113.9110	4604139	257222	20.0	28.0		4277.0		Hood and Price, 1970

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107	BO-29	Crystal Spr. (Madsen)	S	(B-11-02)29dad	41.7483	112.0870	4622192	409620	54.0			3600.0		Cole, 1983
108	BO-29	Crystal Spr. (Madsen)	S	(B-11-02)29dad	41.7483	112.0870	4622192	409620	55.5					Bjorklund and others, 1977
109	BO-30	unnamed	S	(B-11-04)34bc	41.7283	112.2862	4620200	393027	22.0			38.0		Bjorklund and others, 1977
110	BO-31	unnamed	S	(B-11-04)34bd	41.6417	112.2792	4610573	393464	21.0					Bjorklund and McGreevy, 1973
111	BO-32	M. Warburton	S	(B-11-19)11ba	41.6860	113.9820	4618998	251808	42.0			852.0		Hood and Price, 1970
112	BO-33	Garland Springs	S	(B-12-02)31dda	41.7303	112.1056	4620210	408048	27.0			1850.0		Cole, 1983
113	BO-34	L. King	W	(B-12-03)15cb	41.7700	112.1750	4624694	402336	20.0	84.0		3028.0		Bjorklund and McGreevy, 1973
114	BO-35	L. Harris	W	(B-12-04)34bbd	41.7350	112.2933	4620949	392445	20.0	93.3	P	1608.8	37.2	WATSTORE
115	BO-36	Town of Howell	W	(B-12-05)22ba	41.7570	112.3990	4623529	383694	20.0			3.8		Bolke and Price, 1972
116	BO-37	unnamed	S	(B-12-06)33bd	41.7290	112.5400	4620621	371916	20.5			3.8		Bolke and Price, 1972
117	BO-38	unnamed	W	(B-12-08)10bcc	41.7842	112.7422	4627070	355222	30.0					Davis and Kolesar, 1984
118	BO-39	Warm Spr. #1	S	(B-12-15)19aa	41.7580	113.6030	4625970	283596	26.5			1287.0		Hood, 1971
119	BO-40	Cutler Warm Spr.	S	(B-13-02)27dbd	41.8340	112.0560	4631671	412315	23.0					Bjorklund and others, 1977
120	BO-40	Cutler Warm Spr.	S	(B-13-02)27dbd	41.8340	112.0560	4631671	412315	25.0			38.0		Cole, 1983
121	BO-41	Town of Plymouth	W	(B-13-03)11ba	41.9637	112.1513	4646170	404592	29.0	183.0		197.0		Bjorklund and others, 1977
122	BO-42	Uddy/Belmont	S	(B-13-03)23bad	41.8547	112.1572	4634076	403943	51.0					Bjorklund and others, 1977
123	BO-42	Uddy/Belmont	S	(B-13-03)23bad	41.8547	112.1572	4634076	403943	53.0			6050.0		Cole, 1983
124	BO-43	Blue Creek Spring	S	(B-13-05)29bcc	41.8330	112.4540	4610882	401356	27.0			1800.0		Cole, 1983
125	BO-43	Blue Creek Springs	S	(B-13-05)29bcc	41.8330	112.4540	4610882	401356	28.0					Bolke and Price, 1972
126	BO-44	L. Nessen	W	(B-13-05)31daa	41.8167	112.4547	4630235	379175	20.5	123.4	P	1324.9	8.2	WATSTORE
127	BO-44	L. Nessen	W	(B-13-05)31daa	41.8167	112.4547	4630235	379175	20.5	123.0				Bolke and Price, 1972
128	BO-45	R. Henrie	W	(B-13-06)01dbb	41.8889	112.4858	4638295	376731	20.0	214.6	P	2195.5	36.9	WATSTORE
129	BO-46	unnamed	W	(B-13-06)07ccc	41.8650	112.5894	4635795	368086	30.0					Davis and Kolesar, 1984
130	BO-47	unnamed	W	(B-13-06)17ccc	41.8503	112.5700	4634134	369667	22.0					Davis and Kolesar, 1984
131	BO-48	unnamed	W	(B-13-06)30cdc	41.8872	112.5906	4638262	368032	21.0					Davis and Kolesar, 1984
132	BO-49	unnamed	W	(B-13-08)21dcd	41.8358	112.7500	4632813	354691	24.0					Davis and Kolesar, 1984
133	BO-50	L. Carter	S	(B-13-12)30ca	41.8250	113.2600	4632602	312310	25.0			19.0		Hood, 1971
134	BO-51	C. Larson	S	(B-13-13)27bb	41.8200	113.3100	4632158	308142	21.0					Utah Geol. Survey
135	BO-52	W. Carter	S	(B-13-13)34cd	41.8080	113.3280	4630866	306611	21.0					Utah Geol. Survey
136	BO-53	Richardson, E.M.	S	(B-13-13)35dd	41.8180	113.3090	4631933	308219	23.0					Utah Geol. Survey
137	BO-54	R. Pugsley	S	(B-13-14)24bb	41.8330	113.3910	4633785	301454	23.0					Utah Geol. Survey
138	BO-55	Head Spr.	S	(B-13-16)23cc	41.8320	113.6530	4634313	279693	21.0			76.0		Hood, 1971
139	BO-56	D. Stokes	W	(B-14-06)09aa	41.9680	112.4830	4647073	377115	20.5	125.0				Bolke and Price, 1972
140	BO-57	unnamed	W	(B-14-07)05adb	41.9722	112.6508	4647794	363219	24.0					Davis and Kolesar, 1984
141	BO-58	unnamed	W	(B-14-07)05dab	41.9722	112.6508	4647794	363219	20.0					Davis and Kolesar, 1984
142	BO-59	L. & S. Victor	W	(B-14-08)05bdb	41.9756	112.7786	4648384	352638	20.0	54.9				WATSTORE
143	BO-60	L. & S. Victor	W	(B-14-08)06add	41.9736	112.7847	4648172	352128	20.5	140.2			64.0	WATSTORE
144	BO-61	S. Taylor	W	(B-14-09)04bbb	41.9789	112.8811	4648931	344153	23.0	114.3				WATSTORE
145	BO-62	unnamed	W	(B-14-09)04bcc	41.9731	112.8814	4648288	344114	20.5	111.3			57.9	WATSTORE
146	BO-63	G. Hanna	W	(B-14-09)04ccc	41.8333	112.8814	4632766	343773	21.0					Davis and Kolesar, 1984
147	BO-63	G. Hanna	W	(B-14-09)04ccc	41.9667	112.8814	4647577	344098	21.5	109.7	P	7570.8	53.3	WATSTORE
148	BO-63	G. Hanna	W	(B-14-09)04ccc	41.9667	112.8814	4647577	344098	20.5	110.0		7571.0		Baker, 1974
149	BO-64	C. Taylor	W	(B-14-09)04dd	41.9780	112.8800	4648830	344242	22.0	107.0				Baker, 1974
150	BO-65	unnamed	W	(B-14-09)07bbb	41.9650	112.9206	4647461	340846	20.0					Davis and Kolesar, 1984
151	BO-66	unnamed	W	(B-14-09)17caa	41.9431	112.8917	4644976	343187	20.0	185.3				WATSTORE
152	BO-67	unnamed	W	(B-14-10)04bbc	41.9486	112.9594	4645713	337589	20.0					Davis and Kolesar, 1984
153	BO-68	Hogan	W	(B-14-10)11cbb	41.9572	112.9592	4646667	337627	21.0	120.4	P	4466.8		WATSTORE
154	BO-69	M. Palmer	W	(B-14-10)14bbc	41.9483	112.9592	4645679	337605	23.5	256.0	P	3406.9	55.2	WATSTORE
155	BO-70	Hogan	W	(B-14-10)15cdc	41.9361	112.9750	4644354	336264	24.5	153.9			59.7	WATSTORE
156	BO-70	Hogan	W	(B-14-10)15cdc	41.9361	112.9750	4644354	336264	23.0					Davis and Kolesar, 1984
157	BO-71	unnamed	W	(B-14-10)23bbb	41.9347	112.9511	4644154	338242	20.0	256.0				WATSTORE
158	BO-72	Coyote Spr.	S	(B-14-10)33bcc	41.9010	112.9990	4640503	334183	43.5					Baker, 1974
159	BO-72	Coyote Spr.	W	(B-14-10)33bcc	41.9006	112.9989	4640459	334190	29.0					Davis and Kolesar, 1984

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160	BO-73	R. Tolman	W	(B-15-06)34cc	41.9860	112.5360	4649149	372759	20.5	169.0				Bolke and Price, 1972
161	BO-74	unnamed	W	(B-15-07)32dba	41.9856	112.6528	4649285	363082	25.0					Davis and Kolesar, 1984
162	BO-75	unnamed	W	(B-15-07)32dca	41.9814	112.6525	4648818	363098	24.0					Davis and Kolesar, 1984
163	BO-76	C. Taylor	W	(B-15-08)31ccc	41.9806	112.8033	4648982	350603	20.5	167.6			50.9	WATSTORE
164	BO-76	C. Taylor	W	(B-15-08)31ccc	41.9806	112.8033	4648982	350603	21.0					Davis and Kolesar, 1984
165	BO-77	J. Lee	W	(B-15-09)28cbc	41.9989	112.8811	4651152	344202	24.0	121.9	P	8857.9	65.2	WATSTORE
166	BO-77	J. Lee	W	(B-15-09)28cbc	41.9989	112.8811	4651152	344202	24.0					Davis and Kolesar, 1984
167	BO-77	J. Lee	W	(B-15-09)28cbc	41.9989	112.8811	4651152	344202	24.0	122.0		8858.0		Baker, 1974
168	BO-78	K. Jensen	W	(B-15-09)28dad	41.9986	112.8625	4651085	345742	32.5					WATSTORE
169	BO-79	C. Taylor	W	(B-15-09)29bd	41.9980	112.8840	4651058	343959	20.0	146.0		6000.0		Baker, 1974
170	BO-80	unnamed	W	(B-15-09)29cbc	41.9986	112.9008	4651155	342569	23.5	121.9				WATSTORE
171	BO-81	E. Taylor	W	(B-15-09)31ad	41.9930	112.9070	4650545	342042	21.5	124.0		8706.0		Baker, 1974
172	BO-82	unnamed	W	(B-15-09)31cdc	41.9797	112.9147	4649082	341371	21.5	80.2				WATSTORE
173	BO-83	A. Beckstead	W	(B-15-09)32dab	41.9883	112.8856	4649983	343803	21.0	121.9	P	9463.5	69.5	WATSTORE
174	BO-84	K. Jensen	W	(B-15-09)33bbc	41.9908	112.8811	4650253	344182	24.5	125.0	P	9842.1	73.2	WATSTORE
175	BO-85	unnamed	W	(B-15-09)35abb	41.9947	112.8328	4650599	348192	23.5	123.1	P	10220.6	55.5	WATSTORE
176	BO-85	unnamed	W	(B-15-09)35abb	41.9947	112.8328	4650599	348192	25.0					Davis and Kolesar, 1984
177	CA-01	Benson Irr. Co.	W	(A-12-01)16cac	41.7772	111.8478	4625153	429358	54.9	55.0	F	71.9		McGreevy and Bjorklund, 1970
178	CA-02	D. Bodrero	W	(A-12-01)16dba	41.7797	111.8387	4625035	430104	20.0	48.8	F	227.0		McGreevy and Bjorklund, 1970
179	CA-03	C. Taylor	W	(A-12-01)16ddd	41.7737	111.8362	4624583	430931	22.0			136.0		McGreevy and Bjorklund, 1970
180	CA-04	Logan Airport	W	(A-12-01)17add	41.7811	111.8528	4625611	429129	20.5	46.9	P	1514.2	-13.1	WATSTORE
181	CA-05	Benson Irr. Co.	W	(A-12-01)17daa	41.7783	111.8539	4625301	429035	20.5	43.9	F	12.5	-4.3	WATSTORE
182	CA-06	Benson Irr. Co.	W	(A-12-01)17dab	41.7783	111.8553	4625268	428943	21.0	48.8	F	219.5		McGreevy and Bjorklund, 1970
183	CA-07	C. Wennergren	W	(A-12-01)20bdd	41.7617	111.8667	4632642	424533	23.0			447.0		McGreevy and Bjorklund, 1970
184	CA-08	A. Beckstead	W	(A-12-01)21caa	41.7645	111.8433	4623816	429843	24.0			117.0		McGreevy and Bjorklund, 1970
185	CA-09	W. Peart	W	(A-12-01)21cbd	41.7625	111.8480	4623264	429505	25.0			42.0		McGreevy and Bjorklund, 1970
186	CA-10	F. Sears	W	(A-12-01)22ccc	41.7600	111.8325	4623254	430586	27.0			568.0		McGreevy and Bjorklund, 1970
187	CA-11	F. Stetler	W	(A-12-01)27aab	41.7555	111.8170	4623016	432163	26.0			61.0		McGreevy and Bjorklund, 1970
188	CA-12	K. Linquist	W	(A-12-01)28baa	41.7571	111.8436	4622939	429868	25.1	78.0				de Vries, 1982
189	CA-13	G. Pyle	W	(A-12-01)28caa	41.7510	111.8438	4622261	429845	21.1	50.0		2.0		de Vries, 1982
190	CA-14	C. Lisonbee	W	(A-12-01)28cab	41.7502	111.8467	4622151	429744	21.0			284.0		McGreevy and Bjorklund, 1970
191	CA-15	Gossner Cheese	W	(A-12-01)29acc	41.7519	111.8592	4622374	428565	23.0	32.9	P	2082.0	-9.4	WATSTORE
192	CA-16	Cache Valley Dairy	W	(A-13-01)19cac	41.8500	111.8863	4633176	426531	21.0	1676.4		284.0		McGreevy and Bjorklund, 1970
193	CA-17	N. Galloway	W	(B-12-01)10cdd	41.7875	111.9406	4626397	421841	21.0	216.4	F	113.6	-10.7	WATSTORE
194	CA-18	unnamed	W	(B-12-01)10dcd	41.7872	111.9356	4626360	422256	20.9	162.0				de Vries, 1982
195	CA-18	unnamed	W	(B-12-01)10dcd	41.7872	111.9356	4626360	422256	23.5	162.5	F	22.7	-6.7	WATSTORE
196	CA-19	J. Nuttall	W	(B-12-01)10dcd	41.7878	111.9367	4626225	422387	21.0	162.5	F	60.6		McGreevy and Bjorklund, 1970
197	CA-20	W. Cardon	W	(B-12-01)11ccc	41.7883	111.9294	4626476	422772	20.9	157.0				de Vries, 1982
198	CA-21	H. Cronquist	W	(B-12-01)2bcd	41.8097	111.9283	4628549	423077	21.0	232.9	F	90.8		McGreevy and Bjorklund, 1970
199	CA-22	N. Brown	W	(B-13-01)10abc	41.8838	111.9395	4637002	421841	49.0	1587.4	F	57.0		McGreevy and Bjorklund, 1970
200	CA-23	L. Hauser	W	(B-13-01)10acb	41.8839	111.9394	4637099	422057	51.0	1587.0		227.0		de Vries, 1982
201	CA-24	W. Toombs	W	(B-13-01)25bab	41.8450	111.9072	4632642	424533	28.0	449.0	F	1135.6		McGreevy and Bjorklund, 1970
202	CA-25	N. Seamons	W	(B-13-01)27cdd	41.8312	111.8245	4631450	421780	23.0	283.5	F	162.8		McGreevy and Bjorklund, 1970
203	CA-26	R. Seamons	W	(B-13-01)27cdd	41.8312	111.8245	4631450	421780	23.1	283.0				de Vries, 1982
204	CA-27	M. Falslev	W	(B-13-01)34daa	41.8228	111.9314	4630308	422648	20.0	216.0				de Vries, 1982
205	CA-28	D. Gancheff	S	(B-14-01)33aac	41.9144	111.9550	4640500	420801	30.1			227.0		de Vries, 1982
206	CA-28	D. Gancheff	S	(B-14-01)33aac	41.9144	111.9550	4640500	420801	31.0					McGreevy and Bjorklund, 1970
207	CR-01	unnamed	S	(D-12-11)20aaa	39.7675	110.7083	4401784	524984	20.0		F	11.4		WATSTORE
208	CR-02	unnamed	S	(D-12-11)21bab	39.7675	110.7003	4401786	525670	22.0		F	3.5		WATSTORE
209	DA-01	F. Thalman	W	(B-02-01)26cdd	40.8717	111.9195	4524524	422219	20.0	130.0		8516.9		Bolke and Waddell, 1972
210	DA-02	A. Thalman	W	(B-02-01)27ddd	40.8725	111.9308	4524753	421632	20.0	152.0				Bolke and Waddell, 1972
211	DA-03	L. Roueche	W	(B-03-01)04cdb	41.0195	111.9620	4541207	419452	20.0	200.0		64.4		Bolke and Waddell, 1972
212	DA-04	C. Smith	W	(B-03-01)05dda	41.0195	111.9695	4540772	418691	24.0	280.0		1135.6		Bolke and Waddell, 1972

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
213	DA-05	W. Harris	W	(B-03-01)09aad	41.0137	111.9503	4540200	420198	20.0	198.0		197.5		Bolke and Waddell, 1972
214	DA-06	Davis Co.	W	(B-03-01)15bac	40.9997	111.9447	4538942	420546	26.0	300.2	P	3.8	-18.3	WATSTORE
215	DA-06	Davis Co.	W	(B-03-01)15bac	40.9997	111.9447	4538942	420546	24.0	300.2	P	95.0	-18.3	WATSTORE
216	DA-07	Wheeler Machinery Co.	W	(B-03-01)27ada	40.9678	111.9294	4535387	421795	21.0	259.1	P	143.9	-13.1	WATSTORE
217	DA-07	Wheeler Machinery Co.	W	(B-03-01)27ada	40.9678	111.9294	4535387	421795	21.0	259.0		143.8		Bolke and Waddell, 1972
218	DA-08	Farmington Bay Refuge	W	(B-03-01)35aba	40.9408	111.9167	4533953	422992	29.0	372.0				Bolke and Waddell, 1972
219	DA-09	Hill AFB No. 5	W	(B-04-01)06dcd	41.1045	111.9933	4550454	416614	22.0	245.0		3785.3		Bolke and Waddell, 1972
220	DA-10	GSLA	W	(B-04-03)19caa	41.0650	112.2311	4546491	396560	23.5	131.1				WATSTORE
221	DA-10	GSLA	W	(B-04-03)19caa	41.0650	112.2311	4546491	396560	24.0	131.1				WATSTORE
222	DA-10	GSLA	W	(B-04-03)19caa	41.0650	112.2311	4546491	396560	23.0	147.0		1059.9		Bolke and Waddell, 1972
223	DA-11	Hill AFB No. 2	W	(B-05-01)29bdc	41.1408	111.9808	4554800	417750	20.0	191.0		2839.0		Bolke and Waddell, 1972
224	DA-12	Hooper Hot Spr.	S	(B-05-03)27cbd	41.1370	112.1753	4554312	401045	60.0					Mundorff, 1970
225	DA-12	Hooper Hot Spr.	S	(B-05-03)27cbd	41.1370	112.1753	4554312	401045	57.0					Cole, 1983
226	DA-12	Hooper Hot Spr.	S	(B-05-03)27cbd	41.1370	112.1753	4554312	401045	60.0					Murphy and Gwynn, 1979
227	DA-13	SW Hooper Warm Spr.	S	(B-05-03)28dac	41.1370	112.1825	4554027	400257	32.2					Mundorff, 1970
228	DU-01	Warm Spr.	S	(B-01-08)30dd*	40.4500	110.8167	4477508	514585	26.0			757.0		Hood and others, 1976
229	DU-02	unnamed	S	(D-11-16)25dda	39.8239	110.0647	4408421	580044	24.0		F	3.8		WATSTORE
230	EM-01	unnamed	S	(D-16-08)28add	39.4033	111.0222	4361324	498089	21.0					WATSTORE
231	EM-02	Bureau of Land Mgmt.	S	(D-16-13)20dab	39.4158	110.4764	4362842	545074	29.0		F	113.6		WATSTORE
232	EM-03	U.S. Forest Service	S	(D-17-06)14bcb	39.3461	111.2186	4354999	481163	22.5		F	2.5		WATSTORE
233	EM-04	unnamed	T	(D-17-07)27abb	39.3219	111.1231	4352298	489389	29.0	1213.1				WATSTORE
234	EM-05	Bureau of Land Mgmt.	S	(D-17-12)23aba	39.3378	110.5364	4354157	539953	20.0		F			WATSTORE
235	EM-06	Bureau of Land Mgmt.	S	(D-17-13)03abd	39.3767	110.4397	4358522	548260	21.0		F	0.4		WATSTORE
236	EM-07	Bureau of Land Mgmt.	S	(D-18-11)33acd	39.2153	110.6881	4340507	526927	22.0					WATSTORE
237	EM-08	Roadside Geyser	W	(D-18-14)09dcd	39.2638	110.3528	4345957	556336	27.8	55.0				Feltis, 1966
238	EM-09	unnamed	W	(D-22-06)04cab	38.9317	111.2558	4309021	477828	26.0					WATSTORE
239	EM-10	unnamed	W	(D-22-06)17abc	38.9075	111.2700	4306339	476589	25.0					WATSTORE
240	GA-01	unnamed	S	(C-31-02)28add	38.0822	112.0044	4215206	411912	20.0					McHugh and others, 1981
241	GA-02	unnamed	S	(C-32-03)21ddb	38.0039	112.1147	4206628	402134	20.0					McHugh and others, 1981
242	GA-03	unnamed	S?	(C-32-4.5)07cb	38.0414	112.3553	4211070	381070	20.0					McHugh and others, 1981
243	GA-04	unnamed	S	(C-32-4.5)23cb	38.0128	112.3097	4207839	385027	21.0					McHugh and others, 1981
244	GA-05	Tebbs Spr.	S	(C-33-05)16cdc	37.9353	112.4250	4199137	374505	20.0			1060.0		Carpenter and others, 1964
245	GA-06	Lafevre's Spr.	S	(C-33-05)17ac	37.9333	112.4333	4200152	373466	29.0			57.0		Carpenter and others, 1964
246	GA-07	Town of Tropic	W	(C-36-03)35ccd	37.6247	112.0883	4164524	403959	35.6	2450.0				Aubrey, 1992
247	GA-08	Dead Cows Spr.	S	(D-31-09)17cba	38.1097	110.9467	4218148	504997	25.0			38.0		Goode, 1978
248	GA-09	unnamed	S	(D-32-08)21dba	38.0114	111.0322	4206875	497173	20.0		F	7.6		WATSTORE
249	GA-10	Upper Nog Spr.	S	(D-33-13)05dbc	37.9630	110.5012	4201511	543923	31.0			15.0		Goode, 1978
250	GA-11	Thompson Seep	S	(D-35-09)13cbc	37.7630	110.8762	4179211	510834	21.0			3.8		Goode, 1978
251	GA-12	Salt Spr.	S	(D-35-10)20aac	37.7553	110.7880	4178331	515504	20.0			3.8		Goode, 1978
252	GA-13	Saleratus Spr.	S	(D-35-10)21bcc	37.7512	110.8197	4177999	515857	20.0			3.8		Goode, 1978
253	GA-14	Shitamaring Mine	M	(D-35-11)16cdd	37.7575	110.7033	4178746	526136	20.0	152.4	P	113.6	36.6	WATSTORE
254	GA-15	Shitamaring Mine	W	(D-35-11)16dcd	37.7583	110.6997	4178804	526779	21.0	305.0		284.0		Goode, 1978
255	GA-16	Shitamaring Spr.	S	(D-35-11)21abb	37.7570	110.7022	4178580	526339	22.0			3.8		Goode, 1978
256	GA-17	Ticaboo Spr.	S	(D-35-12)27cca	37.7483	110.5805	4175959	537010	28.0			3.8		Goode, 1978
257	GA-18	Honey Pot Spr.	S	(D-36-11)06aca	37.7103	110.7333	4173467	523182	23.0			7.6		Goode, 1978
258	GA-19	Ticaboo Development	W	(D-36-11)16aba	37.6853	110.6964	4170738	526769	22.0	295.7	P	492.1	135.6	WATSTORE
259	GA-20	Mill Race Spr.	S	(D-36-11)32cad	37.6310	110.7190	4164707	524795	25.0			19.0		Goode, 1978
260	GA-21	Mule Spr.	S	(D-36-12)08aaa	37.6787	110.6020	4170181	535096	23.0			0.4		Goode, 1978
261	GR-01	Bureau of Land Mgmt.	W	(D-22-23)25bac	38.8661	109.3286	4303037	645010	22.5		P	0.8		WATSTORE
262	GR-02	Bureau of Land Mgmt.	W	(D-22-23)29ada	38.8647	109.3908	4302785	639616	26.5		P	0.8		WATSTORE
263	GR-03	National Park Service	W	(D-23-21)27bcd	38.7817	109.5933	4293284	622188	20.0	274.3	P	30.3	227.7	WATSTORE
264	GR-04	Suburban Gas Co.	W	(D-25-21)26dcc	38.5942	109.5692	4272510	624606	26.5	16.8	P	94.6	5.6	WATSTORE
265	GR-04	Suburban Gas Co.	W	(D-25-21)26dcc	38.5942	109.5692	4272510	624606	29.5	16.8	P	94.6	5.6	WATSTORE

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266	GR-04	Suburban Gas Co.	W	(D-25-21)26dcc	38.5942	109.5692	4272510	624606	23.0	16.8	P	94.6	5.6	WATSTORE
267	GR-05	unnamed	W	(D-25-21)35ddc	38.7131	109.5986	4285664	621844	35.0					WATSTORE
268	GR-05	unnamed	W	(D-25-21)35ddc	38.7131	109.5986	4285664	621844	20.0					WATSTORE
269	IR-01	unnamed	S	(C-31-08)31bbc	38.0700	112.8092	4214921	341298	20.0					McHugh and others, 1981
270	IR-02	unnamed	W?	(C-31-08)36cbc	38.0614	112.7183	4213815	349254	24.0					McHugh and others, 1981
271	IR-03	Big Maple Spr.	S	(C-31-09)03cba	38.1383	112.8633	4222782	336734	21.0					Mower and Cordova, 1974
272	IR-04	unnamed	W	(C-31-11)28dac	38.0778	113.0869	4216298	316955	20.0					McHugh and others, 1981
273	IR-05	unnamed	W	(C-31-12)30cdd	38.0711	113.2419	4215871	303340	20.0					McHugh and others, 1981
274	IR-06	unnamed	W	(C-31-14)09bdb	38.1233	113.4031	4222018	289348	20.0					Klauk and Gourley, 1983
275	IR-07	unnamed	W	(C-31-14)29aac	38.0050	113.4392	4208972	285838	20.0					Klauk and Gourley, 1983
276	IR-08	Buckhorn Corp.	W	(C-32-08)12bac	38.0408	112.7122	4211548	349414	20.0	134.0		13211.0		Bjorklund and others, 1977
277	IR-09	unnamed	W	(C-33-16)10ccc	37.9408	113.6386	4202325	268126	28.0					Klauk and Gourley, 1983
278	IR-10	Lehi Wood	W	(C-33-16)11cdc	37.9403	113.6144	4202210	270251	27.0					Klauk and Gourley, 1983
279	IR-10	Lehi Wood	W	(C-33-16)11cdc	37.9403	113.6144	4202210	270251	36.5	61.0				Ross and others, 1991
280	IR-11	unnamed	W	(C-33-16)14dcb	37.9456	113.6367	4202853	268308	20.0					Klauk and Gourley, 1983
281	IR-12	unnamed	W	(C-33-17)20cbb	37.9250	113.7839	4200944	255302	22.0					Klauk and Gourley, 1983
282	IR-13	unnamed	W	(C-33-18)20bdd	37.8753	113.8211	4195526	251865	20.0					Klauk and Gourley, 1983
283	IR-14	unnamed	W	(C-34-11)36dcc	37.7958	113.0414	4184917	320261	22.0	128.0				WATSTORE
284	IR-15	L. Jones	W	(C-34-12)36abb	37.8087	113.1483	4186594	310819	20.0					Bjorklund and others, 1977
285	IR-16	De Armand #1	W	(C-34-16)18cb	37.8390	113.6870	4191149	263546	149.0	3748.0		3785.3		Goode, 1978
286	IR-17	unnamed	W	(C-34-16)22baa	37.8450	113.6283	4191668	268731	60.0					Klauk and Gourley, 1983
287	IR-18	R. Holt	W	(C-34-17)32cca	37.7981	113.7794	4186848	255278	21.0	93.3				WATSTORE
288	IR-19	U.S. Steel Corp.	W	(C-36-15)04bad	37.7025	113.5394	4175638	276126	22.5	97.5	P	4921.0	37.5	WATSTORE
289	IR-20	Columbia Iron	W	(C-36-15)04dcc	37.6920	113.5375	4174578	276309	20.0	72.0		3501.4		Sandberg, 1963
290	IR-21	Bar V Ranch	W	(C-36-15)07cdd	37.6778	113.5753	4172983	272885	22.0	152.4	P	6170.2	38.1	WATSTORE
291	IR-21	Bar V Ranch	W	(C-36-15)07cdd	37.6778	113.5753	4172983	272885	24.0	152.4	P	6170.2	38.1	WATSTORE
292	IR-22	S. Tullis	W	(C-36-15)07dba	37.6820	113.5730	4173444	273100	30.6	76.2				Sandberg, 1963
293	IR-23	D. Tullis	W	(C-36-15)17bba	37.6758	113.5615	4172724	274100	32.0	127.0				Blackett and others, 1990
294	IR-23	D. Tullis	W	(C-36-15)17bba	37.6758	113.5615	4172724	273100	27.2	76.0				Cole, 1983
295	IR-24	Hildebrando	W	(C-36-15)17cdd	37.6622	113.5573	4171212	274424	77.0	152.0	P			Blackett and others, 1990
296	IR-25	V. Pickerell	W	(C-36-15)18acc	37.6688	113.5753	4172457	272632	23.3	122.0		3596.0		Sandberg, 1963
297	IR-26	Troy Hygro	W	(C-36-15)20bbb	37.6606	113.5652	4171049	273727	63.0	152.0	P			Blackett and others, 1990
298	IR-27	Christensen Bros.	W	(C-36-15)20bbd	37.6595	113.5628	4170985	273651	97.0	152.0	P	5700.0		Rush, 1983
299	IR-27	Christensen Bros.	W	(C-36-15)20bbd	37.6595	113.5628	4170985	273651	97.2	152.0	P			Cole, 1983
300	IR-28	G. Vandenburge	W	(C-37-12)11aaa	37.6017	113.1622	4163758	309324	21.0	111.0				Bjorklund and others, 1977
301	IR-29	G. Vandenburge	W	(C-37-12)11aab	37.6008	113.1642	4163655	308968	21.1	111.0				Bjorklund and others, 1977
302	IR-30	J. Prestwich	W	(C-37-12)23acb	37.5686	113.1689	4159959	308450	24.0	111.3				WATSTORE
303	IR-31	M. Gardner	W	(C-37-16)04bdc	37.5975	113.6531	4164264	265770	21.0	152.4	P	3369.0	71.6	WATSTORE
304	JU-01	Fish & Wildlife Serv.	S	(C-11-14)03dbd	39.8872	113.4131	4417815	293664	23.5		F	11886.2		WATSTORE
305	JU-02	Bureau of Land Mgmt.	S	(C-11-14)05aab	39.9008	113.4492	4419409	290618	22.5		P	11.4		WATSTORE
306	JU-03	Fish Spr.	S	(C-11-14)23	39.8417	113.3917	4412749	295334	27.8			284.0		Mundorff, 1970
307	JU-03	Fish Spr.	S	(C-11-14)11bcc	39.8772	113.4063	4416695	294213	21.0			283.0		Cole, 1983
308	JU-04	Fish & Wildlife Serv.	S	(C-11-14)23aca	39.8500	113.3947	4413643	295126	26.0		F	3217.6		WATSTORE
309	JU-05	Fish & Wildlife Serv.	S	(C-11-14)23ddc	39.8414	113.3933	4412686	295221	27.0		F	20441.2		WATSTORE
310	JU-06	Fish & Wildlife Serv.	S	(C-11-14)26add	39.8339	113.3906	4411847	295429	21.0		F	13627.5		WATSTORE
311	JU-06	Fish & Wildlife Serv.	S	(C-11-14)26add	39.8339	113.3906	4411847	295429	28.5		F	13627.5		WATSTORE
312	JU-07	D. Bagley	W	(C-11-17)01bdc	39.8981	113.7117	4419758	268165	20.5	154.2	P	11356.2	6.1	WATSTORE
313	JU-08	unnamed	W	(C-11-17)12dcd	39.8758	113.7044	4417264	268714	20.0	160.3				WATSTORE
314	JU-09	R. Lunt	S	(C-12-01)12aac	39.7882	111.8807	4404277	424734	20.0			4.9		Bjorklund, 1967
315	JU-10	Bureau of Land Mgmt.	S	(C-12-02)07dcd	39.7742	112.0872	4403052	406889	20.5		P	17.8		WATSTORE
316	JU-11	Bureau of Land Mgmt.	S	(C-12-12)10cbd	39.7886	113.1894	4406378	312525	22.0		F	1.9		WATSTORE
317	JU-12	Bureau of Land Mgmt.	S	(C-12-14)23dcc	39.7575	113.3864	4403357	295563	22.0					WATSTORE
318	JU-13	unnamed	W	(C-13-18)13cac	39.6925	113.8275	4397242	257542	20.0					WATSTORE

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
319	JU-14	G. Nielson	W	(C-14-04)32dbd	39.5575	112.3142	4379261	387095	21.0	168.6			52.1	WATSTORE
320	JU-14	G. Nielson	W	(C-14-04)32dbd	39.5575	112.3142	4379261	387095	22.0	168.6			52.1	WATSTORE
321	JU-15	Abraham Hot Spr.	S	(C-14-08)10dca	39.6133	112.7283	4386483	350811	78.0					WATSTORE
322	JU-15	Abraham Hot Spr.	S	(C-14-08)10dca	39.6125	112.7281	4385967	351651	55.0					WATSTORE
323	JU-15	Abraham Hot Spr.	S	(C-14-08)10dca	39.6133	112.7283	4386483	350811	85.0					Mariner and others, 1983
324	JU-15	Abraham Hot Spr.	S	(C-14-08)10dca	39.6133	112.7283	4386483	350811	84					this study
325	JU-15	Abraham Hot Spr.	S	(C-14-08)10dca	39.6133	112.7283	4386483	350811	84.0			1200.0		Cole, 1983
326	JU-16	unnamed	W	(C-14-08)13dcc	39.5958	112.6953	4384060	354432	25.5	168.6				WATSTORE
327	JU-16	unnamed	W	(C-14-08)13dcc	39.5958	112.6953	4384060	354432	21.0	168.6				WATSTORE
328	JU-17	Bureau of Land Mgmt.	W	(C-14-12)04cbc	39.6292	113.2083	4388724	310471	23.0	155.1	P	75.7	112.8	WATSTORE
329	JU-18	unnamed	W	(D-13-01)17bdd	39.6833	111.8458	4392740	427468	21.0	27.4	P	151.4		WATSTORE
330	KA-01	unnamed	S	(C-40-09)36ccb	37.2844	112.8075	4127750	339766	24.5		F	8.7		WATSTORE
331	KA-02	National Park Service	W	(C-41-09)20bdb	37.2333	112.8750	4122197	333669	21.0	281.9	P	35.6	263.7	WATSTORE
332	KA-03	unnamed	W	(C-44-05)06cbb	37.0139	112.4625	4097211	369889	22.0					WATSTORE
333	KA-04	unnamed	W	(D-39-03)35ccc	37.3703	111.5600	4135895	450415	20.0					WATSTORE
334	KA-05	unnamed	S	(C-43-05)02bbd	37.1056	112.3883	4107285	376639	20.0					WATSTORE
335	MI-01	J. Jones	W	(C-16-07)24dc	39.4170	112.5910	4364052	363038	23.3	261.0		5186.0		Mower and Feltis, 1964
336	MI-02	Golden Harvey Irr.	W	(C-16-08)26db	39.4030	112.7200	4362702	351903	26.6	257.0		5262.0		Mower and Feltis, 1964
337	MI-03	unnamed	W	(C-10-07)22bcd	39.9417	112.6261	4422342	361072	20.5					WATSTORE
338	MI-04	MX Site	W	(C-13-06)09bcc	39.7064	112.5333	4396086	368553	21.0	45.7			32.9	WATSTORE
339	MI-05	G. Nielson	W	(C-15-04)20caa	39.5028	112.3197	4373198	386533	20.5	304.8	P	9842.1		WATSTORE
340	MI-06	DMAD Irrigation Co.	C	(C-15-05)27dcc	39.4817	112.3939	4370952	380117	22.0	365.8	P	19797.7		WATSTORE
341	MI-07	DMAD Irrigation Co.	W	(C-15-05)33dcb	39.4686	112.4150	4369526	378279	21.1	251.0				Mower and Feltis, 1964
342	MI-07	DMAD Irrigation Co.	W	(C-15-05)33dcb	39.4686	112.4150	4369526	378279	21.5	390.1	P	23280.3		WATSTORE
343	MI-08	Bureau of Land Mgmt.	W	(C-15-08)08cac	39.6861	112.7747	4394214	347812	22.0	45.7	F	1.5	1.6	WATSTORE
344	MI-09	Gandy Warm Spr.	S	(C-15-19)31dc	39.4708	113.9917	4373088	242640	27.0			17034.0		Mundorff, 1970
345	MI-09	Gandy Warm Spr.	S	(C-15-19)31dc	39.4708	113.9917	4373088	242640	27.0					WATSTORE
346	MI-09	Gandy Warm Spr.	S	(C-15-19)31dc	39.4708	113.9917	4373088	242640	26.5			34000.0		Mundorff, 1970
347	MI-10	DMAD Irrigation Co.	W	(C-16-05)09aaa	39.4489	112.4072	4367329	378916	24.0	194.2	P	22144.7		WATSTORE
348	MI-11	DMAD Irrigation Co.	W	(C-16-05)18caa	39.4272	112.4506	4364980	375143	21.0	179.8	P	19873.4		WATSTORE
349	MI-11	DMAD Irrigation Co.	W	(C-16-05)18caa	39.4272	112.4506	4364980	375143	20.0	285.0		12113.0		Mower and Feltis, 1964
350	MI-12	DMAD Irrigation Co.	W	(C-16-05)19cbd	39.4119	112.4586	4363293	374427	20.0	253.0			7.1	WATSTORE
351	MI-12	DMAD Irrigation Co.	W	(C-16-05)19cbd	39.4119	112.4586	4363293	374427	20.0	253.0		7571.0		Mower and Feltis, 1964
352	MI-13	DMAD Irrigation Co.	W	(C-16-06)27aaa	39.4022	112.5014	4362277	370724	24.5	365.8	P	21955.4		WATSTORE
353	MI-14	Town of Delta	W	(C-16-06)34bad	39.3861	112.5111	4360504	369859	20.0	114.9	P	56.8	33.5	WATSTORE
354	MI-15	D. Hansen	W	(C-16-07)23ba	39.4140	112.5960	4363727	362601	21.7	91.0				Mower and Feltis, 1964
355	MI-16	J. Jones	W	(C-16-07)24bca	39.4125	112.5922	4363554	362926	23.0	260.6	P	5299.6	-1.1	WATSTORE
356	MI-17	Topaz Sough Spr.	S	(C-16-08)06cab	39.4564	112.7906	4368747	345941	24.5					WATSTORE
357	MI-18	L. Peck	W	(C-16-08)12bb	39.4360	112.7090	4366346	352919	26.6	291.0		6549.0		Mower and Feltis, 1964
358	MI-19	Petersen	W	(C-16-08)15cad	39.4219	112.7367	4364827	350505	33.0	417.6	P	8555.0	4.3	WATSTORE
359	MI-20	L. Ellsworth	W	(C-16-08)21dc	39.4160	112.7630	4364216	348228	28.9					Mower and Feltis, 1964
360	MI-20	L. Ellsworth	W	(C-16-08)21dc	39.4150	112.7630	4364105	348226	24.4	304.0		3956.0		Mower and Feltis, 1964
361	MI-21	unnamed	W	(C-16-08)26dab	39.3997	112.7200	4362336	351896	26.5	257.3				WATSTORE
362	MI-22	Coyote Spr. (BLM)	S	(C-16-15)13bab	39.4242	113.4858	4366592	286023	28.0		P	1438.5		WATSTORE
363	MI-22	Coyote Spr. (BLM)	S	(C-16-15)13bab	39.4242	113.4858	4366592	286023	28.0			379.0		Stephens, 1977
364	MI-23	unnamed	S	(C-16-15)26cab	39.3880	113.5080	4362627	284000	24.5					Stephens, 1977
365	MI-24	Footes Ranch	S	(C-16-18)09cd	39.4320	113.8750	4368454	252543	20.0			3785.0		Meinzer, 1911
366	MI-25	Twin Spr.	S	(C-16-18)22cab	39.4031	113.8619	4365210	253569	20.0		F	3974.7		WATSTORE
367	MI-25	Twin Spr.	S	(C-16-18)22cab	39.4380	113.8500	4424556	256481	20.0			6814.0		Hood and Rush, 1965
368	MI-26	O. Levanger	W	(C-17-06)06cbd	39.3603	112.5589	4357711	365693	24.0	57.9	P	136.3	9.1	WATSTORE
369	MI-27	Gardner	W	(C-17-06)17aaa	39.3453	112.5381	4356015	367456	28.0	256.0				WATSTORE
370	MI-28	R. Moody	W	(C-17-06)18db	39.3400	112.5670	4355470	364956	26.1	250.0				Mower and Feltis, 1964
371	MI-29	T. Larsen	W	(C-17-06)21db	39.3760	112.5320	4359414	368040	20.6	128.0		34.0		Mower and Feltis, 1964

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372	MI-30	L. Ellsworth	W	(C-17-06)26ba	39.3080	112.4830	4351796	372137	23.9	219.0		4353.0		Mower and Feltis, 1964
373	MI-31	unnamed	W	(C-17-06)26daa	39.3089	112.4822	4351895	372207	23.5	219.5				WATSTORE
374	MI-32	P. Theobald	W	(C-17-06)28ac	37.3110	112.5270	4130263	364681	25.0	273.0		6019.0		Mower and Feltis, 1964
375	MI-32	P. Theobald	W	(C-17-06)28acb	39.3125	112.5286	4352361	368214	26.0	272.8	F	132.5	3.6	WATSTORE
376	MI-33	C. Cox	W	(C-17-06)29ccc	39.3022	112.5569	4351260	365754	28.0	277.4	P	8100.8		WATSTORE
377	MI-34	C. Ross	W	(C-17-06)33dc	39.2950	112.5370	4350431	367456	20.0	110.0		7.6		Mower and Feltis, 1964
378	MI-35	Town of Delta	W	(C-17-07)01bb	39.3580	112.5770	4356595	364113	26.6	264.0		2230.0		Mower and Feltis, 1964
379	MI-35	Town of Delta	W	(C-17-07)01bb	39.3500	112.5770	4356595	364113	26.6	264.0		2233.0		Mower and Feltis, 1964
380	MI-36	Town of Delta	W	(C-17-07)01ddd	39.3600	112.5767	4357704	364158	26.0	263.7	F	189.3	3.4	WATSTORE
381	MI-37	LDS Church	W	(C-17-07)26cac	39.3067	112.6069	4351835	361451	27.0	118.9	F	20.8		WATSTORE
382	MI-38	G. Peterson	W	(C-17-07)34cb	39.2890	112.6270	4349901	359683	21.7	182.0		19.0		Mower and Feltis, 1964
383	MI-39	unnamed	W	(C-17-08)11bbc	39.3572	112.7253	4357627	351349	26.5	300.8				WATSTORE
384	MI-40	unnamed	S	(C-17-15)10aa	39.3520	113.5130	4358655	283027	27.5					Stephens, 1977
385	MI-40	unnamed	S	(C-17-15)10aab	39.3514	113.5144	4358580	283335	28.5		P	666.2		WATSTORE
386	MI-41	Tule Spr. north	S	(C-17-15)10ad	39.3515	113.5160	4358595	283198	28.0					Stephens, 1977
387	MI-42	Tule Spr. south	S	(C-17-15)15ad	39.3330	113.5180	4356546	282968	25.0					Stephens, 1977
388	MI-43	unnamed	W	(C-17-15)25cd	39.3000	113.4900	4352816	285281	31.0	13.0		757.0		Stephens, 1977
389	MI-44	unnamed	S	(C-17-15)25dc	39.3040	113.4900	4353260	285293	27.0					Stephens, 1977
390	MI-45	Union Pacific	W	(C-18-05)06dd	39.2850	112.4590	4349210	374165	21.1	167.0		11.0		Mower and Feltis, 1964
391	MI-46	C. Hart	W	(C-18-06)06aba	39.2860	112.5620	4349469	365283	21.7	172.0		227.0		Mower and Feltis, 1964
392	MI-46	C. Hart	W	(C-18-06)06aba	39.2861	112.5631	4349482	365188	27.5	247.5				WATSTORE
393	MI-47	W. Robison	W	(C-18-08)24ada	39.2389	112.6889	4344439	354240	25.6	183.0		34.0		Mower and Feltis, 1964
394	MI-47	W. Robison	W	(C-18-08)24ada	39.2389	112.6889	4344439	354240	22.0	183.2			-2.3	WATSTORE
395	MI-47	W. Robison	W	(C-18-08)24ada	39.2389	112.6889	4344439	354240	25.0	183.2			-2.3	WATSTORE
396	MI-48	Knoll Spr.	S	(C-18-18)16ad	39.2480	113.9437	4348035	251720	21.4					Meinzer, 1911
397	MI-49	J. Hill	W	(C-18-19)20bb	39.4850	114.0020	4374694	241806	22.0	171.0		284.0		Hood and Rush, 1965
398	MI-50	J. Hill	W	(C-18-19)20ddd	39.2233	114.0000	4345638	241013	21.5	170.7				WATSTORE
399	MI-51	J. Hill	W	(C-18-19)28dd	39.2230	114.0010	4345608	240925	22.0	195.0				Hood and Rush, 1965
400	MI-52	W. Tuttle	W	(C-19-04)17ccc	39.1550	112.3328	4334615	384838	20.0	121.9	P	4504.6	41.1	WATSTORE
401	MI-53	Coats Farms	W	(C-19-04)29bcd	39.1328	112.3294	4332147	385095	20.0	118.9	P	7835.8	23.8	WATSTORE
402	MI-54	Valley Farm Inc.	W	(C-19-05)01abc	39.1958	112.3578	4339175	382745	20.0	117.3	P	5564.6		WATSTORE
403	MI-55	Triple C Farms	W	(C-19-05)02adb	39.1939	112.3744	4338986	381308	21.5		P	3293.3		WATSTORE
404	MI-56	Triple C Farms	W	(C-19-05)11aad	39.1814	112.3728	4337596	381426	20.0	105.2				WATSTORE
405	MI-57	Triple C Farms	W	(C-19-05)12abc	39.1786	112.3667	4337278	381948	20.0	108.8				WATSTORE
406	MI-58	F. Badger	W	(C-19-05)21cbb	39.1475	112.4267	4333906	376711	22.0	91.4	F	427.8		WATSTORE
407	MI-59	Bureau of Land Mgmt.	W	(C-19-05)31cd	39.1200	112.4710	4330915	372833	29.4	114.0		16.0		Mower, 1963
408	MI-59	Bureau of Land Mgmt.	W	(C-19-05)31cd	39.1200	112.4710	4330915	372833	29.0	114.3	F	7.6	-2.2	WATSTORE
409	MI-60	unnamed	W	(C-19-09)29cbc	39.1272	112.8939	4332392	336288	20.0	213.1	P	9.8		WATSTORE
410	MI-61	E. Wilson	W	(C-20-05)21bc	39.0520	112.4390	4323324	375480	20.0	128.0		91.0		Mower, 1963
411	MI-62	Christensen Bros.	W	(C-20-05)32	39.0280	112.4440	4320668	375005	22.2	287.0		45.0		Mower, 1963
412	MI-63	N. McBride	W	(C-20-05)32db	39.0330	112.4380	4321214	375533	20.0	110.0		25.0		Mower, 1963
413	MI-64	Stott L. & L. Co.	W	(C-20-05)33bda	39.0339	112.4189	4321288	377188	21.0	109.7	F	18.9		WATSTORE
414	MI-65	Neels railroad	W	(C-20-08)29aa	39.0500	112.7680	4323604	347005		609.0				Lee, 1908
415	MI-66	unnamed	W	(C-20-20)12acc	39.0833	114.0458	4330230	236536	23.0	91.4				WATSTORE
416	MI-67	Swallow & Sons	W	(C-21-05)05dbc	39.0122	112.4372	4318905	375566	20.0	172.2	P	2649.8	5.1	WATSTORE
417	MI-68	J.S. Anderson & Sons	W	(C-21-05)29cbc	38.9539	112.4464	4312448	374666	20.5	274.3	F	4164.0		WATSTORE
418	MI-69	Utley and Starley	W	(C-21-05)30ba	38.9570	112.4500	4312797	374360	20.0	274.0		6435.0		Mower, 1963
419	MI-70	I. Christensen	W	(C-21-05)30dbc	38.9542	112.4533	4312490	374069	20.0	235.6	F	3497.7		WATSTORE
420	MI-71	V. Rasmussen	W	(C-21-05)32bba	38.9489	112.4419	4311887	375048	21.5	182.9				WATSTORE
421	MI-72	W. Paxton	W	(C-21-06)09ca	38.9980	112.5290	4317459	367591	20.6	161.0		4921.0		Subitzky, 1962
422	MI-73	Continental Lime Inc.	W	(C-21-09)36cdb	38.9394	112.8161	4311412	342597	24.0	237.7				WATSTORE
423	MI-74	unnamed	W?	(C-22-04)08ddb	38.9058	112.3219	4306946	385378	21.0					McHugh and others, 1981
424	MI-75	E. Woodbury	W	(C-22-05)09cad	38.9106	112.4206	4307607	376827	20.5	160.6	P	5072.5		WATSTORE

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425	MI-76	unnamed	W?	(C-22-05)26cdd	38.8617	112.3842	4302132	379901	20.0					McHugh and others, 1981
426	MI-77	unnamed	S	(C-22-06)00	38.8630	112.5070	4302445	369248	35.0			132.0		Dennis and others, 1946
427	MI-78	Meadow east spr.	S	(C-22-06)25cd	38.8720	112.4820	4303408	371434	24.0					Parry and Cleary, 1978
428	MI-79	unnamed	S	(C-22-06)25cd	38.8690	112.4840	4303078	371255	22.0					Rush, 1977
429	MI-80	Meadow Hot Spr. E.	S	(C-22-06)26ccc	38.8647	112.5019	4302627	369694	41.0					WATSTORE
430	MI-80	Meadow Hot Spr. E.	S	(C-22-06)26ccc	38.8647	112.5019	4302627	369694	41.0					Ross and others, 1993
431	MI-81	Meadow Hot Spr. W.	S	(C-22-06)27ddc	38.8639	112.5069	4302545	369259	29.0					WATSTORE
432	MI-81	Meadow Hot Spr. W.	S	(C-22-06)27ddc	38.8639	112.5069	4302545	369259	31.5					WATSTORE
433	MI-81	Meadow Hot Spr. W.	S	(C-22-06)27ddc	38.8639	112.5069	4302545	369259	41.0					WATSTORE
434	MI-81	Meadow Hot Spr. W.	S	(C-22-06)27ddc	38.8639	112.5069	4302545	369259	41.0			226.0		Mundorff, 1970
435	MI-81	Meadow Hot Spr. W.	S	(C-22-06)27ddc	38.8639	112.5069	4302545	369259	29.0					McHugh and others, 1981
436	MI-82	Meadow Hot Spr. S.	S	(C-22-06)34	38.8605	112.5098	4302175	369000	34.0					Ross and others, 1993
437	MI-83	Hatton Hot Well	W	(C-22-06)35bb	38.8480	112.4890	4300755	370783	67.0	27.0				Rush, 1977
438	MI-84	Hatton Hot Spr.	S	(C-22-06)35ddb	38.8500	112.4900	4300978	370700	37.7					Mundorff, 1970
439	MI-84	Hatton Hot Spr.	S	(C-22-06)35ddb	38.8500	112.4900	4300978	370700	66.0					WATSTORE
440	MI-84	Hatton Hot Spr.	S	(C-22-06)35ddb	38.8500	112.4900	4300978	370700	63.0			14.4		Mabey and Budding, 1987
441	MI-85	Fed. Int. Cred Bank	W	(C-23-06)10bdd	38.8264	112.5139	4298393	368582	21.5	40.2			8.8	WATSTORE
442	MI-86	unnamed	W	(C-23-06)31bcc	38.7675	112.5789	4291953	362827	21.0					McHugh and others, 1981
443	MI-87	Twin Peaks Spr.	S	(C-23-08)23dbb	38.7960	112.7150	4295328	351061	25.0					McHugh and others, 1981
444	MI-87	Twin Peaks Spr.	S	(C-23-08)23dbb	38.7960	112.7150	4295328	351061	25.0					WATSTORE
445	MI-87	Twin Peaks Spr.	S	(C-23-08)23dbb	38.7960	112.7150	4295328	351061	31.0					Parry and Cleary, 1978
446	MI-87	Twin Peaks Spr.	S	(C-23-08)23dbb	38.7960	112.7150	4295328	351061	28.0					Cole, 1983
447	MI-88	unnamed	W	(C-23-09)33cdd	38.7619	112.8692	4291806	337591	23.5					McHugh and others, 1981
448	MI-89	Coyote Spr. (north)	S	(C-23-09)33db	38.7730	112.8650	4293031	337981	20.0					Parry and Cleary, 1978
449	MI-90	Cudahy (mine ?)	S	(C-23-09)35acc	38.7694	112.8314	4292573	340879	32.0					Cole, 1983
450	MI-91	Black Spr.	S	(C-23-09)35dbb	38.7697	112.8311	4292605	340919	20.5					McHugh and others, 1981
451	MI-92	unnamed	S?	(C-24-04)11acc	38.7289	112.2089	4287179	394917	21.0					McHugh and others, 1981
452	MI-93	unnamed	S?	(C-24-05)21dcb	38.6908	112.4633	4283274	372734	22.0					McHugh and others, 1981
453	MI-94	Coyote Spr.	S	(C-24-09)04dd	38.7620	112.8750	4291828	337087	20.0					Parry and Cleary, 1978
454	MI-95	unnamed	W	(C-24-12)15cdc	38.7183	113.1906	4287587	309547	23.5	162.2	P	113.6	27.6	WATSTORE
455	MI-96	Union Geo. 14-29	W	(C-25-06)29bcc	38.6176	112.4121	4274220	364120	91.0	799.0				Ash and others, 1979
456	MI-97	Utah State 31-33	W	(C-25-06)33baa	38.5986	112.5388	4273150	366000	146.0	1591.0				Ash and others, 1979
457	MI-98	unnamed	S	(C-25-06)33bcb	38.5939	112.5431	4272630	365609	33.9		F	75.7		Union Oil Company, 1978
458	MI-99	unnamed	W?	(C-25-07)14bd	38.6369	112.6092	4277505	359940	20.0					McHugh and others, 1981
459	MI-100	unnamed	W	(C-25-07)26bdd	38.6070	112.6089	4274190	359910	20.0	400.0	P		39.6	Union Oil Company, 1978
460	MO-01	Como Warm Spr.	S	(A-04-03)31cab	41.0390	111.6540	4543080	445028	25.0			34068.0		Mundorff, 1970
461	PI-01	Rainbow Mine	M	(C-27-4.5)28aa	38.4386	112.3117	4255088	385520	22.0					McHugh and others, 1981
462	PI-02	unnamed	S	(C-28-2.5)26ac	38.3481	112.0886	4244793	404874	22.0					McHugh and others, 1981
463	PI-03	G. Moore	W	(C-29-02)35bad	38.2444	111.9778	4233178	414434	21.0	60.0			6.7	WATSTORE
464	PI-04	Utah Parks & Rec.	W	(C-30-02)28bdc	38.1675	112.0175	4224683	410866	22.0	41.1			13.0	WATSTORE
465	SA-01	FBC Irr.	W	(D-14-05)16bdd	39.6017	111.3670	4383329	468491	55.0	2776.0		1109.0		Robinson, 1968
466	SA-02	K. Timms	W	(D-15-03)14bdb	39.5147	111.5575	4373835	452075	33.0	6492.3			-240.8	WATSTORE
467	SA-03	J. Paulsen	W	(D-17-03)03dbd	39.3628	111.5653	4356982	451299	38.0	182.9			-0.9	WATSTORE
468	SA-04	Livingston Wm Spr.	S	(D-18-02)13cad	39.2458	111.6450	4344288	444342	22.2					Mundorff, 1970
469	SA-05	unnamed	S	(D-18-02)14cdc	39.2417	111.6661	4343602	442516	22.0					WATSTORE
470	SA-06	Sterling Wm Spr.	S	(D-19-02)04dca	39.1828	111.6907	4337104	440318	20.0					Mundorff, 1970
471	SA-06	Sterling Wm Spr.	S	(D-19-02)04dca	39.1828	111.6907	4337104	440318	19.4					Robinson, 1968
472	SA-07	unnamed	S	(D-19-06)06aad	39.2019	111.2817	4339011	475676	21.5		F	0.8		WATSTORE
473	SE-01	Town of Redmond	W	(C-21-01)11ada	38.9967	111.8708	4316705	424834	21.1	13.0		45.4		Carpenter and Young, 1963
474	SE-02	Richfield Wm Spr.	S	(C-23-03)26ac	38.7738	112.0957	4292395	404621	20.0			5299.0		Mundorff, 1970
475	SE-02	Richfield Wm Spr.	S	(C-23-03)26ac	38.7738	112.0957	4292395	404621	22.2			2650.0		Mundorff, 1970
476	SE-03	unnamed	S?	(C-24-03)08ddb	38.7217	112.1497	4286314	400053	21.0					McHugh and others, 1981
477	SE-04	Monroe Hot Spr.	S	(C-25-03)10dda	38.6330	112.1070	4276536	403647	70.0			541.0		Cole, 1983

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
478	SE-05	Red Hill Hot Spr.	S	(C-25-03)11cad	38.6378	112.0992	4276950	404331	76.5			541.0		Cole, 1983
479	SE-05	Red Hill Hot Spr.	S	(C-25-03)11cad	38.6378	112.0992	4276950	404331	82.0					McHugh and others, 1981
480	SE-06	Johnson Warm Spr.	S	(C-25-03)27ad	38.6030	112.1110	4273112	402300	25.0			37.9		Mundorff, 1970
481	SE-07	E. Mecham	W	(C-25-04)13cbc	38.6210	112.1970	4275192	395795	20.0	22.0		19.0		Carpenter and Young, 1963
482	SE-08	Joseph Hot Spr.	S	(C-25-04)23aac	38.6142	112.2010	4274531	395438	63.0			121.0		Cole, 1983
483	SE-09	unnamed	S	(D-21-05)26bba	38.9678	111.3308	4313047	471342	20.5		F	0.9		WATSTORE
484	SE-10	unnamed	S	(D-22-04)32dbb	38.8522	111.4864	4300280	457793	20.0		F	0.9		WATSTORE
485	SJ-01	Warm Spr.	S	(D-35-14)30	37.7000	110.4210	4172484	551219	25.5			189.0		Feltis, 1966
486	SJ-02	Wexpro Co.	W	(D-36-26)07bac	37.6764	109.1064	4171394	666993	22.0	573.0	P	26.5	487.7	WATSTORE
487	SJ-03	Energy Fuels Nuc. Inc.	W	(D-37-22)22ccb	37.5500	109.4917	4156753	633237	24.0	554.7	P	900.9	140.2	WATSTORE
488	SJ-04	Energy Fuels Nuc. Inc.	W	(D-37-22)28dbb	37.5383	109.5006	4155442	632472	23.0	573.0			137.2	WATSTORE
489	SJ-05	Energy Fuels Nuc. Inc.	W	(D-37-22)33dda	37.5225	109.4947	4153697	633021	24.5	615.7	P	821.4		WATSTORE
490	SJ-06	National Park Service	W	(D-38-11)29cda	37.4508	110.7189	4144716	524863	21.0	320.0	P	75.7	109.7	WATSTORE
491	SJ-07	National Park Service	W	(D-39-26)21db	37.3840	109.0670	4139021	671135	21.0	434.0		110.0		Feltis, 1966
492	SJ-08	BIA 12R-163	S	(D-39-26)33	37.3530	109.0690	4135578	671028	22.7					Feltis, 1966
493	SJ-09	City of Bluff	W	(D-40-21)25aba	37.2881	109.5506	4127614	628481	20.0	251.5	F	14.0		WATSTORE
494	SJ-10	City of Bluff	W	(D-40-22)30bbb	37.2878	109.5486	4127583	628658	20.0	251.5	F	227.1		WATSTORE
495	SJ-10	City of Bluff	W	(D-40-22)30bbb	37.2878	109.5486	4127583	628658	20.0	366.0		83.0		Feltis, 1966
496	SJ-11	Bureau of Land Mgmt.	W	(D-40-23)27baa	37.2725	109.3528	4126170	646046	21.0	204.8	F	329.3		WATSTORE
497	SJ-12	Texaco	W	(D-40-24)15bcc	37.3114	109.2728	4130613	653060	20.0	335.3	P	321.8		WATSTORE
498	SJ-13	Texaco	W	(D-40-24)17dbd	37.3083	109.2972	4130229	650904	20.0	281.9	P	495.9		WATSTORE
499	SJ-14	unnamed	W	(D-40-24)17dca	37.3050	109.3011	4129857	650565	31.0					WATSTORE
500	SJ-15	unnamed	C	(D-40-24)22adb	37.2975	109.2622	4129088	654028	36.0					WATSTORE
501	SJ-16	BIA 12T-312	W	(D-40-25)01bcc	37.3385	109.1468	4133807	665746	21.7	427.0		7.6		Feltis, 1966
502	SJ-17	BIA 12R-173	S	(D-40-25)05bbb	37.3440	109.2033	4134342	659001	20.0			0.4		Feltis, 1966
503	SJ-18	Texaco	W	(D-40-26)19adc	37.2967	109.0969	4129281	668683	20.5	237.4	P	677.6		WATSTORE
504	SJ-19	unnamed	C	(D-40-26)20aad	37.2653	109.0811	4125825	670154	24.0					WATSTORE
505	SJ-20	unnamed	C	(D-41-24)21bb	37.2147	109.2953	4119848	651260	31.5					WATSTORE
506	SJ-21	Texaco	W	(D-41-25)04cad	37.2492	109.1789	4123868	661515	20.0	335.3	F	33.3		WATSTORE
507	SJ-22	Navajo Tribe	W	(D-41-25)12dac	37.2347	109.1167	4122367	667064	21.0	219.5	F	0.4		WATSTORE
508	SJ-23	BIA 8A-293	S	(D-42-16)19	37.1210	110.1900	4108399	571959	25.0					Feltis, 1966
509	SJ-24	BIA 2A-104	S	(D-42-09)35	37.0832	110.8660	4114424	511895	21.1			40.0		Feltis, 1966
510	SJ-25	BIA 8A-281	S	(D-42-17)14	37.1360	110.0080	4110216	588110	23.3			7.6		Feltis, 1966
511	SJ-26	BIA 8A-229	S	(D-43-16)23	37.0340	110.1180	4098805	578445	21.0					Feltis, 1966
512	SJ-27	BIA 8A-260	S	(D-43-19)29	37.0200	109.7160	4097658	614221	22.2			15.0		Feltis, 1966
513	SJ-28	Navajo Tribe	W	(D-43-23)15cab	37.0483	109.3764	4101260	644379	20.0	154.8	P	12.5	41.5	WATSTORE
514	SJ-29	BIA 8Y-57	S	(D-43-23)32	37.0060	109.4130	4096512	641202	20.0			1.9		Feltis, 1966
515	SJ-30	unnamed	W	(D-43-24)12ada	37.0678	109.2258	4103663	657732	24.0					WATSTORE
516	SL-01	C. & G. Gillmore	W	(B-01-01)05ddd	40.8420	111.9670	4521456	418477	28.5			454.0		Marine, 1960
517	SL-02	unnamed	W	(B-01-01)05ddd	40.8431	111.9689	4521580	418318	28.0					Klauk, 1984
518	SL-03	Becks Hot Spr.	S	(B-01-01)14dcb	40.8158	111.9181	4518503	422569	55.5					Hely and others, 1968
519	SL-03	Becks Hot Spr.	S	(B-01-01)14dcb	40.8158	111.9181	4518503	422569	55.0					Parry and Cleary, 1978
520	SL-03	Becks Hot Spr.	S	(B-01-01)14dcb	40.8158	111.9181	4518503	422569	56.0			870.0		Cole, 1983
521	SL-03	Becks Hot Spr.	S	(B-01-01)14dcb	40.8158	111.9181	4518503	422569	55.0					Klauk, 1984
522	SL-04	Hobo Hot Spr.	S	(B-01-01)23acc	40.8067	111.9181	4517493	422559	32.0					Klauk, 1984
523	SL-05	Sol	W	(B-01-01)23bdd	40.8060	111.9180	4517415	422566	30.5	9.1		379.0		Iorns and others, 1966
524	SL-06	Wasatch Plunge Inc.	S?	(B-01-01)25dbd	40.7900	111.8998	4511787	424688	42.0					Hely and others, 1967
525	SL-06	Wasatch Hot Spr.	S	(B-01-01)25dbd	40.7900	111.8998	4511787	424688	42.0			240.0		Cole, 1983
526	SL-06	Wasatch Hot Spr.	S	(B-01-01)25dbd	40.7900	111.8998	4511787	424688	39.0					Klauk, 1984
527	SL-07	Granger Impvmt Dist.	W	(B-01-01)28bb	40.7870	111.9480	4515333	420013	21.1	35.0		1616.0		Marine, 1960
528	SL-08	unnamed	W	(B-01-02)02dac	40.8464	112.0286	4522004	413290	27.0	134.1				WATSTORE
529	SL-08	unnamed	W	(B-01-02)02dac	40.8464	112.0286	4522004	413290	26.5	134.1				WATSTORE
530	SL-08	unnamed	W	(B-01-02)02dac	40.8464	112.0286	4522004	413290	27.0					Klauk, 1984

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
531	SL-09	R. Irvine	W	(B-01-02)02dac	40.8462	111.9142	4521875	422933	26.6					Iorns and others, 1966
532	SL-10	Lakefront Gun Club	W	(B-01-02)02dac	40.8560	112.0390	4523080	412426	26.5			132.0		Marine, 1960
533	SL-11	unnamed	W	(B-01-02)15bcd	40.8214	112.0500	4519250	411452	20.0	91.4			-4.6	WATSTORE
534	SL-12	Bonneville, Hill	W	(B-01-02)16caa	40.8189	112.0719	4518995	409602	24.0	193.9			-6.1	WATSTORE
535	SL-12	Bonneville, Hill	W	(B-01-02)16caa	40.8189	112.0719	4518995	409602	22.5	193.9			-6.1	WATSTORE
536	SL-12	Bonneville, Hill	W	(B-01-02)16caa	40.8189	112.0719	4518995	409602	24.0			102.0		Hely and others, 1967
537	SL-13	E. Jeremy	W	(B-01-02)19aca	40.8081	112.1058	4517831	406728	22.0	26.2			-0.5	WATSTORE
538	SL-14	unnamed	W	(B-01-02)21acd	40.8056	112.0678	4517514	409930	22.0					Klauk, 1984
539	SL-14	unnamed	W	(B-01-02)21acd	40.8056	112.0678	4517514	409930	24.0	182.9			-4.6	WATSTORE
540	SL-15	Bonneville, Hill	W	(B-01-02)22bdb	40.8083	112.0572	4517803	410828	23.5	170.7			-5.2	WATSTORE
541	SL-16	unnamed	S	(B-01-02)25ca	40.7880	112.0150	4515508	414361	29.0					Marine, 1960
542	SL-17	C. Gillmore	W	(B-01-02)25cda	40.7863	111.9020	4515218	423893	25.6			5.0		Iorns and others, 1966
543	SL-18	Bonneville, Hill	W	(B-01-02)27cca	40.8010	112.0590	4516995	410666	25.0	188.0		110.0		Hely and others, 1967
544	SL-19	unnamed	W	(B-01-02)28ddd	40.7842	112.0633	4515134	410281	23.0					Klauk, 1984
545	SL-20	KSL Radio & Tele.	W	(B-01-02)32bcb	40.7786	112.1000	4514551	407176	20.0	75.6			-2.7	WATSTORE
546	SL-21	unnamed	W	(B-01-02)36baa	40.7831	112.0156	4514964	414304	27.0	141.4			-1.6	WATSTORE
547	SL-21	unnamed	W	(B-01-02)36baa	40.7831	112.0156	4514964	414304	26.0					Klauk, 1984
548	SL-22	E. Jeremy	W	(B-01-02)36da	40.7850	112.0150	4515175	414357	28.5	141.0		110.0		Marine, 1960
549	SL-23	unnamed	W	(C-01-01)06bcc	40.7639	112.0044	4512822	415225	20.0					Klauk, 1984
550	SL-24	U.S. Geol. Survey	W	(C-01-01)15cad	40.7308	111.9397	4509087	420646	22.0	4.9			1.2	WATSTORE
551	SL-25	Granger Impvmt. Dist.	W	(C-01-01)27dda	40.6989	111.9289	4505536	421521	21.0	236.2	P	4391.1		WATSTORE
552	SL-26	Granger Impvmt. Dist.	W	(C-01-01)33ddd	40.6825	111.9483	4503734	419862	21.5	270.1	P	2994.3	0.5	WATSTORE
553	SL-26	Granger Impvmt. Dist.	W	(C-01-01)33ddd	40.6825	111.9483	4503734	419862	21.0	270.1	P	2994.3	0.5	WATSTORE
554	SL-27	unnamed	W	(C-01-01)35caa	40.6886	111.9206	4504386	422210	20.0					Klauk, 1984
555	SL-28	Bonneville, Hill	W	(C-01-02)01bcd	40.7640	112.0160	4512844	414246	26.0	126.0		76.0		Hely and others, 1968
556	SL-29	Bonneville, Hill	W	(C-01-02)02aba	40.7675	112.0292	4513246	413136	22.0	125.0	P	56.8	-2.5	WATSTORE
557	SL-29	Bonneville, Hill	W	(C-01-02)02aba	40.7675	112.0292	4513246	413136	24.5	125.0	P	56.8	-2.5	WATSTORE
558	SL-30	Bonneville, Hill	W	(C-01-02)02adc	40.7620	112.0290	4512635	413146	26.5	138.0		76.0		Hely and others, 1968
559	SL-31	Morton Salt Co.	W	(C-01-02)06aaa	40.7681	112.1006	4513386	407111	21.0	231.7				WATSTORE
560	SL-32	unnamed	W	(C-01-02)06aaa	40.7686	112.1019	4513442	407002	23.5	350.5				WATSTORE
561	SL-32	unnamed	W	(C-01-02)06aaa	40.7686	112.1019	4513442	407002	23.0	251.5				WATSTORE
562	SL-33	Div. Wildlife Res.	W	(C-01-02)14cdd	40.7264	112.0350	4508689	412593	21.0	146.3				WATSTORE
563	SL-34	Div. Wildlife Res.	W	(C-01-02)14cdd	40.7264	112.0347	4508689	412618	20.0	15.1			0.3	WATSTORE
564	SL-35	K. Young	W	(C-01-02)23cb	40.7110	112.0340	4506979	412657	21.5	43.0		227.0		Marine, 1960
565	SL-36	Kennecott Corp.	W	(C-01-03)15bca	40.7360	112.1750	4509904	400784	27.7	270.0		13438.0		Iorns and others, 1966
566	SL-38	unnamed	W	(C-02-01)03cdd	40.6681	111.9397	4502127	420572	21.0					Klauk, 1984
567	SL-39	unnamed	W	(C-02-01)25dac	40.6131	111.8942	4495982	424356	24.0					Klauk, 1984
568	SL-40	Bacchus Gravel Pit	W	(C-02-02)05aa	40.6752	111.9703	4503384	417996	20.0			114.0		Marine, 1960
569	SL-41	unnamed	W	(C-02-02)24bbb	40.6378	112.0233	4498843	413466	21.0					Klauk, 1984
570	SL-42	unnamed	W	(C-03-01)01cbb	40.5867	111.9083	4493064	423133	48.0					Klauk, 1984
571	SL-43	unnamed	W	(C-03-01)02adc	40.5894	111.9136	4493368	422687	21.0					Klauk, 1984
572	SL-44	unnamed	W	(C-03-01)08bbc	40.5783	111.8708	4492099	426297	21.0					Klauk, 1984
573	SL-45	unnamed	W	(C-03-01)12ccb	40.5689	111.9089	4491088	423062	20.0	36.0			-6.9	WATSTORE
574	SL-46	State Prison	W	(C-04-01)02bb	40.4960	111.9120	4482999	422716	28.3	251.0		227.0		Marine, 1960
575	SL-47	Crystal Hot Springs	S	(C-04-01)11/12	40.4833	111.9108	4482438	423303	58.0					Mundorff, 1970
576	SL-48	State Prison	W	(C 04-01)11ad	40.4884	111.9059	4482151	423227	61.6					Cole, 1983
577	SL-49	unnamed	W	(C-04-01)11adc	40.4856	111.9125	4481845	422661	29.0					Klauk, 1984
578	SL-50	unnamed	W	(C-04-01)11dab	40.4856	111.9167	4481849	422305	38.0					Klauk, 1984
579	SL-51	State Forestry-1	W	(C-04-01)12bbc	40.4898	111.9078	4482303	423061	80.4	154.0		1135.6		Murphy and Gwynn, 1979
580	SL-52	State Prison	W	(C-04-01)12bbd	40.4898	111.9070	4482303	423136	82.6	306.0		3028.3		Utah Energy Office, 1981
581	SL-53	unnamed	W	(C-04-01)12bbd	40.4903	111.9056	4482361	423251	54.0					Klauk, 1984
582	SL-54	unnamed	W	(C-04-01)12bca	40.4889	111.9067	4482206	423157	85.0					Klauk, 1984
583	SL-55	unnamed	W	(C-04-01)12bca	40.4894	111.9058	4482261	423233	38.0					Klauk, 1984

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
584	SL-56	Camp Williams R.R.	W	(C-04-01)22ab	40.4580	111.9260	4478794	421485	21.0			114.0		Marine, 1960
585	SL-57	unnamed	S	(C-04-01)23cbb	40.4560	111.9270	4478572	421398	22.7					Hely and others, 1967
586	SL-58	SL Valley S & G	W	(C-04-01)23dbb	40.4558	111.9189	4478543	422084	24.0	79.9				WATSTORE
587	SL-59	unnamed	W	(C-04-02)09abc	40.4897	112.0697	4482450	409343	21.0					Klauk, 1984
588	SL-60	M. Schmidt	W	(D-01-01)19bac	40.7220	111.8800	4508058	425678	25.5	32.0				Hely and others, 1968
589	SL-61	unnamed	W	(D-02-01)04cda	40.6706	111.8436	4502322	428698	22.0					Klauk, 1984
590	SL-62	unnamed	W	(D-02-01)05dca	40.6714	111.8581	4502423	427473	24.0					Klauk, 1984
591	SL-63	unnamed	W	(D-03-01)01cac	40.5853	111.9044	4492905	423461	26.0					Klauk, 1984
592	SL-64	unnamed	W	(D-03-01)19bba	40.5508	111.8867	4489060	424921	22.0					Klauk, 1984
593	SL-65	unnamed	W	(D-03-01)29cbc	40.5272	111.8708	4486427	426241	24.0					Klauk, 1984
594	SL-66	Draper Irrigation	W	(D-03-01)29cbc	40.5270	111.8680	4486403	426478	25.5	84.0		1325.0		Iorns and others, 1966
595	SL-67	unnamed	W	(D-04-01)06caa	40.4997	111.8819	4483384	425270	79.0					Klauk, 1984
596	SU-01	Town of Coalville	W	(A-02-05)04bcd	40.9378	111.3942	4531715	466815	20.0	58.5	F	0.1		WATSTORE
597	SU-02	unnamed	S	(D-01-04)33aaa	40.6970	111.4932	4505029	458178	21.0			189.0		Baker, 1970
598	SU-03	unnamed	S	(D-02-04)02aac	40.6800	111.4561	4503124	461455	20.0					WATSTORE
599	SU-04	unnamed	S	(D-02-05)17cda	40.6419	111.3897	4498868	467048	20.0					WATSTORE
600	TO-01	Bertagnole	W	(B-01-09)24cdd	40.7980	112.8100	4517587	347302	23.9	66.0		151.0		Hood and Waddell, 1968
601	TO-02	unnamed	W	(B-01-15)07cab	40.8411	113.6056	4524174	280323	26.0	1.8			0.4	WATSTORE
602	TO-02	unnamed	W	(B-01-15)07cab	40.8411	113.6056	4524174	280323	25.0	1.8			0.4	WATSTORE
603	TO-02	unnamed	W	(B-01-15)07cab	40.8411	113.6056	4524174	280323	25.0	5.8			0.6	WATSTORE
604	TO-03	unnamed	W	(B-01-15)07cab	40.8411	113.6058	4524175	280306	23.0	4.6			0.4	WATSTORE
605	TO-04	unnamed	W	(B-01-15)07cab	40.8411	113.6058	4524175	280306	24.0	9.1			2.3	WATSTORE
606	TO-05	unnamed	W	(B-01-15)07cab	40.8411	113.6053	4524173	280348	23.0	1.5			0.4	WATSTORE
607	TO-07	unnamed	W	(B-01-15)07cab	40.8411	113.6053	4524173	280348	22.5	11.0			0.9	WATSTORE
608	TO-07	unnamed	W	(B-01-15)07cab	40.8411	113.6053	4524173	280348	20.0	11.0			0.9	WATSTORE
609	TO-08	unnamed	W	(B-01-15)07cba	40.8411	113.6069	4524177	280213	23.5	1.8			1.1	WATSTORE
610	TO-09	unnamed	W	(B-01-15)07cba	40.8411	113.6069	4524177	280213	20.0	9.1			0.5	WATSTORE
611	TO-10	Bureau of Land Mgmt.	W	(B-01-16)07dda	40.8375	113.7069	4524034	271769	20.0	1.5			0.3	WATSTORE
612	TO-11	Bureau of Land Mgmt.	W	(B-01-17)01aaa	40.8639	113.7261	4527015	270241	22.0	2.7			0.2	WATSTORE
613	TO-12	Bureau of Land Mgmt.	W	(B-01-17)12dcc	40.8372	113.7353	4524075	269373	23.0	7.6				WATSTORE
614	TO-13	Bonneville SF #67	W	(B-01-17)16bbb	40.8344	113.8008	4523938	263840	20.0					WATSTORE
615	TO-14	Bureau of Land Mgmt.	W	(B-01-17)22aad	40.8200	113.7644	4522242	266859	23.5	7.6			0.2	WATSTORE
616	TO-15	Bureau of Land Mgmt.	W	(B-01-17)24bbd	40.8200	113.7442	4522189	268563	23.5	7.6			0.1	WATSTORE
617	TO-16	Bonneville SF #K10	W	(B-01-17)34ddd	40.7772	113.7644	4517490	266709	20.0					WATSTORE
618	TO-16	Bonneville SF #K10	W	(B-01-17)34ddd	40.7772	113.7644	4517490	266709	23.5					WATSTORE
619	TO-17	Bureau of Land Mgmt.	W	(B-01-17)35cdd	40.7772	113.7533	4517461	267646	22.0	0.6				WATSTORE
620	TO-18	Bureau of Land Mgmt.	W	(B-01-18)12bab	40.8497	113.8506	4525773	259695	20.5	2.7			2.3	WATSTORE
621	TO-19	Bonneville SF #64	W	(B-01-18)23aab	40.8206	113.8622	4522574	258612	21.0					WATSTORE
622	TO-20	Bonneville Ltd. #24	W	(B-01-18)29ccc	40.7923	113.9345	4519488	252446	28.0	51.0		94.6		Goode, 1978
623	TO-21	Kaiser FW 20 (BLM)	W	(B-01-18)31acc	40.7867	113.9445	4518961	251583	24.0	90.0		567.8		Goode, 1978
624	TO-22	Bureau of Land Mgmt.	W	(B-01-18)34bbb	40.7914	113.8975	4519430	255527	20.5	2.7			1.0	WATSTORE
625	TO-23	unnamed	W	(B-02-12)32dcc	40.8561	113.2275	4524959	312245	23.0	1.7			1.5	WATSTORE
626	TO-24	unnamed	W	(B-02-13)24adb	40.8942	113.2611	4529262	309522	20.0	1.7			1.5	WATSTORE
627	TO-25	Bureau of Land Mgmt.	W	(B-02-16)19ccd	40.8933	113.7250	4530276	270435	20.0	1.5			0.5	WATSTORE
628	TO-26	Bureau of Land Mgmt.	W	(B-02-17)27aac	40.8933	113.7631	4530377	267225	21.0	2.7			1.4	WATSTORE
629	TO-27	Bureau of Land Mgmt.	W	(B-02-17)33cdd	40.8642	113.7928	4527225	264620	22.0	2.4			0.8	WATSTORE
630	TO-28	Asarco	W	(C-01-03)17bc	40.7280	112.2010	4509045	398576	31.0	153.0		11356.2		Marine, 1960
631	TO-28	ASARCO	W	(C-01-03)17bc	40.7280	112.2010	4509045	398576	29.5	153.0		11356.0		Marine, 1960
632	TO-29	unnamed	W	(C-01-05)31dbc	40.6842	112.4564	4504510	376926	21.0	2.7			0.6	WATSTORE
633	TO-30	unnamed	W	(C-01-05)33dcb	40.6822	112.4200	4504237	379999	23.0	2.7			2.1	WATSTORE
634	TO-31	unnamed	W	(C-01-06)27aad	40.7064	112.5064	4507045	372743	20.5	2.7			1.3	WATSTORE
635	TO-32	Big Warm Spr.	S	(C-01-07)08dd	40.7450	112.6650	4511572	359426	19.0			11400.0		Cole, 1983
636	TO-33	Div. Wildlife Res.	S	(C-01-07)09caa	40.7433	111.6383	4511306	361786	22.2			114.0		Hood and Waddell, 1968

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637	TO-34	unnamed	W?	(C-01-07)15bdb	40.7330	112.6233	4510175	362863	23.3					Hood and Waddell, 1968
638	TO-35	unnamed	S	(C-01-07)25acc	40.7010	112.5770	4506551	366768	20.0					Hood and Waddell, 1968
639	TO-36	C. Hammond	W	(C-01-08)06abc	40.7650	112.7880	4513775	349081	26.6	20.0		38.0		Hood and Waddell, 1968
640	TO-37	unnamed	W	(C-01-14)18bad	40.7356	113.4756	4512144	290953	20.0	2.6			0.3	WATSTORE
641	TO-38	unnamed	W	(C-01-14)18bad	40.7356	113.4753	4512143	290978	20.0	2.0			0.3	WATSTORE
642	TO-39	unnamed	W	(C-01-14)18bad	40.7353	113.4753	4512110	290978	21.0	7.0			0.5	WATSTORE
643	TO-40	unnamed	W	(C-01-15)07add	40.7561	113.5803	4514674	282178	27.0	0.9			0.6	WATSTORE
644	TO-41	unnamed	W	(C-01-15)07add	40.7564	113.5800	4514707	282204	23.0	4.6			0.7	WATSTORE
645	TO-42	unnamed	W	(C-01-15)07add	40.7564	113.5800	4514707	282204	21.0	9.1			2.1	WATSTORE
646	TO-43	unnamed	W	(C-01-15)07add	40.7564	113.5797	4514706	282230	20.5	1.7			0.8	WATSTORE
647	TO-44	unnamed	W	(C-01-15)07add	40.7564	113.5797	4514706	282230	20.0	4.7			0.6	WATSTORE
648	TO-45	unnamed	W	(C-01-15)07add	40.7564	113.5797	4514706	282230	20.5	11.1			1.1	WATSTORE
649	TO-46	Bonneville SF #84	W	(C-01-17)01bab	40.7769	113.7250	4517353	270033	22.5					WATSTORE
650	TO-47	Bonneville SF #21	W	(C-01-17)05aaa	40.7764	113.7911	4517473	264453	22.0					WATSTORE
651	TO-48	Bonneville SF #86	W	(C-01-17)13bbb	40.7475	113.7328	4514109	269273	23.0					WATSTORE
652	TO-49	Bureau of Land Mgmt.	W	(C-01-17)17bba	40.7481	113.8086	4514378	262875	22.5	2.7			0.1	WATSTORE
653	TO-50	Bonneville SF #K46	W	(C-01-17)21aba	40.7325	113.7756	4512558	265607	23.0					WATSTORE
654	TO-51	unnamed	W	(C-01-18)03bbb	40.7761	113.8836	4517692	256644	20.5	4.9				WATSTORE
655	TO-52	Bureau of Land Mgmt.	W	(C-01-18)03bbb	40.7761	113.8836	4517692	256644	21.5	0.6				WATSTORE
656	TO-53	Kaiser Chemical Corp.	W	(C-01-18)11ccd	40.7486	113.8639	4514585	258207	22.5	4.6				WATSTORE
657	TO-54	unnamed	W	(C-01-18)11ccd	40.7486	113.8639	4514585	258207	22.0	0.9				WATSTORE
658	TO-55	Kaiser Chemical Corp.	W	(C-01-18)16dac	40.7378	113.8869	4513449	256226	22.0	2.7			0.6	WATSTORE
659	TO-56	Bonneville SF #27	W	(C-01-18)18ada	40.7439	113.9231	4514228	253191	21.5					WATSTORE
660	TO-57	Bonneville Ltd. #13	W	(C-01-19)02adb	40.7720	113.9643	4517466	249758	24.5	69.0		92.7		Goode, 1978
661	TO-58	Bureau of Land Mgmt.	W	(C-01-19)02cbd	40.7669	113.9764	4516933	248777	23.5	58.8	P	2271.3		WATSTORE
662	TO-59	Kaiser FW7A	W	(C-01-19)03ddc	40.7637	113.9830	4516621	248462	24.0	52.0		3785.0		Goode, 1978
663	TO-60	Bureau of Land Mgmt.	W	(C-01-19)10aba	40.7622	113.9864	4516440	247915	25.0	53.0			1.1	WATSTORE
664	TO-61	Bureau of Land Mgmt.	W	(C-01-19)10acc	40.7553	113.9875	4515677	247796	23.0	2.7			1.8	WATSTORE
665	TO-62	Bonneville SF #K5	W	(C-01-19)10bac	40.7600	113.9914	4516210	247484	31.0	66.0		90.8		Goode, 1978
666	TO-62	Bonneville SF #K5	W	(C-01-19)10bac	40.7600	113.9914	4516210	247484	35.5	66.0				WATSTORE
667	TO-63	Bonneville Ltd. DBW 13	W	(C-01-19)23cbc	40.7225	113.9790	4511955	248388	24.5	456.0		92.7		Goode, 1978
668	TO-64	Bonneville Ltd. DBW 7	W	(C-01-19)34bdc	40.6972	113.9918	4509553	247122	25.0	319.0		4807.5		Goode, 1978
669	TO-65	Kaiser DBW 9	W	(C-01-19)35bcd	40.6990	113.9760	4509393	248555	30.0	432.0		4542.0		Goode, 1978
670	TO-66	unnamed	W	(C-02-04)03cbc	40.6700	112.2928	4502717	390729	20.0	2.7			0.9	WATSTORE
671	TO-67	Kennecott Corp.	W	(C-02-04)09cda	40.6600	112.2967	4501187	389083	30.0	209.0				Gates, 1963
672	TO-68	R. Boyce	W	(C-02-04)32cac	40.5992	112.3261	4494900	387796	20.0	152.4			3.9	WATSTORE
673	TO-69	Casity	W	(C-02-05)13bca	40.6469	112.3667	4500247	384442	22.8	1079.0				Gates, 1963
674	TO-69	Casity	W	(C-02-05)13bca	40.6469	112.3667	4500247	384442	21.5	1079.0			-6.6	WATSTORE
675	TO-70	J. Palmer	W	(C-02-05)33dad	40.5972	112.4089	4494787	380786	21.5	121.9				WATSTORE
676	TO-71	unnamed	W	(C-02-05)33dcd	40.5964	112.4122	4494702	380505	21.0	36.6				WATSTORE
677	TO-72	N. Lemmon	W	(C-02-05)34bca	40.6031	112.4033	4495434	381270	22.5	97.5	P	757.1		WATSTORE
678	TO-72	N. Lemmon	W	(C-02-05)34bca	40.6031	112.4033	4495434	381270	22.7	98.0		757.0		Gates, 1963
679	TO-73	M. Mortensen	W	(C-02-05)34cbc	40.5970	112.4060	4494761	381031	21.1	134.0				Gates, 1963
680	TO-74	H. Langford	W	(C-02-05)35add	40.6014	112.3703	4495201	384059	20.0	156.4			9.1	WATSTORE
681	TO-75	Bountiful Livestock	W	(C-02-05)35cbd	40.5986	112.3842	4494909	382878	20.0	183.2	P	3028.3	3.7	WATSTORE
682	TO-76	T. Mathews	W	(C-02-05)35dbb	40.6006	112.3778	4495123	383423	20.0	68.0			9.8	WATSTORE
683	TO-77	T. Mathews	W	(C-02-05)35dbb	40.5997	112.3786	4495024	383354	21.0	36.6	P	302.8	5.5	WATSTORE
684	TO-78	unnamed	W	(C-02-05)36cba	40.6008	112.3661	4495129	384414	21.0	30.5				WATSTORE
685	TO-79	J. Smith	W	(C-02-05)36dcd	40.5964	112.4122	4494702	380505	20.0					WATSTORE
686	TO-80	Grantsville Wm Spr.	S	(C-02-06)16aad	40.6470	112.5242	4500479	371058	27.0		F	3.8		WATSTORE
687	TO-80	Grantsville Wm Spr.	S	(C-02-06)16aad	40.6470	112.5242	4500479	371058	24.5		F	3.8		WATSTORE
688	TO-80	Grantsville Wm Spr.	S	(C-02-06)16aad	40.6470	112.5242	4500479	371058	30.0			1514.0		Cole, 1983
689	TO-80	Grantsville Wm Spr.	S	(C-02-06)16aad	40.6470	112.5242	4500479	371058	24.4			1514.0		Mundorff, 1970

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690	TO-81	unnamed	W	(C-02-06)16adb	40.6464	112.5267	4500414	370913	21.0	3.7			1.8	WATSTORE
691	TO-82	J. Worthington	W	(C-02-06)23cbb	40.6270	112.5017	4498228	372795	20.0					Gates, 1963
692	TO-82	J. Worthington	W	(C-02-06)23cbb	40.6270	112.5200	4500360	371478	20.0	64.0		1136.0		Gates, 1963
693	TO-84	J. Worthington	W	(C-02-06)23cbb	40.6339	112.5033	4498993	372868	20.0	64.0				WATSTORE
694	TO-84	J. Worthington	W	(C-02-06)23cbb	40.6339	112.5033	4498993	372868	20.0	64.0				WATSTORE
695	TO-85	unnamed	S	(C-02-08)24cc	40.7330	112.6233	4510175	362863	22.2			95.0		Hood and Waddell, 1968
696	TO-86	No. Horseshoe	S	(C-02-08)26bad	40.6142	112.7085	4496987	355595	22.7					Hood and Waddell, 1968
697	TO-87	So. Horseshoe	S	(C-02-08)26dba	40.6133	112.7092	4496667	354912	22.7					Hood and Waddell, 1968
698	TO-88	Redlum	S	(C-02-09)07cb	40.6560	112.9073	4502114	338525	21.1			7.6		Hood and Waddell, 1968
699	TO-89	Bonneville SF #K65	W	(C-02-17)04aac	40.6869	113.7756	4507495	265446	21.0					WATSTORE
700	TO-89	Bonneville SF #K65	W	(C-02-17)04aac	40.6869	113.7756	4507495	265446	21.0	6.0		15.5		Goode, 1978
701	TO-90	Bonneville SF #113	W	(C-02-17)07dcc	40.6611	113.8169	4504742	261864	21.5					WATSTORE
702	TO-91	Bonneville SF #K66	W	(C-02-17)16caa	40.6528	113.7808	4503723	264887	22.5					WATSTORE
703	TO-92	Bonneville SF #114	W	(C-02-17)30bb	40.6322	113.8283	4501564	260797	22.0					WATSTORE
704	TO-93	Bureau of Land Mgmt.	W	(C-02-18)27cbb	40.6244	113.8839	4500851	256066	22.0	2.7			0.1	WATSTORE
705	TO-94	Kaiser DBW 8	W	(C-02-19)03bcd	40.6832	113.9945	4507563	246800	28.0	326.0				Goode, 1978
706	TO-95	Bonneville Ltd. DBW 1	W	(C-02-19)14ada	40.6520	113.9600	4504129	249731	43.0	366.0				Goode, 1978
707	TO-96	Bonneville Ltd. DBW 3	W	(C-02-19)24cba	40.6380	113.9540	4502558	250186	88.0	630.0				Goode, 1978
708	TO-97	unnamed	T	(C-03-03)28bca	40.5319	112.1897	4487264	399236	26.0					WATSTORE
709	TO-98	City of Tooele	W	(C-03-04)32bbc	40.5193	112.3300	4485445	387492	21.7	219.0				Gates, 1963
710	TO-99	H. Clegg	W	(C-03-05)01aca	40.5889	112.3567	4493796	385189	20.0	139.6			20.0	WATSTORE
711	TO-100	Deseret Livestock So.	S	(C-03-08)10ccc	40.5650	112.7417	4491607	352442	22.7			6814.0		Hood and Waddell, 1968
712	TO-101	Deseret Livestock So.	S	(C-03-08)15cba	40.5555	112.7390	4490602	352761	21.0			12000.0		Cole, 1983
713	TO-101	Deseret Livestock So.	S	(C-03-08)15cba	40.5555	112.7390	4490602	352761	21.7			871.0		Hood and Waddell, 1968
714	TO-102	Deseret Livestock Spr.	S	(C-03-08)21ddb	40.5370	113.9540	4502558	250186	23.9			38.0		Hood and Waddell, 1968
715	TO-103	Blue Lake Spr.	S	(C-04-19)06dcd	40.5020	114.0380	4487701	242560	29.0					Turk, 1973
716	TO-103	Blue Lake Spr.	S	(C-04-19)06dcd	40.5020	114.0380	4487701	242560	27.5					this study
717	TO-104	unnamed	S	(C-04-19)07abc	40.4989	114.0442	4487375	242023	29.0		F	38611.2		WATSTORE
718	TO-105	unnamed	S	(C-04-19)20abb	40.4708	114.0247	4484198	243569	27.0		F	3785.4		WATSTORE
719	TO-106	Morgans Warm Spr.	S	(C-05-05)09cba	40.3967	112.4033	4472691	379406	26.7			2839.0		Mundorff, 1970
720	TO-106	Morgans Warm Spr.	S	(C-05-05)09cba	40.3967	112.4033	4472691	379406	24.0			3785.0		Hood and others, 1969
721	TO-107	Russels Warm Spr.	S	(C-05-05)17aa	40.3900	112.4240	4471807	379137	21.7			1703.3		Mundorff, 1970
722	TO-108	R. Davis	W	(C-07-05)32aba	40.1710	112.4250	4447499	378746	20.0			2271.0		Hood and others, 1969
723	TO-109	Wilson Health Spr.	S	(C-10-14)33cdc	39.9064	113.4303	4419986	292251	51.0					this study
724	TO-109	Wilson Health Spr.	S	(C-10-14)33cdc	39.9064	113.4303	4419986	292251	60.5			106.0		Mundorff, 1970
725	TO-109	Wilson Health Spr.	S	(C-10-14)33cdc	39.9064	113.4303	4419986	292251	55.5					WATSTORE
726	TO-109	Wilson Health Spr.	S	(C-10-14)33cdc	39.9064	113.4303	4419986	292251	59.0			380.0		Cole, 1983
727	UI-01	L. Hullinger	W	(D-03-21)30dcd	40.5211	109.6017	4486325	618451	25.0	42.1	F	15.1	-3.4	WATSTORE
728	UI-02	Below Winter Storage	S	(D-04-22)34cdd	40.4211	109.4333	4475464	632914	21.0					WATSTORE
729	UI-03	Split Mt Warm Spr.	S	(D-04-24)16cdd	40.4656	109.2211	4480745	650818	30.0			10220.0		Hood and others, 1976
730	UI-03	Split Mt Warm Spr.	S	(D-04-24)16cdd	40.4656	109.2211	4480745	650818	31.0		F	10220.6		WATSTORE
731	UI-04	Pan Am Pet. #1 Gentry	W	(D-05-22)22ac	40.3710	109.4270	4469913	633548	46.0					Goode and Feltis, 1962
732	UI-05	Pan Am Pet. ER-10	W	(D-05-22)22acd	40.3650	109.4267	4469250	633729	44.5	1320.0				Goode and Feltis, 1962
733	UI-06	Pan Am Pet. ER-1	W	(D-05-22)23cca	40.3650	109.4180	4469371	634322	44.5	1320.0				Goode and Feltis, 1962
734	UI-07	T.E. Hall #5S	W	(D-05-22)23cda	40.3640	109.4140	4469155	634665	47.0					Goode, 1978
735	UI-08	T.E. Hall #1	W	(D-05-22)23cdb	40.3650	109.4160	4469263	634493	50.0					Goode, 1978
736	UI-09	Hollandsworth & Travis	W	(D-05-22)23dcb	40.3650	109.4110	4469271	634918	56.0					Goode, 1978
737	UI-10	Lacy Oil Field Drain	D	(D-05-22)23ddd	40.3631	109.4039	4469071	635525	45.0					WATSTORE
738	UI-11	Polumbus Corp. No. 1	W	(D-05-22)24ddd	40.3620	109.3850	4468978	637132	45.0					Goode, 1978
739	UI-12	Union Irrigation	S	(D-05-22)25bdc	40.3580	109.3970	4468515	636121	20.0			3785.0		Goode, 1978
740	UI-13	BHP Petroleum tnk	D	(D-05-22)26aab	40.3603	109.4047	4468759	635462	40.0					WATSTORE
741	UI-14	Pan Am Petrol	W	(D-05-22)26da	40.3620	109.4150	4468932	634584	49.0	1307.0		738.0		Goode and Feltis, 1962
742	UI-15	well near Jensen, UT	W	(D-05-23)20caa	40.3672	109.3558	4469601	639601	20.0					WATSTORE

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
743	UI-16	Garner #1 Boesche	W	(D-06-23)01bad	40.3320	109.2790	4465818	646198	46.0	808.0				Hood and others, 1976
744	UI-16	Garner #1 Boesche	W	(D-06-23)01bad	40.3320	109.2790	4465818	646198	43.5			757.0		Hood and others, 1976
745	UI-17	Roadside Well NR1	W	(D-08-20)10ccb	40.1367	109.6625	4443577	613945	22.0					WATSTORE
746	UI-18	Roadside Well NR2	W	(D-08-20)10ccb	40.1347	109.6622	4443355	613974	20.5					WATSTORE
747	UI-19	Roadside Well NR3	W	(D-08-20)10ccc	40.1319	109.6614	4443045	614047	20.0					WATSTORE
748	UI-20	Sheppard Well (NWR)	W	(D-08-20)21aaa	40.1106	109.6644	4440677	613827	20.0					WATSTORE
749	UI-21	Shell Oil #1 State	W	(D-08-20)36baa	40.0850	109.6150	4437900	618082	57.5	1711.0				Hood and others, 1976
750	UI-22	Wesco Test Hole	W	(D-09-20)36ddc	39.9850	109.6070	4426923	618936	23.5	986.0				Hood and others, 1976
751	UI-23	unnamed	W	(D-09-22)01caa	40.0647	109.3883	4435973	637451	28.0					WATSTORE
752	UI-24	U.S. Geol. Survey	W	(D-09-23)22acc	40.0228	109.3106	4431445	644166	26.0	554.7	P	2649.8		WATSTORE
753	UI-25	Bureau of Land Mgmt.	W	(D-10-20)35bbc	39.9092	109.6381	4418357	616410	29.0	1728.2	F	220.7		WATSTORE
754	UI-26	Tennec Bit Cr 1	W	(D-10-21)16add	39.9492	109.5483	4422918	624014	27.0	1706.9				WATSTORE
755	UI-26	Tennec Bit Cr 1	W	(D-10-21)16add	39.9492	109.5483	4422918	624014	33.5	1706.9				WATSTORE
756	UI-27	unnamed	W	(D-10-21)23acd	39.9350	109.5153	4421388	626859	28.5					WATSTORE
757	UI-28	Bureau of Land Mgmt.	W	(D-10-22)17aad	39.9542	109.4556	4423606	631924	22.0	2135.0		11.0		Conroy and Fields, 1977
758	UI-28	Bureau of Land Mgmt.	W	(D-10-22)17aad	39.9542	109.4556	4423606	631924	23.5	2133.6	F	37.8		WATSTORE
759	UI-28	Bureau of Land Mgmt.	W	(D-10-22)17aad	39.9542	109.4556	4423606	631924	21.5	2133.6	F	37.8		WATSTORE
760	UI-28	Bureau of Land Mgmt.	W	(D-10-22)17aad	39.9542	109.4556	4423606	631924	21.5	2135.0		12.0		Conroy and Fields, 1977
761	UI-29	unnamed	W	(D-10-22)34bdb	39.9078	109.4278	4418497	634389	34.0					WATSTORE
762	UI-30	U.S. Geol. Survey	W	(D-11-21)21cad	39.8428	109.5736	4411073	622041	22.0	1478.3			56.1	WATSTORE
763	UI-31	Shamrock Corp.	W	(D-11-23)13dcd	39.8543	109.2885	4412750	646711	26.0	1785.0		38.0		Conroy and Fields, 1977
764	UI-32	Bureau of Land Mgmt.	W	(D-11-24)06dbc	39.8883	109.2725	4416578	647707	28.0	1813.6				WATSTORE
765	UI-32	Bureau of Land Mgmt.	W	(D-11-24)06dbc	39.8883	109.2725	4416578	647707	28.5	1814.0		151.0		Conroy and Fields, 1977
766	UI-32	Bureau of Land Mgmt.	W	(D-11-24)06dbc	39.8883	109.2725	4416578	647707	28.0	1814.0		189.0		Conroy and Fields, 1977
767	UI-33	U.S. Geol. Survey	W	(D-11-24)07acd	39.8772	109.2689	4415352	648038	25.0	807.7			-42.7	WATSTORE
768	UI-33	U.S. Geol. Survey	W	(D-11-24)07acd	39.8772	109.2689	4415352	648038	25.0	807.7			-42.7	WATSTORE
769	UI-33	U.S. Geol. Survey	W	(D-11-24)07acd	39.8772	109.2689	4415352	648038	26.5	807.7			-42.7	WATSTORE
770	UI-33	U.S. Geol. Survey	W	(D-11-24)07acd	39.8772	109.2689	4415352	648038	26.0	807.7			-42.7	WATSTORE
771	UI-34	Bureau of Land Mgmt.	W	(D-11-24)07cac	39.8744	109.2761	4415029	647429	26.5	1780.1	F	662.5		WATSTORE
772	UI-34	Bureau of Land Mgmt.	W	(D-11-24)07cac	39.8744	109.2761	4415029	647429	26.5	1780.0		136.0		Conroy and Fields, 1977
773	UI-34	Bureau of Land Mgmt.	W	(D-11-24)07cac	39.8744	109.2761	4415029	647429	26.5	1780.0		140.0		Conroy and Fields, 1977
774	UI-35	Shamrock Corp.	W	(D-11-24)08caa	39.8758	109.2544	4415221	649282	26.5	2002.0		68.0		Conroy and Fields, 1977
775	UI-35	Shamrock Corp.	W	(D-11-24)08caa	39.8758	109.2544	4415221	649282	26.0	2002.0		64.0		Conroy and Fields, 1977
776	UI-35	Shamrock Corp.	W	(D-11-24)08caa	39.8758	109.2544	4415221	649282	26.5	2002.6	F	605.7		WATSTORE
777	UI-36	unnamed	W	(D-12-22)01bbb	39.8097	109.4108	4407635	636036	23.5	457.2				WATSTORE
778	UI-37	U.S. Geol. Survey	W	(D-12-24)19dbc	39.7575	109.2722	4402061	648013	22.0	426.7			168.9	WATSTORE
779	UI-38	Bureau of Land Mgmt.	S	(D-13-19)08baa	39.7070	109.8070	4395709	602272	20.0			1.1		Hood and others, 1976
780	UI-39	unnamed	W	(C-02-01)15dd*	40.3025	109.9767	4461624	586965	24.0	170.7	F	18.9	-5.2	WATSTORE
781	UI-40	Pleasant Valley	W	(C-04-01)23||*	40.1167	109.9669	4441011	588038	21.5					WATSTORE
782	UT-01	S. Shelley	W	(C-05-01)23bda	40.3730	111.9160	4469350	422235	21.1	32.0				Subitsky, 1962
783	UT-02	V.V. LDS Church	W	(C-05-01)24dcd	40.3640	111.8920	4468330	424262	22.7	27.0				Subitsky, 1962
784	UT-03	W. Ennis	W	(C-05-01)24ddc	40.3640	111.8900	4468328	424432	21.2	27.0				Subitsky, 1962
785	UT-04	Board of Canal Pres.	W	(C-05-01)25abc	40.3600	111.9060	4467898	423069	23.9	60.0		189.0		Subitsky, 1962
786	UT-05	Crater Hot Spr.	S	(C-05-01)25bbc	40.3570	111.8950	4467112	423995	43.3					Mundorff, 1970
787	UT-06	Sugarhouse LDS Church	W	(C-05-01)25cbb	40.3550	111.9050	4467342	423148	35.0	45 0		568.0		Subitsky, 1962
788	UT-07	unnamed	S	(C-05-01)25cca	40.3508	111.9011	4466873	423475	44.5		F	94.6		WATSTORE
789	UT-08	F. Eastmond	W	(C-05-01)25ccc	40.3590	111.9050	4467786	423153	47.0	32.0		473.0		Subitsky, 1962
790	UT-09	Saratoga Hot Spr.-2	S	(C-05-01)25ccc	40.3494	111.9047	4466720	423168	43.0					Klauk and Davis, 1984
791	UT-10	Saratoga Hot Spr.-3	S?	(C-05-01)25ccc	40.3611	111.9036	4468018	423274	42.0					Klauk and Davis, 1984
792	UT-11	Saratoga Hot Spr.-1	S	(C-05-01)25ccc	40.3489	111.9053	4466665	423116	41.0					Klauk and Davis, 1984
793	UT-11	Saratoga Hot Spr.-1	S	(C-05-01)25ccc	40.3489	111.9053	4466665	423116	44.0			719.0		Cole, 1983
794	UT-12	N. Shiba	W	(C-05-01)26bdb	40.3590	111.9180	4467798	422049	30.0	152.0				Subitsky, 1962
795	UT-13	unnamed	S	(C-05-01)36ddd	40.3322	111.8889	4464798	424490	43.0					WATSTORE

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
796	UT-14	Fault Zone Spr.	S	(C-06-01)01aab	40.3370	111.8940	4465335	424062	32.2					Subitsky, 1962
797	UT-15	unnamed	W	(C-06-01)18cdd	40.2917	111.9958	4460399	415359	30.0					WATSTORE
798	UT-16	Coop Security	W	(C-06-01)18dca	40.2930	111.9870	4460535	416108	27.2	80.0		45.0		Feltis, 1967
799	UT-17	unnamed	W	(C-06-01)19acc	40.2839	111.9944	4459532	415468	24.0	80.8				WATSTORE
800	UT-18	unnamed	W	(D-08-01)10bcb	40.1381	111.8231	4443200	429880	21.0					Klauk and Davis, 1984
801	UT-19	unnamed	W	(C-08-01)20cdb	40.1000	111.9694	4439096	417370	26.0					WATSTORE
802	UT-20	unnamed	W	(C-08-01)20cdb	40.1006	111.9700	4439164	417320	25.0					WATSTORE
803	UT-21	unnamed	W	(C-08-01)20cdb	40.1006	111.9700	4439164	417320	25.0					WATSTORE
804	UT-22	GV A-5	W	(C-08-01)29acc	40.0900	111.9660	4437983	417648	26.0					Parry and Cleary, 1978
805	UT-23	unnamed	W	(C-08-01)29dda	40.0869	111.9578	4437632	418343	22.5					WATSTORE
806	UT-24	unnamed	W	(C-08-02)18ccc	40.1281	111.7675	4442047	434607	20.0					Klauk and Davis, 1984
807	UT-25	unnamed	W	(C-08-02)29aaa	40.1581	111.7308	4445351	437761	24.0					Klauk and Davis, 1984
808	UT-26	unnamed	W	(C-08-02)31cdb	40.0725	111.7679	4435876	434520	30.0					Klauk and Davis, 1984
809	UT-27	unnamed	W	(C-08-02)32dda	40.0728	111.7322	4435884	437564	23.0					Klauk and Davis, 1984
810	UT-28	unnamed	W	(C-08-03)03dca	40.1481	111.5872	4444150	449984	25.0					Klauk and Davis, 1984
811	UT-29	GV A-7	W	(C-09-01)04ccc	40.0540	111.9580	4433980	418287	23.0					Parry and Cleary, 1978
812	UT-30	Coop. Security Corp.	W	(C-09-01)04ddc	40.0525	111.9475	4433804	419181	20.0	210.3			27.4	WATSTORE
813	UT-31	Coop. Security Corp.	W	(C-10-01)04cbb	39.9736	111.9550	4425054	418447	20.0	265.2	P	7949.4	43.9	WATSTORE
814	UT-31	Coop. Security Corp.	W	(C-10-01)04cbb	39.9736	111.9550	4425054	418447	20.5	265.2	P	7949.4	43.9	WATSTORE
815	UT-32	unnamed	W	(C-10-01)28adb	39.9186	111.9392	4418935	419732	27.0					Klauk and Davis, 1984
816	UT-33	Lazy S Cattle Co.	W	(C-10-01)29cdd	39.9083	111.9644	4417815	417566	23.0	256.6	P	3596.1	43.9	WATSTORE
817	UT-34	Lazy S Cattle Co.	W	(C-10-01)29ddd	39.9092	111.9556	4417907	418320	20.0	213.4	P	3369.0	37.2	WATSTORE
818	UT-35	LDS Church	W	(C-10-01)31cdd	39.8944	111.9833	4416290	415934	21.0	183.8	P	8025.1	65.5	WATSTORE
819	UT-36	unnamed	W	(C-10-01)32ccc	39.8933	111.9707	4416156	417010	20.0					Cordova, 1969
820	UT-37	unnamed	W	(C-10-01)33aba	39.9690	111.9398	4424529	419740	20.0					Cordova, 1969
821	UT-38	Burgin Mine	M	(C-10-02)15ddd	39.9381	112.0355	4421190	411527	54.4			10200.0		Cordova, 1969
822	UT-39	Elberta E. Crop Unit	W	(C-11-01)06bdd	39.8878	111.9833	4415557	415926	20.5	232.3	P	10977.7	74.7	WATSTORE
823	UT-40	C. Jones	W	(D-04-01)33dad	40.4236	111.8311	4474895	429496	21.5	102.7	P	2097.1	65.2	WATSTORE
824	UT-41	unnamed	W	(D-05-02)27baa	40.3587	111.7059	4467599	440059	20.0					Fairbanks, 1982
825	UT-42	unnamed	W	(D-06-01)30baa	40.2744	111.8883	4458382	424477	38.0					Klauk and Davis, 1984
826	UT-43	H. Williamson	W	(D-06-02)28bad	40.2725	111.7236	4458043	438478	21.0	33.5	F	83.2	-1.9	WATSTORE
827	UT-44	W shore of Utah Lake	S	(D-07-01)05ccb	40.2350	111.8640	4453879	426329	25.0					Mundorff, 1970
828	UT-45	W shore of Utah Lake	S	(D-07-01)08bbc	40.2290	111.8630	4453212	426408	23.0					Mundorff, 1970
829	UT-46	unnamed	S	(D-07-01)26cac	40.1767	111.8008	4447467	431818	32.0		F	1253.0		WATSTORE
830	UT-47	Bird Is. Warm Spr.	S	(D-07-01)26cbd	40.1764	111.8017	4447434	431741	30.0					Cordova, 1969
831	UT-47	Bird Is. Warm Spr.	S	(D-07-01)26cbd	40.1764	111.8017	4447434	431741	32.0		F	1298.4		WATSTORE
832	UT-48	Wood Spr.	S	(D-07-03)32d	40.1630	111.6210	4445823	447116	22.7			6208.0		Cordova, 1969
833	UT-49	City of Springville	W	(D-07-03)34cdb	40.1614	111.5908	4445628	449687	26.5	135.6	P	15520.2	21.3	WATSTORE
834	UT-50	unnamed	S	(D-08-01)02ccb	40.1461	111.8058	4444074	431362	29.0					WATSTORE
835	UT-51	unnamed	S	(D-08-01)02ccd	40.1447	111.8031	4443917	431590	25.0					WATSTORE
836	UT-52	Lincoln Pnt Wm Spr.	W	(D-08-01)03dda	40.1453	111.8064	4443986	431310	31.7					Cordova, 1969
837	UT-52	Lincoln Pnt Wm Spr.	W	(D-08-01)03dda	40.1453	111.8064	4443986	431310	25.0	21.9			10.1	WATSTORE
838	UT-53	unnamed	S	(D-08-01)09adc	40.1367	111.8286	4443049	429410	36.5		F	507.3		WATSTORE
839	UT-54	So. Shore Farms	W	(D-08-01)10bcb	40.1383	111.8228	4443222	429906	36.0	73.2			5.8	WATSTORE
840	UT-55	unnamed	W	(D-08-02)25bca	40.0956	111.6689	4438372	442981	20.0					Klauk and Davis, 1984
841	UT-56	unnamed	W	(D-08-02)28cbd	40.0894	111.7278	4437723	437954	22.0					WATSTORE
842	UT-57	O. Bartholomew	W	(D-08-02)28ccc	40.0850	111.7290	4437236	437848	33.0	84.0		757.0		Cordova, 1969
843	UT-58	unnamed	W	(D-08-02)31cda	40.0731	111.7592	4435937	435262	20.0					WATSTORE
844	UT-59	unnamed	W	(D-08-02)31cdb	40.0731	111.7611	4435938	435100	28.0					WATSTORE
845	UT-60	K. Young	W	(D-08-02)32aad	40.0840	111.7330	4437128	437506	26.6	36.0		5.7		Cordova, 1969
846	UT-61	R.T. Herbert	W	(D-08-02)33bbb	40.0860	111.7300	4437348	437764	31.7	67.0				Cordova, 1969
847	UT-62	Diamond Fk Wm Spr.	S	(D-08-05)14d	40.1170	111.3370	4440587	471282	20.0			1700.0		Mundorff, 1970
848	UT-63	Castilla Hot Spr.	S	(D-09-04)18baa	40.0383	111.5333	4431934	454502	36.0					Klauk and Davis, 1984

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
849	UT-63	Castilla Hot Spr.	S	(D-09-04)18baa	40.0383	111.5333	4431934	454502	36.0					Klauk and Davis, 1984
850	UT-63	Castilla Hot Spr.	S	(D-09-04)18baa	40.0383	111.5333	4431934	454502	42.0			80.0		Cole, 1983
851	UT-63	Castilla Hot Spr.	S	(D-09-04)18baa	40.0383	111.5333	4431934	454502	40.0			76.0		Cordova, 1969
852	UT-64	Thistle Hot Spr.	S	(D-09-04)28bcb	40.0300	111.5117	4431002	456339	50.0					Klauk and Davis, 1984
853	UT-65	Goshen Warm Spr.	S	(D-10-01)08cab	39.9583	111.8550	4423269	426971	21.0					Klauk and Davis, 1984
854	UT-66	GV Warm Spr.	S	(D-10-01)08cac	39.9570	111.8590	4423128	426628	61.0					Parry and Cleary, 1978
855	UT-67	unnamed	W	(D-10-01)19bad	39.9353	111.8714	4420730	425545	23.0					WATSTORE
856	UT-68	S. Elkins	W	(D-10-01)19bdc	39.9314	111.8739	4420299	425327	21.5	138.7			38.1	WATSTORE
857	UT-69	S. Lunceford	W	(D-10-01)30bac	39.9203	111.8742	4419067	425289	24.0	182.9	P	5299.6	79.2	WATSTORE
858	UT-70	Third Water Hot Spr.	S	(D-08-05)25dcd	40.0829	111.3177	4436800	472914	55.5					this study
859	WA-01	W. Pickering	W	(C-37-17)12bdc	37.5822	113.7097	4162709	260723	24.0	88.4				WATSTORE
860	WA-02	Irvine Spr.	S	(C-39-16)14dba	37.3920	113.6110	4141355	268855	21.0			178.0		Cordova and others, 1972
861	WA-03	unnamed	S	(C-40-10)34ab	37.2928	112.9458	4128925	327523	22.0					WATSTORE
862	WA-04	unnamed	S	(C-40-10)34ca	37.2872	112.9469	4128306	327413	20.5					WATSTORE
863	WA-05	Anderson Ranch	W	(C-40-13)27bdb	37.2850	113.3040	4128774	295747	21.0	91.0		79.0		Cordova and others, 1972
864	WA-06	Veyo Hot Spr.	S	(C-40-16)06dbc	37.3183	113.6900	4135219	261945	32.2			341.0		Mundorff, 1970
865	WA-06	Veyo Hot Spr.	S	(C-40-16)06dbc	37.3183	113.6900	4135219	261945	29.6			390.0		Budding and Sommer, 1986
866	WA-07	Dixie/Pah Tempe	S	(C-41-13)25cac	37.1900	113.2717	4118163	298361	42.0			18169.0		Budding and Sommer, 1986
867	WA-07	Dixie/Pah Tempe	S	(C-41-13)25cac	37.1900	113.2717	4118163	298361	41.4					this study
868	WA-07	Dixie/Pah Tempe	S	(C-41-13)25cac	37.1900	113.2717	4118163	298361	42.0			17034.0		Mundorff, 1970
869	WA-07	Dixie/Pah Tempe	S	(C-41-13)25cac	37.1900	113.2717	4118163	298361	42.0			18000.0		Cole, 1983
870	WA-08	Virgin River Spr.	S	(C-41-13)25da	37.1917	113.2750	4118355	298069	33.5					Swanberg and others, 1977
871	WA-09	Snow Spr.	S	(C-41-16)34bda	37.1780	113.6350	4117667	266068	21.0			98.0		Budding and Sommer, 1986
872	WA-10	City of St. George	W	(C-41-17)17cba	37.2181	113.7844	4122496	252932	21.0	190.8			23.2	WATSTORE
873	WA-11	W. Cooper	W	(C-42-13)07cdb	37.1458	113.3600	4113450	290400	20.0					Budding and Sommer, 1986
874	WA-12	Berry Spr.	S	(C-42-14)01bcb	37.1650	113.3840	4115634	288318	23.5			125.0		Cordova and others, 1972
875	WA-13	unnamed	S	(C-42-14)02dab	37.1610	113.3900	4115204	287774	21.0					Cordova and others, 1972
876	WA-14	unnamed	W	(C-42-14)11aca	37.1542	113.3897	4114449	287782	24.0					WATSTORE
877	WA-15	Stratton Turf Farm	W	(C-42-14)15aba	37.1408	113.4088	4113000	286050	21.0					Budding and Sommer, 1986
878	WA-16	Stratton Turf Farm	W	(C-42-14)15bbc	37.1346	113.4024	4112300	286600	20.0					Budding and Sommer, 1986
879	WA-17	St. George Cr. 2	W	(C-42-15)06dcd	37.1550	113.5722	4114962	271575	26.0	274.3	P	1779.1		WATSTORE
880	WA-17	St. George Cr. 2	W	(C-42-15)06dcd	37.1550	113.5722	4114962	271575	26.0					Budding and Sommer, 1986
881	WA-18	Washington Hot Pot	S	(C-42-15)11ccc	37.1383	113.5117	4112937	276694	24.5					Budding and Sommer, 1986
882	WA-19	Green Spr.	S	(C-42-15)15bba	37.1383	113.5277	4113076	275631	23.5					Cordova and others, 1972
883	WA-19	Green Spr.	S	(C-42-15)15bba	37.1383	113.5277	4113076	275631	23.5					Budding and Sommer, 1986
884	WA-20	K. Empey	W	(C-42-15)30dcd	37.0980	113.5720	4108636	271421	22.0					Cordova and others, 1972
885	WA-21	P. Foremaster	W	(C-42-15)33cbc	37.0874	113.5477	4107400	273550	24.5					Budding and Sommer, 1986
886	WA-22	W. Hafen	W	(C-42-17)01aac	37.1633	113.7017	4116200	260100	20.0					Budding and Sommer, 1986
887	WA-23	unnamed	W	(C-43-14)31bbb	37.0100	113.4744	4098641	279842	22.0					WATSTORE
888	WA-23	unnamed	W	(C-43-14)31bbb	37.0100	113.4744	4098641	279842	20.0					WATSTORE
889	WA-23	unnamed	W	(C-43-14)31bbb	37.0100	113.4744	4098641	279842	20.5					WATSTORE
890	WA-24	O. Gregorson	W	(C-43-15)10cca	37.0549	113.5292	4103750	275100	21.0					Budding and Sommer, 1986
891	WA-25	Stucki Farms	W	(C-43-15)12ccc	37.0525	113.4937	4103400	278250	21.5					Budding and Sommer, 1986
892	WA-26	E. Jones	W	(C-43-16)22dba	37.0290	113.6250	4101109	266498	21.0	14.0		38.0		Cordova and others, 1972
893	WA-27	Terracor	W	(C-41-15)32aca	37.1794	113.5558	4117634	273107	40.0	182.9			145.7	Cordova, 1978
894	WE-01	Patio Spr.	S	(A-07-01)22caa	41.3269	111.8264	4575164	430841	20.0			606.0		Doyuran, 1972
895	WE-01	Patio Spr.	S	(A-07-01)22caa	41.3269	111.8264	4575164	430841	24.0		F	1287.0		WATSTORE
896	WE-02	Washington Terrace	W	(B-05-01)17cbc	41.1660	111.9850	4557440	417365	21.0	217.0		7192.0		Bolke and Waddell, 1972
897	WE-03	Washington Terrace	W	(B-05-01)17ddd	41.1672	111.9681	4557558	418785	21.0	261.2	P	4996.7	144.2	WATSTORE
898	WE-04	WBWCD Riverdale	W	(B-05-01)18abb	41.1750	111.9960	4558339	416453	21.0	223.0		9463.0		Bolke and Waddell, 1972
899	WE-05	E. Penman	W	(B-05-02)07dab	41.1820	112.1067	4559342	406985	22.0	306.0		64.0		Bolke and Waddell, 1972
900	WE-06	City of Roy	W	(B-05-02)14bdc	41.1694	112.0375	4557869	412965	20.0	304.8	P	5867.4	73.2	WATSTORE
901	WE-07	A. Vaughn	W	(B-05-03)12ddd	41.1781	112.1222	4558923	405872	20.0	191.1	P	113.6	-6.1	WATSTORE

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
902	WE-08	R. Parker	W	(B-05-03)15aaa	41.1750	112.1600	4558620	402697	24.0	200.0		151.0		Bolke and Waddell, 1972
903	WE-09	H. Richards	W	(B-05-04)21cbb	41.1540	112.3140	4556473	389744	20.0	52.0		7.6		Bolke and Waddell, 1972
904	WE-10	T. Rhead	W	(B-05-03)15dda	41.1647	112.1617	4557479	402539	22.2	198.0				Feth and others, 1966
905	WE-10	T. Rhead	W	(B-05-03)15dda	41.1647	112.1617	4557479	402539	22.0					Feth and others, 1966
906	WE-10	T. Rhead	W	(B-05-03)15dda	41.1647	112.1617	4557479	402539	23.5	197.8	P	9.8	-6.4	WATSTORE
907	WE-11	Ogden Hot Spr.	S	(B-06-01)23ccd	41.2357	111.9237	4565044	422564	57.0					Murphy and Gwynn, 1979
908	WE-11	Ogden Hot Spr.	S	(B-06-01)23ccd	41.2357	111.9237	4565044	422564	56.0					Mariner and others, 1983
909	WE-11	Ogden Hot Spr.	S	(B-06-01)23ccd	41.2357	111.9237	4565044	422564	56.0			20.0		Cole, 1983
910	WE-11	Ogden Hot Spr.	S	(B-06-01)23ccd	41.2357	111.9237	4565044	422564	58.3					Mundorff, 1970
911	WE-12	Utah Byproducts	W	(B-06-01)29cbb	41.2250	111.9858	4563987	417691	24.0	257.0		1136.0		Bolke and Waddell, 1972
912	WE-13	Rona Vista WTRD	W	(B-06-02)01acd	41.2856	112.0117	4570743	415280	21.5	304.8	F	1514.2	-8.5	WATSTORE
913	WE-14	Central Weber STP	W	(B-06-02)11bcb	41.2722	112.0414	4569285	412775	20.5	289.3	F	83.3	-11.2	WATSTORE
914	WE-15	G. Stratford	W	(B-06-02)25ccc	41.2200	112.0240	4563473	414164	20.0	171.0				Smith, 1961
915	WE-16	L. Defries	W	(B-06-02)27dcd	41.2210	112.0533	4563608	412154	20.0	191.0				Bolke and Waddell, 1972
916	WE-17	D. Prevedel	W	(B-06-02)33ddc	41.2070	112.0680	4562074	410458	20.0	208.0				Bolke and Waddell, 1972
917	WE-18	E. Wayment	W	(B-06-03)04dab	41.2856	112.1825	4570924	400977	21.0	164.6	F	14.8	-5.2	WATSTORE
918	WE-19	R. Jacob	W	(B-06-03)05ccc	41.2803	112.2175	4570341	398163	25.0	155.0				Bolke and Waddell, 1972
919	WE-20	R. Jacob	W	(B-06-03)10acb	41.2733	112.1680	4569509	402172	22.0	229.0		53.0		Bolke and Waddell, 1972
920	WE-21	Marquardt ACFT	W	(B-06-03)19aab	41.2497	112.2140	4566901	398031	22.0	70.0		568.0		Bolke and Waddell, 1972
921	WE-22	Utah Hot Spr.	S	(B-07-02)14ddc	41.3387	112.0310	4576801	413819	57.0					Mariner and others, 1983
922	WE-22	Utah Hot Spr.	S	(B-07-02)14ddc	41.3387	112.0310	4576801	413819	58.0			121.0		Cole, 1983
923	WE-22	Utah Hot Spr.	S	(B-07-02)14ddc	41.3387	112.0310	4576801	413819	58.5					Murphy and Gwynn, 1979
924	WE-23	R. Penton	W	(B-07-02)16dcd	41.3364	112.0706	4576442	410417	26.0	359.7	P	159.0	-9.8	WATSTORE
925	WE-24	E. Cragun	W	(B-07-02)25ddd	41.3083	112.0081	4573260	415611	20.0	155.4	F	851.7	-7.1	WATSTORE
926	WE-25	L. Keyes	W	(B-07-02)34bbb	41.3058	112.0628	4573037	411028	22.0	157.6	P	75.7	-5.5	WATSTORE
927	WE-26	GSLM & C No. 14	W	(B-07-03)31aac	41.3050	112.2230	4573347	397619	39.0	246.0		212.0		Murphy and Gwynn, 1979
928	WE-27	GSLM & C No. 15	W	(B-07-03)31aac	41.3028	112.2217	4572879	397721	40.5	280.4	P	283.9	-15.8	WATSTORE
929	WE-27	GSLM & C No. 15	W	(B-07-03)31aac	41.3028	112.2217	4572879	397721	38.0	280.0		681.4		Murphy and Gwynn, 1979
930	WE-27	GSLM & C No. 15	W	(B-07-03)31aac	41.3028	112.2217	4572879	397721	38.0	280.4	P	283.9	-15.8	WATSTORE
931	WE-28	GSLM & C No. 11	W	(B-07-03)31adc	41.2942	112.2283	4572455	406064	34.0	217.0		201.0		Bolke and Waddell, 1972
932	WE-29	GSLM & C No. 4	W	(B-07-03)31daa	41.3000	112.2200	4572459	405813	25.0	126.0		114.0		Bolke and Waddell, 1972
933	WE-30	GSLM & C No. 5	W	(B-07-03)31daa	41.3000	112.2200	4572459	405813	30.0	175.0		151.0		Bolke and Waddell, 1972
934	WE-31	GSLM & C No. 3	W	(B-07-03)31daa	41.3000	112.2200	4572459	405813	25.0	126.0		110.0		Bolke and Waddell, 1972
935	WE-32	GSLM & C No. 12	W	(B-07-03)31daa	41.3012	112.2197	4572459	405813	34.0	219.0		261.0		Bolke and Waddell, 1972
936	WE-33	GSLM & C No. 6	W	(B-07-03)31dab	41.3030	112.2217	4572905	397445	30.0	180.0		110.0		Bolke and Waddell, 1972
937	WE-34	GSLM & C No. 7	W	(B-07-03)31dab	41.2990	112.2217	4572344	406062	34.0	216.0		273.0		Bolke and Waddell, 1972
938	WE-35	GSLM & C No. 8	W	(B-07-03)31dac	41.2983	112.2217	4572122	406060	30.0	189.0		106.0		Bolke and Waddell, 1972
939	WE-36	GSLM & C No. 10	W	(B-07-03)31dad	41.3000	112.2217	4572344	406062	34.0	215.0		246.0		Bolke and Waddell, 1972
940	WE-37	GSLM & C No. 9	W	(B-07-03)31dda	41.2982	112.2217	4572122	406060	29.0	182.0				Bolke and Waddell, 1972
941	WE-38	GSLM & C No. 13	W	(B-07-03)32cbb	41.3010	112.2167	4572571	405730	34.0	219.0				Bolke and Waddell, 1972
942	WE-39	G. East #1	W	(B-07-03)33cdd	41.2940	112.1893	4572201	400199	20.0	122.0		68.0		Smith, 1961
943	WE-40	C. Hawkes	W	(B-05-02)05acb	41.2008	112.0913	4561435	408270	22.0	279.0		113.6		Bolke and Waddell, 1972
944	WE-41	H. Byington	W	(B-05-03)11dad	41.1808	112.1420	4560799	405913	20.0	160.0		15.1		Bolke and Waddell, 1972
945	WS-01	E. Payne	S	(D-03-04)26cca	40.5220	111.4710	4485592	460102	39.0			189.0		Baker, 1970
946	WS-02	Mt. Spa Hot Pot	W	(D-03-04)26cca	40.5255	111.4680	4485592	460102	43.1					Kohler, 1979
947	WS-02	Mt. Spa Hot Pot	W	(D-03-04)26cca	40.5255	111.4680	4485592	460102	38.0					this study
948	WS-03	Warm Ditch Spr.	S	(D-03-04)27aba	40.5360	111.4784	4487146	459488	28.8					Kohler, 1979
949	WS-04	Coleman Hot Spr.	S	(D-03-04)27baa	40.5353	111.4828	4487074	459111	45.0		F	340.7		WATSTORE
950	WS-04	Coleman Hot Spr.	S	(D-03-04)27baa	40.5353	111.4828	4487074	459111	46.3					Kohler, 1979
951	WS-04	Coleman Hot Spr.	S	(D-03-04)27baa	40.5353	111.4828	4487074	459111	45.5		F	340.7		WATSTORE
952	WS-05	unnamed	S	(D-03-04)27bad	40.5320	111.4810	4486707	459261	39.8			568.0		Baker, 1970
953	WS-06	Johnson Well	W	(D-03-04)27bdc	40.5308	111.4844	4486579	458975	21.1					Kohler, 1979
954	WS-07	GW No. 1	W	(D-03-04)27bdd	40.5304	111.4816	4486533	459210	24.4					Kohler, 1979

ID	MAP NO.	SOURCE NAME	TP	LOCATION	LATITUDE	LONGITUDE	UTM.N	UTM.E	TEMP (°C)	DEPTH (m)	STA	FLOW (L/min)	LEVEL (m)	REFERENCE
955	WS-08	unnamed	S	(D-03-04)27cbd	40.5250	111.4867	4485711	458663	31.0					Kohler, 1979
956	WS-09	Whitaker Hot Spr.	S	(D-03-04)34adb	40.5174	111.4755	4485085	459719	43.6					Kohler, 1979
957	WS-10	GW No. 3	W	(D-03-04)35bba	40.5214	111.4669	4485526	460451	43.3					Kohler, 1979
958	WY-01	Bureau of Land Mgmt.	S	(D-27-08)11dac	38.4733	111.0122	4258124	498936	23.0					WATSTORE
959	WY-02	unnamed	W	(D-28-03)26cda	38.3425	111.5517	4243755	451787	21.5	86.9				WATSTORE
960	WY-03	Garkane Power	W	(D-28-08)29dcb	38.3410	111.0700	4243446	494057	24.0	232.0		11772.0		Goode, 1978
961	WY-04	Fed. Aviation Admin.	W	(D-28-11)16dad	38.3722	110.7128	4246945	525088	22.0	106.7	F	13.6	-6.3	WATSTORE
962	WY-05	Bureau of Land Mgmt.	S	(D-29-10)22ccb	38.2675	110.8219	4235304	515580	20.0		F	3.6		WATSTORE
963	WY-06	Cow Wash Spr.	S	(D-30-11)05dbc	38.2256	110.7383	4230672	522907	21.0			379.0		Goode, 1978
964	WY-06	Cow Wash Spr.	S	(D-30-11)05dbc	38.2256	110.7383	4230672	522907	23.0		F	378.5		WATSTORE

APPENDIX B
WATER CHEMISTRY INFORMATION FOR GEOTHERMAL WELLS AND SPRINGS IN UTAH

asterisk denotes chemical analysis NOT following the heierarchy:

Na > K > Li
Ca > Mg > Sr > Ba
Cl > F > Br > I

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
1	BE-01	7.7	35	8.7	43.0	14.0	0.280	71		0.1	118.0	44.0	42	3.10		248	125		
2	BE-02	10.0	3460	225.0	26.4	12.0		180	0.8		1322.0	1280.0	2450	4.70	9405	8108	135		
3	BE-03	7.7	23	3.0	85.0	16.0		42			196.0	27.0	97	0.20	397	348	101		
4	BE-04	7.7									264.0		3200			3330			
5	BE-04	6.1	1620	260.0	120.0	25.0		46		21.0	300.0	7.8	3640	2.50		5823	79		
6	BE-05	7.9	2500	490.0	22.0		0.040	310	4.0		1560.0	73.0	4200	7.50	7840	8060	84		
7	BE-05	7.9	2500	488.0	22.0			146	38.0	0.3	156.0	73.0	4240	7.50	7800	7407	98		
8	BE-05	8.5	2100	470.0	19.0	3.3	0.040	400	3.0		42.0	65.0	3800	7.10	7040	6485	95		
9	BE-05	5.6	1800	260.0	110.0	22.0		165			298.0	110.0	3150	3.50		5602	96		
10	*BE-06	9.4	910	17.0	97.0	125.0	0.310	24		6.5	326.0	14.0	1900	0.96		3225	93		
11	BE-07	7.8	65	2.0	100.0	25.0		26			254.0	52.0	130	0.18		499	111		
12	BE-08	7.8	18	5.0	50.0	10.0		48			167.0	40.0	53	0.36		258	83		
13	BE-09	8.1	15	3.0	48.0	8.0		14			169.0	12.0	19	0.24		188	106		
14	BE-10	6.2	2200	410.0	6.9	0.1		383	28.0			60.0	3650	4.80		6332			
15	BE-10	5.9	2150	390.0	9.2	0.6		229	29.0			78.0	3650	5.20	6614	6283			
16	BE-11		2320	461.0	8.0		0.030	263	29.9	25.3	232.0	72.0	3860	6.80	7504	6842	99		
17	BE-11		2320	461.0	8.0	2.0	0.030	263	29.9	25.3	232.0	72.0	3860	6.80	7504	6844	99		
18	BE-12	5.8	1950	400.0	7.0	0.1		590			200.0	61.0	3400	5.70		5922	94		
19	BE-13	7.3	1780	440.0	69.1	1.0	0.370	178	28.2		485.0	120.0	2860			5509	101		
20	BE-14	7.5	2000	400.0	12.2	0.3		244	27.2	16.0	181.0	32.0	3260	6.80	6444	5800	102		
21	BE-14	7.5	2000	400.0	12.2	0.3		244	27.2	16.0	181.0	32.0	3260	5.30	6444	5799	102		
22	BE-15	7.3	1900	218.0	114.0	3.9	6.900	67	27.0		550.0	86.0	2885	3.40	5727	5488	102		
23	BE-15	6.8	1900	216.0	107.0	4.0	6.300	65	27.0		615.0	85.0	2880	3.60	5677	5504	101		
24	BE-16	7.9	74	8.4	20.0	6.4		70	0.2		220.0	31.0	17	1.20	316	266	104		
25	BE-16	7.9	74	8.0	20.0	6.4		70	0.2		220.0	31.0	17	1.20	316	266	104		
26	BE-17	7.6	28	1.0	48.0	28.0		14			272.0	15.0	58	0.29		312	92		
27	BE-18	7.8	63	3.0	47.0	19.0	0.010	25	0.2		87.0	60.0	150	0.20	413	385	97		
28	BE-19	8.2	62	2.8	13.0	5.8		35			160.0	40.0	16	0.60	253	219	99		
29	BE-20	8.0	29	2.2	33.0	5.7		27			134.0	25.0	33	0.60		194	94		
30	BE-21	8.0	67	3.2	89.0	37.0	0.008	25			136.0	240.0	83	0.41		586	109		
31	BE-22	8.1	85	2.7	47.0	21.0	0.008	29			142.0	135.0	75	0.78		436	108		
32	BE-22	8.0	88	3.0	61.0	31.0	0.010	31	0.2		156.0	190.0	100	0.90	580	551	101		
33	BE-23		56					34			164.0	37.0	10	1.00		185			
34	BE-24										141.0		14		83	83	194		
35	BE-25	7.8	45	3.0	14.0	7.0	0.090	32	0.1		132.0	28.0	26	0.60	211	189	95		
36	BE-26	7.4	100	5.0	120.0	73.0	0.010	44	0.3		204.0	360.0	200	0.50	1020	959	99		
37	BE-26	7.9	32	3.0	55.0	30.0	0.030	32	0.1		96.0	130.0	79	0.40	414	377	102		
38	BE-27																		
39	BE-28	8.0	21	2.9	25.0	8.3	0.006	32			96.0	20.0	14	0.65		139	122		
40	BE-29	7.9	72	4.9	64.0	23.0		45	0.2		200.0	130.0	86	0.90		479	99		
41	BE-30	7.7	40		27.0	9.0		38			140.0	44.0	19		249	208	102		
42	BE-30	7.1	93	10.0	280.0	68.0	0.020	48	0.2		304.0	620.0	230	0.30	1510	1451	97		
43	BE-30	7.7	40		27.0	9.0		38			144.0	44.0	19			210			
44	BE-31																		
45	BE-32	7.7	76	1.0	80.0	47.0	0.600	61	0.2		265.0	40.0	220	0.60	720	596	98		
46	BE-33	7.7	28	1.0	103.0	18.0		46			267.0	14.0	77	0.10		372	114		
47	BE-34	7.9	20	8.0	31.0	5.0	0.010	75	0.1		121.0	41.0	6	0.80	247	171	100		
48	BE-35												20		20	20			
49	BE-36	7.9			107.0	39.0		69			498.0	93.0	75		713	628	70		
50	BE-37										293.0	35.0	40		184	219			
51	BE-38	7.5	38	6.0	120.0	25.0	0.010	38	0.1		244.0	87.0	130	0.30	576	526	103		
52	BE-39																		
53	BE-39	8.1	37	3.1	18.0	7.8	0.007	29			97.0	39.0	11	0.52		164	119		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
54	BE-40	7.7	190		110.0	23.0		32	0.4		230.0	480.0	65	3.30	1030	1017	398		
55	BE-41	7.4	170	19.0	100.0	23.0		33		0.2	214.0	460.0	58	3.00		938	100		
56	BE-41	8.3	170	18.0	110.0	24.0	0.020	31	0.3		220.0	480.0	65	9.80	1030	985	99		
57	BE-41	7.7	178	15.0	110.0	20.0		32		0.2	221.0	400.0	83	2.60		917	106		
58	BE-41	7.4	170	17.0	88.0	35.0		32	0.5		228.0	440.0	63	4.50	1020	962			
59	BE-42	8.3	160	0.5	12.0	4.1	0.190	10	0.2		251.0	69.0	90	1.40	475	461	97		
60	BE-43	8.0	49	2.8	79.0	13.0	0.010	40	0.1		308.0	25.0	60	0.30	421	381	99		
61	BE-44	7.5	38	5.0	34.0	8.8	0.010	47	0.1		144.0	50.0	25	0.30	291	232	102		
62	BE-45	8.2	65	2.3	7.3	1.2		46	0.2		117.0	34.0	36	0.90		204	91		
63	BE-46	7.0	371	50.0	69.0	10.0	0.040	84	1.0	1.2	401.0	460.0	222	6.00	1495	1385	96	-118.0	-14.3
64	BE-46	8.1	360	49.0	83.0	9.7	0.130	110	0.6		384.0	480.0	210	14.00	1500	1395	98		
65	BE-46	7.4	379	51.0	85.0	10.0	0.040	89	1.0	1.2	401.0	475.0	220	5.60	1518	1423	100	-118.0	-14.3
66	BE-46	6.6	378	51.0	77.0	10.0	0.030	87	1.0	1.2	392.0	474.0	222	6.50	1524	1411	99	-118.0	-14.3
67	BE-46	6.8	378	52.0	78.0	10.0		87	1.0	1.3	401.0	476.0	222	6.50	1564	1420	98	-118.0	-14.3
68	BE-46	8.0	380	52.0	71.0	10.0	0.020	113	0.9	1.3	360.0	480.0	225	6.60		1402	99	-118.0	-14.3
69	BE-47	8.0	380	52.0	71.0	10.0		113			360.0	480.0	255	6.60		1432	96		
70	BE-47	7.6	390	54.0	70.0	10.0		72		1.5	324.0	260.0	190	4.70		1138	140		
71	BE-47	8.0	360	53.0	73.0	9.0	0.008	111		1.4	344.0	404.0	200	5.40		1274	108		
72	BE-47	7.4	360	47.0	76.0	12.0		10	0.9		374.0	460.0	210	14.00	1490	1363	100		
73	BE-48	7.8	73	5.0	110.0	42.0		16		0.1	188.0	160.0	184	0.50		667	105		
74	BE-49	7.7	340	19.0	190.0	69.0		60		0.3	320.0	140.0	1510	0.91		2426	59		
75	BO-01		29000	1500.0	1200.0	500.0			1.1	14.0	73.0	2200.0	50000		87000	84436	96		
76	*BO-02		67000	4300.0	1200.0	1400.0			3.5	38.0	190.0	2300.0	110000		192000	186293	101		
77	*BO-03		98000	6900.0	2200.0	2400.0			2.5	69.0	110.0	3300.0	170000		288000	282854	97		
78	BO-04	7.7	1300	41.0	95.0	75.0	0.480	14			175.0	230.0	2200	0.60	4050	4028	98		
79	BO-05	7.7	440	9.8	81.0	36.0		13	0.1		242.0	76.0	750	0.40	1520	1512	98		
80	BO-06	7.2	110	17.0	41.0	5.6	0.360	39	0.4		430.0	6.0	22	1.00	474	414	99		
81	BO-07	7.9	216		75.0	10.0		16			169.0	8.5	390		866	783			
82	BO-07	7.9	65	3.0	10.0	1.0	0.140	15	0.1		133.0	8.0	41	0.40	210	194	99		
83	BO-07	7.9	220		75.0	10.0		16			170.0	9.0	390		866	788	101		
84	BO-08	7.5	6580	935.0	1020.0	39.0	0.314	35	3.1	7.9	182.0	201.0	12700	4.30	21600	21569	99		
85	BO-09	7.8	90		18.0	1.5		61			279.0	0.8	12		327	259			
86	BO-10	7.8	49	6.8	21.0	4.4		28	0.1		193.0	4.5	10	0.50	221	191	104		
87	BO-11	7.7	140	27.0	41.0	3.6	0.120	21	0.5		330.0	3.0	160	1.20	560	538	91		
88	BO-12												13100		24900	13100			
89	BO-13	7.2	340	65.0	200.0	72.0	0.010	53			681.0	0.5	730	0.20	1980	1743	101		
90	BO-14	7.7	1180	43.0	92.0	54.0		15	0.6		246.0	176.0	1950	1.00	3750	3617	98		
91	BO-15		1000		56.0	62.0					1620.0	14.0	1100		3350				
92	*BO-15		1000	110.0	56.0	62.0					1620.0	14.0	1100		3350	3139	94		
93	BO-16																		
94	BO-17	7.7	3900	160.0	94.0	45.0		80	0.6		452.0	170.0	6200	1.20	10800	10792	98		
95	BO-18	6.4	11000	670.0	920.0	360.0	0.010	54			528.0	59.0	21000		34600	34269	94		
96	BO-18	7.1	10000	500.0	660.0	440.0	0.020	42	3.3		440.0	160.0	18000	1.80	30100	29978	99		
97	BO-19																		
98	BO-20																		
99	BO-21																		
100	BO-22	7.0	13000	450.0	630.0	230.0	0.800	28	0.4		400.0	500.0	22000	1.50	37000	37009	98		
101	BO-23	7.5	96	23.0	82.0	33.0	0.040	66	0.1		176.0	38.0	260	0.80	852	619	105		
102	BO-24	7.6	77		63.0	21.0		19			184.0	29.0	162		501	442			
103	BO-25																		
104	BO-26																		
105	BO-27	7.6	25	5.7	50.0	8.3		47			154.0	18.0	50	0.40	304	233	102		
106	BO-28																		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
107	BO-29	7.1	15800	720.0	840.0	130.0	4.700	22	5.0		400.0	300.0	28100	1.50		46093	94	-110.0	-13.1
108	BO-29		15000	790.0	830.0	230.0		32			479.0	480.0	26000		43600	43566	97		
109	BO-30																		
110	BO-31																		
111	BO-32	7.5	13		44.0	14.0		24			184.0	29.0	9		248	200			
112	BO-33	7.8	90	6.0	48.0	20.0		5	0.1		180.0	60.0	150	0.24		463	96	-143.0	-16.0
113	BO-34																		
114	BO-35	7.1																	
115	BO-36																		
116	BO-37	8.2	54		81.0	12.0					250.0		100		477	370			
117	BO-38	6.5	1527	82.0	160.0	76.0		37	0.6	0.5	376.0	327.0	2460	1.40	4724	4818	100		
118	BO-39	8.5	27	1.7	36.0	8.0		14			108.0	15.0	57	0.20	223	198	99		
119	BO-40	7.6	620	22.0	84.0	43.0		17			320.0	65.0	1000	1.00	2120	1992	101		
120	BO-40	7.6	1900	65.0	155.0	60.0	0.100	17	0.6		265.0	60.0	3400	1.00		5771	95		
121	BO-41																		
122	BO-42	7.2	2900	120.0	220.0	70.0	0.220	29			360.0	98.0	4800	0.40	8420	8386	101		
123	BO-42	7.7	2800	130.0	205.0	60.0	0.100	24	1.0		300.0	100.0	4700	1.40		8144	100	-113.0	-15.3
124	BO-43	7.7	685	24.0	60.0	19.0		20	0.2		260.0	50.0	1000	2.40		1968	104	-134.0	-16.1
125	BO-43	7.9	636	22.0	56.0	24.0		19	0.2		329.0	84.0	895	0.40	2010	1898	102		
126	BO-44	7.7	130	9.0	79.0	41.0	0.080	81	0.1		341.0	38.0	240	1.30	787	706	100		
127	BO-44	8.4	153		89.0	41.0					343.0		274		1010	726			
128	BO-45	7.6	35	11.0	73.0	21.0		60	0.1		150.0	19.0	140	0.30	448	373	105		
129	BO-46	7.4	614	21.0	95.0	39.0		26	0.3	0.2	250.0	60.0	752	1.40	2264	1705	132		
130	BO-47	7.2	106	13.0	50.0	27.0		89	0.2		242.0	111.0	62	0.80	614	489	120		
131	BO-48	7.2	102	12.0	85.0	25.0		87	0.2		167.0	47.0	223	0.40	774	577	110		
132	BO-49	6.7	740	26.0	180.0	70.0		49	0.2	0.2	217.0	83.0	1460	0.40	2744	2666	102		
133	BO-50	8.0	44	0.6	39.0	11.0		10			156.0	19.0	65	0.20	274	256	99		
134	BO-51	8.0	250	3.2	44.0	10.0		15	0.5		588.0	39.0	125	1.00	795	761	99		
135	BO-52	8.1	52	1.5	24.0	21.0		12	0.2		208.0	20.0	49	0.50	292	270	100		
136	BO-53	8.9	290	3.2	28.0	17.0		1	0.6		578.0	31.0	148	1.10	918	803	108		
137	BO-54	7.2	43	2.9	45.0	12.0		11	0.1		150.0	20.0	76	0.50	314	273	103		
138	BO-55	8.0	20	1.0	54.0	8.3		10			187.0	8.8	36	0.10	240	220	100		
139	BO-56	8.3	213		67.0	25.0					258.0		341		870	773			
140	BO-57	7.1	236	9.0	198.0	48.0	0.220	19		0.1	225.0	52.0	483	1.30	1034	1138	132		
141	BO-58	6.8	279	10.0	124.0	43.0	0.120	17		0.1	217.0	44.0	513	1.30	1148	1121	116		
142	BO-59																		
143	BO-60																		
144	BO-61																		
145	BO 62																		
146	BO-63	7.0	503	29.0	269.0	68.0		76		0.1	301.0	315.0	876	1.00	2434	2209	115		
147	BO-63																		
148	BO-63																		
149	BO-64	7.2	123		146.0	35.0		61			186.0	34.0	426		921	855			
150	BO-65	6.7	48	13.0	117.0	24.0		73			209.0	23.0	172	0.30	603	500	116		
151	BO-66																		
152	BO-67	6.6	133	14.0	84.0	34.0	0.060	71	0.2	0.1	275.0	44.0	289	0.40	870	734	96		
153	BO-68																		
154	BO-69																		
155	BO-70																		
156	BO-70	6.7	253	16.0	63.0	17.0	0.040	47	0.2	0.2	284.0	37.0	305	0.70	2072	831	113		
157	BO-71																		
158	BO-72	7.6	1070	56.0	87.0	19.0		29	0.8		352.0	78.0	1620	2.70	3240	3106	101		
159	BO-72	7.1	1111	73.0	82.0	17.0		33	1.0	0.9	351.0	63.0	1660	2.40	3168	3181	103		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
160	BO-73	7.9	247	5.7	60.0	25.0		41	0.1		259.0	40.0	375	1.00	938	881	101		
161	BO-74	6.8	159	5.0	76.0	33.0		19			326.0	44.0	303	1.20	764	781	91		
162	BO-75	7.1	179	5.0	78.0	34.0		17			275.0	37.0	311	0.90	774	780	103		
163	BO-76	7.3	120	5.0	94.0	46.0	0.040	19	0.1		180.0	28.0	360	0.10	762	742	100		
164	BO-76	6.8	138	4.0	97.0	41.0		23			267.0	35.0	359	0.20	846	805	94		
165	BO-77	7.1	540	42.0	400.0	110.0	0.020	79	0.1		130.0	46.0	1800	0.20	3090	3002	99		
166	BO-77	6.7	610	40.0	503.0	132.0		81		0.1	192.0	56.0	1980	0.90	5168	3416	105		
167	BO-77	7.3	452	32.0	369.0	92.0		77			144.0	35.0	1500	0.50	2640	2551	102		
168	BO-78																		
169	BO-79																		
170	BO-80																		
171	BO-81	7.8	31		70.0	17.0		63			181.0	20.0	99		432	326			
172	BO-82																		
173	BO-83																		
174	BO-84																		
175	BO-85																		
176	BO-85	6.9	509	9.0	69.0	28.0	0.690	25	0.2	0.2	225.0	54.0	793	0.40	1638	1574	103		
177	CA-01																		
178	CA-02																		
179	CA-03	7.4			56.0	26.0		17			327.0	16.0	12		336	288	82		
180	CA-04	7.5	18		55.0	21.0	0.010	28		0.1	306.0	10.0	6	0.30	293	261	97		
181	CA-05																		
182	CA-06																		
183	CA-07																		
184	CA-08																		
185	CA-09																		
186	CA-10																		
187	CA-11																		
188	CA-12	7.2	22	6.0	51.0	20.0	0.100	18			247.0	21.0	20	0.30	290	262	105		
189	CA-13	7.1	13	3.0	48.0	22.0	0.200	13			244.0	18.0	10	0.20	252	234	104		
190	CA-14																		
191	CA-15	7.6	18		52.0	20.0	0.010	20			261.0	18.0	11	0.20	261	248	101		
192	CA-16	6.8	204	4.9	42.0	36.0		13	0.4		286.0	1.0	342	0.10	789	784	98		
193	CA-17	7.7	95		55.0	17.0	0.670	27		0.1	374.0		98	0.30	469	450	93		
194	CA-18	7.2	81	5.0	56.0	19.0	0.600	48			340.0	2.0	100	0.80	478	432	95		
195	CA-18																		
196	CA-19																		
197	CA-20	7.2	68	3.0	51.0	16.0	0.100	57			308.0	2.0	76	0.80	424	368	95		
198	CA-21	7.9	107		128.0	53.0		24			250.0	1.0	400		1010	836	100		
199	CA-22	8.1	1140	71.0	34.0	30.0		81	2.7		622.0	1.0	1690	4.50	3360	3360	96		
200	CA-23	6.9	1300	78.0	79.0	30.0	0.300	69			580.0	2.0	2120	4.50	3784	3899	93		
201	CA-24		182	6.1	44.0	31.0		24	0.8		358.0	1.0	255	0.30	720	720	98		
202	CA-25																		
203	CA-26	7.2	110	4.0	89.0	29.0	0.800	33			236.0	1.0	298	0.20	766	648	95		
204	CA-27	7.2	110	5.0	130.0	56.0	0.300	24			233.0	2.0	440	0.20	1060	858	98		
205	CA-28	7.3	1500	130.0	130.0	41.0	0.200	20			501.0	58.0	2400	2.30	4466	4508	101		
206	CA-28	7.6	1400	110.0	132.0	46.0		23	0.7		548.0	71.0	2280	3.20	4380	4335	99		
207	CR-01	7.6																	
208	CR-02	8.2	17	3.0	91.0	26.0	0.020	10	0.1		400.0	25.0	6	0.30	373	365	103		
209	DA-01	7.9	451	7.8	194.0	61.0			0.3		144.0	112.0	1060		2200	1957	99		
210	DA-02														375				
211	DA-03	7.8	46		27.0	6.8		19			192.0	1.2	23		222	198			
212	DA-04	7.8	32		25.0	7.3		30			161.0	3.2	18		195	165			

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
213	DA-05																		
214	DA-06	7.5	57	2.0	29.0	3.8		28			220.0	3.0	18		251	221	102		
215	DA-06	7.9	60		30.0	3.4		26			230.0	1.0	20		267	227	100		
216	DA-07	7.8	110		20.0	3.9		26			300.0	2.0	40		354	323	100		
217	DA-07	7.8	111		20.0	3.9		26			301.0	2.0	40		354	325			
218	DA-08	7.6	250	2.1	26.0	4.4	0.480	32			79.0	22.0	370	4.40	752	718	103		
219	DA-09	7.2	36		41.0	17.0		18			269.0	1.0	21	0.20	272	248			
220	DA-10	7.8	170	5.0	48.0	11.0	0.390	42	0.1		170.0	10.0	290	0.60	660	619	96		
221	DA-10	8.0	360		68.0	21.0		30			170.0	24.0	630		1210	1187	98		
222	DA-10	7.7	202	4.8	51.0	21.0	0.340	35	0.2		187.0	12.0	350	0.50	783	734	100		
223	DA-11	7.6	15		75.0	21.0	0.030	11			296.0	38.0	17	0.20	325	312			
224	DA-12		2390	283.0	523.0	118.0		28			245.0	36.0	5100	0.60	8600	8599	99		
225	DA-12	8.4	2463	204.0	459.0	72.0		24	0.7	1.8	235.0	30.0	4640	1.00		7985	104	-140.0	-15.8
226	DA-12		2520	285.0	535.0	92.0		35			234.0	36.0	4370	0.70	9310	7954	118		
227	DA-13	7.6	8290	803.0	536.0	458.0		48			304.0	219.0	14400		27800	24855	107		
228	DU-01	7.4	23	4.4	85.0	27.0	0.020	16			190.0	180.0	24	0.90	454	438	100		
229	*DU-02	8.0	880	13.0	30.0	55.0		47			1256.0	1000.0	86	4.40	2760	2686	101		
230	EM-01	7.2																	
231	*EM-02	6.9	550	3.0	190.0	230.0	0.020	16	0.4		305.0	2000.0	130	0.40	3270	3253	104		
232	EM-03	8.0																	
233	EM-04	7.8	21	3.0	85.0	56.0		8	0.1		420.0	160.0	10	0.20	549	542	93		
234	EM-05	6.4	880	25.0	430.0	260.0	0.020	10	0.4		219.0	3300.0	230	0.80	5210	5234	103		
235	*EM-06	6.2	460	6.0	190.0	320.0	0.020	23	0.3		427.0	2000.0	120	0.30	3320	3306	107		
236	EM-07	8.8	950	5.0	10.0	6.7	0.030	7	0.5		463.0	1300.0	200	1.00	2610	2700	105		
237	EM-08		360		908.0	288.0			0.4		2840.0	1540.0	215		4710	4707			
238	EM-09	7.9	180	4.0	31.0	19.0		15	0.2		280.0	350.0	20		757	742	88		
239	EM-10		200	4.0	29.0	19.0		16	0.2		300.0	300.0	32		748	732	97		
240	GA-01	7.7	8	2.0	28.0	4.0		42			117.0	3.1	5	0.15		108	99		
241	GA-02	7.7	5	2.0	28.0	6.0		42			110.0	6.9	7	0.16		109	101		
242	*GA-03	7.2	188	43.0	50.0	80.0		180		0.1	1530.0	4.0	192	0.31		1310	60		
243	GA-04	8.4	23		5.0	1.0		26			61.0	11.0	4	0.38		74	99		
244	GA-05	8.2	35		35.0	6.3		50	0.1		186.0	14.0	16	0.30	218	198			
245	GA-06																		
246	GA-07	7.3	37				9.140					136.0	45	0.09	448	227			
247	GA-08		62	0.8	150.0	67.0		19	0.1		248.0	520.0	29	0.50	971	951	100		
248	GA-09	7.1	270	9.0	220.0	150.0		13	0.3	0.1	480.0	1400.0	22	0.40	2460	2307	93		
249	GA-10	8.2	21	2.6	57.0	6.8	0.090	35	0.1		206.0	14.0	30	0.50	268	233	97		
250	GA-11																		
251	GA-12																		
252	GA-13																		
253	GA-14	8.4	83	6.0	21.0	12.0		15	0.1	0.1	180.0	130.0	8	0.30	368	349	98		
254	GA-15	8.5	55	4.6	13.0	11.0	0.200	15	0.1	0.1	153.0	60.0	8	0.20	250	227	102		
255	GA-16																		
256	GA-17		20	2.9	36.0	28.0		17			197.0	38.0	24	0.40	268	246	107		
257	*GA-18		300	13.0	190.0	260.0		11	0.1	0.2	405.0	1800.0	15	0.40	2790	2778	99		
258	GA-19																	-121.0	-15.8
259	GA-20		520	11.0	360.0	130.0		16	0.1	0.2	152.0	2200.0	45	0.60	3380	3341	104		
260	GA-21																		
261	GR-01	8.3	530	4.0	11.0	4.0	0.100	10			335.0	160.0	560	0.60	1470	1434	97		
262	GR-02	7.6	290	5.0	48.0	18.0	2.100	11			445.0	400.0	30	0.80	1020	1013	101		
263	*GR-03	7.8	35	6.0	28.0	29.0		9			210.0	41.0	38	0.30	280	281	101		
264	GR-04	7.8	19	3.0	77.0	19.0		13			210.0	110.0	18	0.30	362	350	101		
265	GR-04	7.8	21	2.0	72.0	18.0		11			232.0	95.0	12	0.30	344	334	98		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
266	GR-04	7.5	21	3.0	82.0	22.0		12			220.0	130.0	20	0.10	400	386	100		
267	GR-05	7.6																	
268	GR-05	7.6																	
269	IR-01	8.1	20	5.0	78.0	21.0		36			346.0	16.0	29	0.28		339	97		
270	IR-02	7.7	28	5.0	35.0	6.0		58			170.0	0.8	28	0.32		187	99		
271	IR-03	8.2	21	2.6	57.0	6.8	0.090	35	0.1		206.0	14.0	30	0.50	268	233	97		
272	IR-04	8.1	40	5.0	25.0	6.0		52			155.0	8.9	11	0.34		172	118		
273	IR-05	7.9	78	7.0	85.0	29.0		58		0.1	153.0	180.0	110	2.60		567	108		
274	IR-06	7.1	51		95.0	17.0		42			367.0	24.0	60	0.50	482	428	101		
275	IR-07	7.1	60		123.0	27.0		33			334.0	54.0	165	0.50	724	594	97		
276	IR-08	8.0	15	5.3	31.0	6.8		58			130.0	11.0	15	0.20	210	148	104		
277	IR-09	7.1	376	24.0	145.0	14.0	1.640	44	0.9	1.0	476.0	359.0	366	4.00	1556	1524	99		
278	IR-10	7.2	405	34.0	140.0	18.0	0.030	49	1.1	1.1	376.0	367.0	447	3.10	1760	1599	102		
279	IR-10	7.4	445	40.9	146.0	16.5	0.030	65	1.0	1.2	452.0	400.0	468	3.34	1796	1742	100		
280	IR-11	7.1	395	34.0	145.0	14.0	0.050	52	1.0	1.1	351.0	376.0	402	3.90	1730	1543	106		
281	IR-12	7.6	54	8.0	96.0	34.0	0.050	46	0.3		167.0	188.0	46	0.70	672	509	127		
282	IR-13	7.9	25	7.0	41.0	11.0	0.100	58			292.0	26.0	37	0.50	304	291	66		
283	IR-14	7.5	28	5.0	45.0	28.0		36	0.1		220.0	64.0	24	0.40	342	303	104		
284	IR-15	7.9	50	4.3	80.0	52.0	0.040	26	0.1		139.0	330.0	40	0.20	653	625	102		
285	IR-16														4000				
286	IR-17	9.1	148	3.0	5.0		0.060	54	5.3	0.2	259.0	40.0	26	34.00	446	383	116		
287	IR-18	7.7	37	10.0	57.0	9.0	0.010	71	0.2		194.0	80.0	25	0.50	389	314	98		
288	IR-19	7.4	120	4.0	40.0	6.9	0.010	53	0.3		204.0	150.0	44	1.70	520	467	102		
289	IR-20																		
290	IR-21	7.8	240	9.0	80.0	15.0		54	0.6		112.0	570.0	63	4.90	1080	1037	102		
291	IR-21	7.7	150	5.0	60.0	20.0		43	0.4		148.0	370.0	48	1.90	773	728	98		
292	IR-22	7.7	267		53.0	3.4		76			91.0	492.0	93		1040	681	24		
293	IR-23	7.9	250	11.7	64.4	5.5		63	0.6	0.3	104.0	478.0	76	4.70	1016	941	107		
294	IR-23	7.3	270	15.0	60.0	5.8	0.300	52	1.0	0.5		200.0	190	4.60		746	163	-114.0	-13.4
295	IR-24	8.0	273	15.2	64.6	0.8		79	0.3	0.5	58.0	569.0	69	7.30	1154	1028	105	-107.0	-14.2
296	IR-25																		
297	IR-26	8.0	290	17.0	78.7	0.7		69		0.6	44.0	637.0	104	6.30	1236	1156	100	-108.0	-14.3
298	IR-27	7.6	270	21.0	58.0	0.4	0.010	99	0.7	0.5	64.0	580.0	52	7.30	1120	1020	104		
299	IR-27	8.4	240	14.0	36.0	0.6	0.200	140	0.8	0.4		250.0	45	4.00		590	195	-121.0	-13.8
300	IR-28	7.8	31	4.1	47.0	30.0	0.020	51	0.1		180.0	140.0	12	0.30	408	353	101		
301	IR-29	7.7	34		47.0	28.0	0.020	54			178.0	137.0	12		403	346			
302	IR-30																		
303	IR-31	7.8	27	2.0	40.0	7.8	0.010	43	0.1		158.0	13.0	36	0.20	251	204	99		
304	JU-01	7.3	800	53.0	120.0	69.0	0.020	20	0.9		300.0	400.0	1200	1.10		2791	101		
305	JU-02	7.4	6400	170.0	650.0	270.0	0.230	25	2.8		202.0	1400.0	12000	1.60	21000	20991	90		
306	JU-03	7.7	470	36.0	136.0	26.0		20	0.8		312.0	340.0	630	2.00	1820	1814	101		
307	JU-03	7.8	510	45.0	115.0	60.0		22	1.2		270.0		960	0.50		1823		-129.0	-13.8
308	JU-04	8.0	470	43.0	95.0	55.0		19			313.0	380.0	640	1.40	1860	1838	99		
309	JU-05	7.3	480	45.0	100.0	54.0	0.020	19	0.9		310.0	390.0	670	1.20		1893	98	-111.0	-13.6
310	JU-06	7.3	490	42.0	100.0	58.0		22	0.6		310.0	390.0	650	1.20	1900	1884	101		
311	JU-06	7.5	460	39.0	95.0	53.0			0.9		294.0	340.0	600			1732	104		
312	JU-07																		
313	JU-08																		
314	JU-09	7.2	232		69.0	27.0		38			222.0	81.0	368		962	886			
315	JU-10	6.9	19		46.0	8.1	0.020	34			185.0	23.0	12	0.20	234	199	98		
316	JU-11	7.3	870	18.0	690.0	170.0	0.120	31	0.5		230.0	380.0	2500	2.90	4780	4744	105		
317	JU-12	7.6	1600	110.0	280.0	110.0	0.050	22	1.5		449.0	410.0	2700	0.80	5400	5432	103		
318	JU-13																		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
319	JU-14	7.3	410	12.0	180.0	82.0		36	0.4		293.0	500.0	690	0.50	2050	2019	97		
320	JU-14	7.3	360	14.0	180.0	95.0	0.020	9	0.4		280.0	430.0	660	0.30	1890	1877	102		
321	JU-15	6.3	870	3.0	360.0	54.0		54	1.0		146.0	670.0	1500	2.60	3590	3531	102		
322	JU-15	7.8	810	67.0	360.0	56.0		57	0.1		150.0	730.0	1500	3.00	4060	3600	99		
323	JU-15	7.4	860	58.0	360.0	54.0		66			150.0	720.0	1550	2.90		3679	100		
324	JU-15	7.3	740	51.48	410.8	57.41		89	1.41	1.17	161	710	1470	2.7	3670	3620.91	100		
325	JU-15	6.5	830	57.0	340.0	52.0	0.260	69	0.9	1.0	156.0	680.0	1500	2.50		3538	99	-126.0	-16.1
326	JU-16	8.2	240	8.0	11.0	7.3		20			140.0	78.0	280	1.20	694	694	99		
327	JU-16	8.3	320	2.0	20.0	8.9	0.050	23	0.5		146.0	230.0	290	1.20	968	944	102		
328	JU-17		650	23.0	110.0	72.0	0.020	52	1.1		360.0	300.0	980	0.40	2370	2312	101		
329	JU-18	7.5	190	3.0	140.0	67.0		35	0.2		530.0	150.0	270	0.20	1210	1081	107		
330	KA-01	7.9	2	1.0	61.0	23.0	0.010	11			317.0	21.0	2	0.20	277	266	88		
331	KA-02	7.1	11	4.0	44.0	15.0	0.020	11				52.0	11	0.20		137	287		
332	KA-03	7.3	430	9.0	150.0	120.0	0.180	15	0.8		390.0	1300.0	84	0.70	2310	2286	101		
333	KA-04	7.0	480	17.0	23.0	4.6	0.040	2			1329.0	8.0	35	3.60	1250	1225	99		
334	KA-05																		
335	MI-01	8.2	71		14.0	4.1		32			153.0	30.0	36		262	230			
336	MI-02	8.5	176		9.6	2.9		30			230.0	54.0	115		508	471			
337	MI-03	7.8	45	2.0	55.0	24.0		15	0.1		244.0	28.0	71	0.30		345	102		
338	MI-04	7.2	75	13.0	98.0	52.0	0.490	24	0.2			63.0	220	0.40	709	522	170		
339	MI-05	7.5	21		42.0	20.0		19			210.0	25.0	27		250	238	98		
340	MI-06		33	2.0	31.0	17.0		26	0.1		146.0	37.0	43	0.20	269	235	101		
341	MI-07	7.8	41		31.0	16.0	0.010	30			166.0	37.0	39		280	246			
342	MI-07	7.5	42	2.0	31.0	20.0		26			150.0	56.0	52	0.30	303	277	99		
343	MI-08	8.2	320	1.0	10.0	4.9	0.040	24	0.4		146.0	190.0	300	1.20	924	899	100		
344	MI-09	7.6	28	2.7	50.0	21.0		20			278.0	21.0	20	0.70	294	280	99		
345	MI-09	7.6	33	3.0	52.0	17.0		22			240.0	23.0	33	0.60		280	103	-121.0	-15.4
346	MI-09	7.6	29	3.7	50.0	18.0		21			250.0	29.0	26	0.70	300	300	97		
347	MI-10	7.2	31	2.0	29.0	18.0		26			158.0	25.0	45	0.20	255	228	98		
348	MI-11	7.2	20	2.0	24.0	16.0		25			146.0	14.0	29	0.20	202	177	98		
349	MI-11	7.7	22		32.0	14.0		29	0.3		178.0	10.0	20		209	186			
350	MI-12	7.9	19	2.0	26.0	18.0		25			160.0	13.0	24	0.20	208	181	102		
351	MI-12	7.5	19	1.8	24.0	18.0	0.030	24			154.0	13.0	24	0.20	202	176	102		
352	MI-13	7.1	41	2.0	21.0	15.0		34	0.1		122.0	27.0	28	0.30	248	194	122		
353	MI-14	8.0	17	3.0	19.0	18.0		33			171.0	5.0	16	0.30	1197	162	96		
354	MI-15	7.8	154		11.0	5.4		32			192.0	82.0	112		492	459			
355	MI-16	7.9	67		16.0	8.0		27			150.0	38.0	40		257	243	99		
356	*MI-17	8.3	18000	180.0	830.0	4700.0		11	16.0		200.0	18000.0	32000	8.70	73800	73817	94		
357	MI-18	7.9	119		11.0	1.9		32			210.0	39.0	57		363	331			
358	MI-19																		
359	MI-20	8.0	605		35.0	13.0		41			208.0	192.0	770		1760	1717			
360	MI-20	8.0	605		28.0	11.0		41			208.0	192.0	770		1760	1708			
361	*MI-21	8.5	190	2.0	6.0	5.2	0.030	31	0.3		248.0	65.0	130	1.40	553	522	99		
362	MI-22	7.3	380	30.0	72.0	42.0		23		0.4	260.0	310.0	460	1.00		1423	102	-111.0	-14.0
363	MI-22		350	37.0	71.0	38.0	0.030	23	0.6		266.0	330.0	450		1430	1407	95		
364	MI-23																		
365	MI-24																		
366	MI-25	7.3	54	5.0	66.0	30.0		18		0.1	290.0	66.0	71	0.60	454	435	101	-109.0	-14.1
367	MI-35																		
368	MI-26	8.1	53	3.0	18.0	9.9	0.010	31	0.1		171.0	29.0	15	0.40	245	212	106		
369	MI-27	7.3	51		15.0	9.2		29			140.0	22.0	33		227	199	101		
370	MI-28	8.1	80		14.0	4.9		34			154.0	40.0	43		292	258			
371	MI-29																		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
372	MI-30	7.8	80		22.0	12.0		42			253.0	27.0	32	3.00	339	300			
373	MI-31	7.7	82	14.0	24.0	17.0	0.030	54	0.3		280.0	40.0	40	1.70	412	356	99		
374	MI-32	7.8	75		8.0	4.4		30	0.1		183.0	16.0	24		248	217			
375	MI-32	7.0	59	2.0	9.0	4.8		31	0.1		158.0	16.0	27	0.50	228	196	93		
376	MI-33	8.2	73	2.0	10.0	4.6		33	0.1		171.0	20.0	30	1.40	258	225	100		
377	MI-34																		
378	MI-35	8.2	77		21.0	2.7		35			160.0	37.0	42	0.20	281	217	28		
379	MI-35	8.0	75		17.0	7.1		13			156.0	44.0	43		277	263			
380	MI-36	8.1	69		14.0	6.4		38			160.0	20.0	43	0.50	273	232	99		
381	MI-37		190	1.0	6.0	2.3		32	0.6		293.0	53.0	140	1.80	581	538	89		
382	MI-38																		
383	MI-39	7.9	950		50.0	27.0		28			150.0	290.0	1300		2680	2691	101		
384	MI-40																		
385	MI-40	7.7	200	18.0	69.0	35.0		22	0.4		239.0	240.0	240	1.10	913	921	98		
386	MI-41																		
387	MI-42																		
388	MI-43																		
389	MI-44														2300				
390	MI-45	7.7	222		60.0	22.0	0.010	32			326.0	57.0	280		834	801			
391	MI-46							32											
392	MI-46	8.3	81	2.0	9.0	4.5		33	0.2		190.0	20.0	28	0.80	272	239	101		
393	MI-47	8.0	791		22.0	16.0	0.220	36			288.0	387.0	850		2250	2208			
394	MI-47	8.2	780	3.0	20.0	11.0	0.340	30	3.6		273.0	380.0	830	2.00	2200	2161	100		
395	MI-47	8.0	660	3.0	17.0	12.0	0.170	29	3.3		280.0	140.0	830	2.10	1840	1802	99		
396	MI-48																		
397	MI-49																		
398	MI-50	6.9	23	2.0	28.0	11.0	0.010	14	0.1		163.0	10.0	20	0.10	189	174	97		
399	MI-51																		
400	MI-52																		
401	MI-53	7.5	29	4.0	76.0	39.0		20			317.0	26.0	82	0.10	457	412	103		
402	MI-54																		
403	MI-55																		
404	MI-56																		
405	MI-57																		
406	MI-58	6.8	370	27.0	180.0	110.0	0.020	21			532.0	450.0	670	0.70	2090	2069	94		
407	MI-59																		
408	MI-59	7.6	980	20.0	34.0	49.0	0.510	47	2.6		613.0	440.0	1100	0.70	2980	2926	97		
409	MI-60	7.9	130	10.0	41.0	26.0	0.120	27	0.4		191.0	87.0	200	0.40	616	588	95		
410	MI-61																		
411	MI-62																		
412	MI-63		77		55.0	48.0					228.0	139.0	121		553	552			
413	MI-64																		
414	MI-65		691		197.0	15.0		370				472.0	1063		3345	2438			
415	MI-66																		
416	MI-67																		
417	MI-68	6.9	270	22.0	280.0	94.0	0.080	18	1.0		317.0	740.0	480	0.40	2070	2042	99		
418	MI-69																		
419	MI-70	7.3	160	13.0	160.0	59.0		18	0.6		313.0	370.0	250	0.40	1190	1166	101		
420	MI-71																		
421	MI-72																		
422	MI-73	8.5	1100	5.0	4.0	4.0	0.050	24	4.6		458.0	670.0	970	3.80	3010	2982	99		
423	MI-74	7.7	18	2.0	48.0	10.0		14			170.0	9.6	68	0.13		239	82		
424	MI-75	7.2	260		260.0	73.0		15			310.0	650.0	410		1800	1805	100		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
425	MI-76	7.3	5		53.0	9.0		12			194.0	4.7	12	0.12		179	99		
426	MI-77				464.0	95.0			15.0		392.0	1045.0	1830		4810	3642	39		
427	MI-78	7.0	1176	168.0	483.0	107.0	0.600	64			454.0	1400.0	2000			5558	95		
428	MI-79																		
429	MI-80	7.6	1000	16.0	420.0	97.0		44	4.2		310.0	1000.0	1700	5.30	5000	4391	98		
430	MI-80	6.7	1058	148.2	468.4	92.9	0.050	57	5.5	3.6	416.0	1090.0	1803	9.60	4967	4875	100	-124.0	-17.2
431	MI-81	7.7	1100	16.0	450.0	100.0		50	4.3		430.0	1000.0	1800	5.00	5130	4682	100		
432	MI-81	6.9	1000	130.0	480.0	94.0	0.040	48	5.2		415.0	1000.0	1800	3.80	4770	4712	100		
433	MI-81	7.5	1000	14.0	430.0	110.0		47	4.0		410.0	1100.0	1800	5.50	5120	4661	92		
434	MI-81	7.5	1020	13.8	433.0	114.0		47	4.0		408.0	1130.0	1800	5.50	4770	4768	93		
435	MI-81	6.6	980	140.0	525.0	95.0		52		3.4	441.0	310.0	2450	3.00		4720	96		
436	MI-82	6.8	1054	149.1	467.8	92.3		57	5.5	3.6	428.0	1090.0	1795	9.50	4913	4869	100	-122.0	-17.0
437	MI-83																		
438	MI-84	6.7			465.0	89.0		44			427.0	985.0	1780		4670	3573	39		
439	MI-84	6.7	890	160.0	420.0	89.0	0.520	37	5.1		411.0	940.0	1700	2.80	4450	4404	95		
440	MI-84	7.1	1041	137.0	438.0	86.0	0.300	48	3.5	3.0	425.0	1018.0	1790	3.80	4848	4723	98	-124.0	-16.6
441	MI-85	7.3	410	66.0	180.0	46.0		51	1.9		365.0	420.0	660	2.80	2040	1964	96		
442	MI-86	7.6	1280	130.0	230.0	130.0		12		4.4	326.0	670.0	2430	3.00		5033	92		
443	MI-87	8.8	2210	19.0	185.0	50.0		46		1.1	96.0	530.0	4080	6.60		7128	86		
444	MI-87	8.0	1400	14.0	150.0	49.0	0.070	54	0.5		208.0	360.0	2000	5.00	4100	4080	108		
445	MI-87	7.4	1292	13.0	150.0	49.0		100			248.0	300.0	2050		4080	4076	100		
446	MI-87	7.6	1200	14.0	135.0	48.0	0.300	60	0.4		190.0	400.0	2400	1.70		4292	79	-112.0	-14.6
447	MI-88	7.8	130	3.0	53.0	17.0		42		0.1	160.0	38.0	280	3.30		603	86		
448	MI-89	7.8	96	5.8	66.0	21.0	0.070	47			218.0	45.0	170			511	100		
449	MI-90	7.7	220	8.0	75.0	17.0		60	0.2		125.0	100.0	370	1.20		853	102	-114.0	-14.6
450	MI-91	7.6	220	8.0	90.0	21.0		64		0.1	140.0	98.0	830	2.80		1339	57		
451	MI-92	8.3	38	6.0	95.0	20.0		42			292.0	16.0	120	0.16		439	96		
452	MI-93	8.7	30	2.0	60.0	14.0		28			220.0	26.0	84	0.22		324	84		
453	MI-94	6.8	75	3.6	53.0	16.0	0.370	59			164.0	38.0	135			402	100		
454	MI-95	7.9	86	9.0	38.0	24.0		41			134.0	70.0	150	0.50	494	443	99		
455	*MI-96	7.4	1220	41.5	332.0	115.2		92	6.4	265.0	192.8	900.0	2060	2.50	4776	4766	100		
456	MI-97	7.4	355	56.2	74.4	19.2		65	0.2	1.2	244.0	187.0	502	1.03	1320	1315	100		
457	MI-98	7.1	59	6.0	34.0						142.0	20.0	67	0.50	316	256	95		
458	MI-99	7.8	23	6.0	63.0	10.0		50			181.0	22.0	28	0.13		241	121		
459	MI-100	6.3	20	6.0	62.0	12.0	0.540	49	0.2		196.0	42.0	43	0.24	332	282	96		
460	MO-01	7.4	34	8.4	109.0	31.0		19			250.0	231.0	28	2.00	622	566	99		
461	PI-01	7.7	8	2.0	85.0	9.0		14			167.0	140.0	4	1.80		332	93		
462	PI-02	8.2	28		25.0	3.0		28			133.0	16.0	15	0.61		153	92		
463	PI-03	7.7																	
464	PI-04	8.0	22	5.0	53.0	15.0		35	0.1		252.0	16.0	18	0.20	290	253	99		
465	SA-01	8.0	69	6.0	27.0	13.0	0.060	17	0.2		299.0	10.0	5	0.70	302	278	106		
466	SA-02	7.6	26	12.0	42.0	11.0		22	0.1		271.0	9.0	1	0.70	479	235	95		
467	SA-03	10.2	3600	77.0	1.0	0.1		15			9217.0	12.0	21	18.00	8280	8261	104		
468	SA-04		129		26.0	15.0		6			421.0	86.0	55	0.70	635	519			
469	*SA-05	8.3	200	10.0	39.0	64.0			0.3		617.0	110.0	150	0.60	854	877	97		
470	SA-06	8.3	94	3.8	38.0	19.0		13			310.0	71.0	34	1.10	429	426	101		
471	SA-06	8.1	81	1.7	37.0	23.0	0.020	12	0.2		316.0	75.0	42		446	415	92		
472	*SA-07	8.5	14	1.0	48.0	53.0		9			463.0	53.0	81	0.50		478	67		
473	SE-01	8.0	144	6.5	34.0	19.0	0.030	40		0.6	158.0	95.0	181	0.50	599	558	100		
474	SE-02	7.9	12	4.0	45.0	38.0		14			298.0	27.0	20	0.20	310	307	100		
475	SE-02	8.3	15	3.2	51.0	35.0		11			280.0	29.0	20	0.30	307	291	106		
476	SE-03	7.8	440	22.0	490.0	210.0		24		0.5	283.0	3030.0	170	0.76		4502	84		
477	SE-04	6.2	530	55.0	300.0	36.0	0.900	59	3.0	0.6	447.0	880.0	620	2.70		2644	98	-128.0	-17.0

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
478	SE-05	6.3	590	60.0	290.0	34.0	0.860	58	2.8	0.7	416.0	890.0	660	2.80		2732	101	-127.0	-17.0
479	SE-05	7.3	740	9.9	303.0	30.0		48		0.8	301.0	780.0	810	2.10		2823	113		
480	SE-06	7.4	44	1.5	70.0	15.0	0.014	32	0.1		175.0	163.0	14	1.80	428	395	100		
481	SE-07																		
482	SE-08	6.5	1450	50.0	260.0	44.0	0.270	90	4.9	1.9	408.0	1200.0	1700	3.00		4908	101	-133.0	-17.3
483	SE-09	7.5	13	1.0	35.0	8.5	0.060	9			117.0	20.0	15	0.20		150	110		
484	SE-10	7.5	26	4.0	100.0	41.0		11	0.1		430.0	24.0	72	0.30	489	479	100		
485	SJ-01	7.5	342		150.0	97.0		11			259.0	770.0	356		1860	1842			
486	SJ-02	8.1	290	5.0	7.0	3.0	2.300	12		0.4	610.0	63.0	84	1.20	766	755	98		
487	SJ-03	8.1	24	3.0	42.0	18.0	0.480	12			256.0	35.0	1	0.30	260	250	95		
488	SJ-04	7.9		3.0	44.0	18.0	0.320	12			232.0	26.0	1	0.20	227	207	86		
489	SJ-05	8.0	34	3.0	30.0	13.0	0.310	16			219.0	29.0	2	0.20	235	219	97		
490	SJ-06	8.4	5	2.0	16.0		0.010	10			91.0	4.0	2		86	74	65		
491	SJ-07	8.4	386		13.0	7.5		10			644.0	299.0	28		1070	1050			
492	*SJ-08		556		25.0	41.0		15			822.0	673.0	44	1.10	1760	1744			
493	SJ-09	9.1																	
494	SJ-10	8.8	190	1.0	2.0	0.5	0.010	11	0.1		421.0	55.0	15	0.50	482	471	99		
495	SJ-10	8.0	148		3.2	1.5		11			326.0	53.0	10		387	376			
496	SJ-11	7.7	660	13.0	20.0	10.0	4.400	11	1.5	1.0	930.0	170.0	470	1.30	1820	1806	96	-111.0	-14.8
497	SJ-12	7.5																	
498	SJ-13	7.5	950	19.0	32.0	12.0		11			975.0	290.0	750	1.40	2550	2534	102		
499	SJ-14	8.7	840	25.0	60.0	32.0	0.050	13	1.8		1094.0	360.0	520	1.60	2310	2377	106	-107.0	-14.0
500	*SJ-15	7.1	22000	430.0	5700.0	1300.0	0.850	25	32.0		88.0	830.0	48000	1.60	84700	78306	99	-79.0	-6.7
501	SJ-16		1350		54.0	20.0		16			2300.0	286.0	685	0.40	3550	3526			
502	SJ-17		927		27.0	12.0		13			380.0	1670.0	54	1.70	2890	2879			
503	SJ-18	7.7	3600	30.0	180.0	67.0		10			366.0	5000.0	2300		11400	11357	98		
504	*SJ-19	6.8	52000	1100.0	7700.0	1600.0	1.400	5	120.0		91.0	1100.0	110000	0.90	184000	173547	89	-42.0	2.2
505	SJ-20	7.0	24000	440.0	5800.0	1500.0	0.180	23	39.0		193.0	2000.0	48000	14.00	95000	81849	104	-68.5	-5.6
506	SJ-21	7.6	1100	15.0	35.0	13.0		12			1058.0	710.0	680	0.80	3090	3074	99		
507	SJ-22	8.5	780	5.0	4.0	2.5	0.160	8	0.3		918.0	820.0	110	3.70	2120	2177	97	-96.5	-13.6
508	SJ-23		58		84.0	13.0		16			238.0	126.0	42	0.40	460	440			
509	SJ-24		6		62.0	17.0		29			257.0	15.0	8	0.20	264	235			
510	SJ-25		119		421.0	147.0		19			174.0	1670.0	20	0.70	2490	2463			
511	SJ-26		313		20.0	14.0		17			466.0	230.0	110	1.20	944	917			
512	SJ-27		166		33.0	13.0		14			327.0	181.0	26	0.60	597	580			
513	SJ-28	7.8	38	2.0	10.0	6.1	0.110	17	0.1		128.0	10.0	4	0.30	145	133	111	-78.0	-9.5
514	SJ-29										130.0		6			69			
515	SJ-30	8.8																	
516	SL-01				62.0	14.0		64			214.0	2.0	535	1.30	1160	784	23		
517	SL-02	7.7	298	12.0	49.0	10.0	0.080	51	0.4	0.1	259.0		482	1.40	1047	980	92		
518	SL-03	7.4	4250	156.0	746.0	131.0		32	1.2		221.0	985.0	7470	3.30	13900	13883	101		
519	SL-03	6.1	4380	207.0	793.0	138.0		40			285.0	880.0	7900		14500	14478	100		
520	SL-03	7.6	4625	161.0	746.0	109.0	0.100	24	2.8	3.0	237.0	877.0	7570	2.90		14208	106	-129.0	-16.8
521	SL-03	6.4	5167	172.0	727.0	103.0	0.160	28	2.9	2.6	313.0	936.0	8150	2.90	15730	15412	107		
522	SL-04	6.9	3999	137.0	606.0	101.0	0.030	26	2.4	2.0	313.0	900.0	6660	2.50	13365	12559	102		
523	SL-05	7.8	3660		668.0	157.0		29			265.0	919.0	6440		12000	12003	100		
524	SL-06	8.0	2410	111.0	565.0	109.0		18	1.2		220.0	1090.0	4170	1.90	8590	8584	101		
525	SL-06	7.9	1558	52.0	339.0	69.0	0.140	12	0.9	0.6	263.0	643.0	2490	1.60		5282	104	-128.0	-16.0
526	SL-06	7.3	977	40.0	240.0	52.0	0.050	11	0.7	0.4	313.0	489.0	1781	1.50	4116	3734	91		
527	SL-07	7.7	73		57.0	17.0		23			173.0	134.0	63		452	379	57		
528	SL-08	8.2	170	2.0	12.0	7.3	0.140	24	0.5		304.0		130	2.00	498	473	100		
529	SL-08	7.7	170	4.0	12.0	3.8	0.060	32	0.3		256.0	1.0	140	1.70	491	458	102		
530	SL-08	8.1	147	3.0	11.0	3.0		24	0.3	0.1	292.0		134	2.10	522	444	84		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
531	SL-09	7.9									260.0	12.0	138		478	278			
532	SL-10	7.8	171		14.0	3.6		27			270.0	3.0	140		492	491	100		
533	SL-11	8.2	160	2.0	11.0	6.8	0.100	24			201.0	2.0	140	2.10	447	423	111		
534	SL-12	7.7	420		59.0	18.0		42			200.0	23.0	660			1278	101		
535	SL-12	7.8	470	12.0	70.0	21.0	0.900	48			185.0	8.0	840	1.50	1570	1514	96		
536	SL-12	7.7	416		59.0	18.0		42			200.0	23.0	664		1320	1320	100		
537	*SL-13	8.3	830	12.0	3.0	4.5	0.080	22	1.0		1091.0	130.0	500	4.60	2030	2021	106	-135.0	-17.5
538	SL-14	7.9	205	5.0	14.0	6.0	0.120	41	0.4	0.1	317.0		222	2.10	654	610	89		
539	SL-14	7.9	200		17.0	5.7		26			280.0	2.0	200			562	97		
540	SL-15	8.0	190		16.0	5.8		42			300.0	7.0	160			526	99		
541	SL-16	8.4	10200		1120.0	601.0		7			55.0	953.0	18800		31800	31708	100		
542	SL-17	7.7	297		49.0	29.0		23			184.0	3.0	518		1010	712	27		
543	SL-18	7.2	1320		218.0	100.0		28			112.0	95.0	2580		4400	4396	100		
544	SL-19	7.6	484	12.0	73.0	42.0	0.190	47	0.4	0.2	217.0	3.0	989	1.20	1950	1711	90		
545	*SL-20	7.8	3000	23.0	81.0	92.0	0.200	25	0.5		313.0	510.0	4100	1.20	8160	7962	108	-132.0	-17.0
546	SL-21	7.7	1000	19.0	180.0	60.0	0.460	53	0.5		166.0	45.0	1900	1.20	3570	3287	101	-133.0	-17.3
547	SL-21	7.4	990	17.0	180.0	57.0	0.510	34	0.5	0.3	234.0	42.0	2060	1.30	3812	3463	91		
548	SL-22	7.1	1020		200.0	58.0		41			180.0	57.0	1950		3420	3415	100		
549	SL-23	8.0	321	4.0	48.0	25.0	0.180	21	0.3	0.1	167.0	20.0	572	0.90	1160	1073	96		
550	SL-24	7.3	190	60.0	180.0	170.0	0.030	47	0.7		304.0	840.0	270	0.90	2080	1864	108	-106.0	-13.6
551	SL-25	7.4	84		55.0	15.0		25			170.0	130.0	74			442	100		
552	SL-26	8.1	100		48.0	32.0		53			160.0	130.0	140			529	101		
553	SL-26	7.3	150	7.0	73.0	52.0		54	0.1		171.0	220.0	260	0.40	905	846	99		
554	SL-27	7.4	36		48.0	16.0	0.150	17			295.0	81.0	36	0.40	374	363	70		
555	SL-28	8.0	604		104.0	55.0		27			122.0	94.0	1250		2240	2194	92		
556	SL-29	7.9	290	8.0	41.0	19.0	0.410	41			198.0	11.0	470	0.90	978	938	98		
557	SL-29	7.8	260		36.0	23.0		38			190.0	12.0	410			834	100		
558	SL-30	7.3	945		224.0	88.0		47			104.0	133.0	1950		3440	3438	100		
559	SL-31	7.8	810	15.0	230.0	130.0	0.560	24			65.0	29.0	2100	0.60	3370	3347	94		
560	SL-32	8.0	530	7.0	100.0	58.0	0.010	26	0.3		120.0	46.0	1100	0.50	2070	1901	97		
561	SL-32	7.9	520	8.0	110.0	55.0	0.230	30			106.0	35.0	1100	0.60	1910	1881	98		
562	SL-33	7.8	550	17.0	95.0	43.0	1.300	48	0.3		155.0	200.0	900	0.80	1990	1883	101	-125.0	-16.5
563	SL-34	8.0	270	26.0	31.0	21.0		11	0.3		244.0	130.0	310	0.70	984	909	101	-117.0	-14.9
564	SL-35	7.8	347		29.0	15.0		81			281.0	220.0	300		1140	1130	101		
565	SL-36	7.5	4330		435.0	195.0		18			273.0	254.0	7650		13800	13016	100		
566	SL-38	7.2	117	5.0	66.0	38.0		34			143.0	157.0	255	0.30	756	709	90		
567	SL-39	7.3	33		18.0	8.0		11			143.0	29.0	19	0.30	148	178	85		
568	SL-40	7.5	195		363.0	105.0		57			409.0	284.0	310		2370	1320	125		
569	SL-41	7.0	52	10.0	56.0	27.0	0.030	58			239.0	40.0	103	0.50	499	406	98		
570	SL-42	7.8	754	5.0	55.0	17.0	0.040	19	2.3	0.1	147.0	934.0	654	0.80	2609	2492	91		
571	SL-43	7.7	219	7.0	35.0	15.0		9	0.2	0.1	167.0	94.0	336	0.40	858	789	89		
572	SL-44	6.9	354	7.0	123.0	27.0		13	0.3		184.0	27.0	800	0.20	1688	1429	91		
573	SL-45	7.6	81	8.0	63.0	31.0		32	0.1		233.0	110.0	120	0.40	562	528	99		
574	SL-46	7.5	191	16.0	76.0	25.0		35	0.4		264.0	191.0	226	0.80	891	891	99		
575	SL-47	7.3	405	55.0	141.0	28.0		50			216.0	378.0	337		1500	1500	136		
576	SL-48	5.9	325	70.0	128.0	34.0		65			230.0	74.0	590			1334	114	-141.0	-15.9
577	SL-49	7.2	316	47.0	124.0	36.0		42	0.8	0.9	355.0	94.0	618	2.30	1560	1412	95		
578	SL-50	6.3	257	39.0	143.0	35.0	14.360	24	0.5	0.5	520.0	45.0	531	1.80	1308	1322	92		
579	SL-51	6.3	380	70.0	136.0	39.0		59			260.0	71.0	685		1660	1509	112		
580	SL-52	7.0	495	78.0	154.0	30.0	0.630	40	1.6		416.0	71.0	750	2.05	1754	1785	114		
581	SL-53	6.2	370	55.0	139.0	32.0	6.940	45	1.4	1.6	480.0	62.0	708	2.40	1700	1611	93		
582	SL-54	7.6	376	56.0	133.0	33.0		47	1.3	1.6	355.0	67.0	722	2.60	1710	1564	98		
583	SL-55	7.3	347	53.0	146.0	32.0		77	1.1	1.3	459.0	74.0	673	2.50	1720	1553	94		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
584	SL-56	7.6	32		65.0	23.0		24			250.0	40.0	57		365	364	100		
585	SL-57	7.7	24		63.0	25.0		21			248.0	30.0	57		373	318	83		
586	SL-58	7.6	120	12.0	74.0	44.0	0.020	25	0.2		270.0	180.0	150	0.70	740	713	103		
587	SL-59	7.3	26	7.0	46.0	17.0		19			191.0	24.0	60	0.40	310	274	94		
588	SL-60	7.8	48		111.0	32.0		13			304.0	199.0	38		609	590	101		
589	SL-61	6.9	39		82.0	31.0		9			330.0	135.0	67	0.30	554	517	82		
590	SL-62	6.9	45	3.0	97.0	31.0		11			382.0	139.0	79	0.30	618	582	82		
591	SL-63	7.3	121	4.0	21.0	8.0		11			142.0	20.0	160	0.40	422	404	97		
592	SL-64	6.8	220	28.0	252.0	69.0	0.220	19	0.3	0.4	400.0	736.0	350	0.60	2022	1853	89		
593	SL-65	7.2	267	18.0	59.0	11.0	0.370	24	0.5	0.4	295.0	58.0	400	0.80	1002	959	91		
594	SL-66	7.6	105	15.0	51.0	11.0		27	0.1		226.0	68.0	107	0.70	496	496	103		
595	SL-67	7.0	79	17.0	195.0	49.0	0.050	39	0.1	0.1	334.0	394.0	221	0.20	1242	1119	88		
596	SU-01	6.3	46	4.0	73.0	26.0	2.100	8	0.1		232.0	27.0	110	0.30	406	402	106		
597	SU-02																		
598	SU-03	7.6	38	2.0	290.0	64.0	0.020	31	0.1		302.0	770.0	32	0.40		1345	97		
599	SU-04	8.5	21	3.0	68.0	17.0	0.010	37	0.1		277.0	18.0	35	0.10	335	298	97		
600	*TO-01	7.3	849	39.0	78.0	102.0	0.930	24	0.5		158.0	146.0	1540	0.80	3070	2833	102		
601	TO-02	6.8	78000	3900.0	1800.0	1200.0						3900.0	150000		245000	238800	85		
602	TO-02	7.7	100000	2000.0	4500.0	760.0						2800.0	220000		240000	330060	74		
603	*TO-02	6.3	66000	3000.0	1400.0	2700.0						6100.0	110000		205000	189200	100		
604	*TO-03	6.5	79000	3000.0	1500.0	2200.0						6100.0	130000		236000	221800	99		
605	TO-04																		
606	*TO-05	7.0	80000	2000.0	1800.0	2000.0						5100.0	130000			220900	100		
607	*TO-07	7.0	57000	2600.0	1400.0	2800.0						4800.0	78000		157000	146600	123		
608	*TO-07	7.7	39000	1000.0	1300.0	2400.0						6000.0	81000		144000	130700	82		
609	*TO-08	6.8	93000	1700.0	1400.0	1600.0						4900.0	130000		218000	232600	113		
610	*TO-09	8.0	44000	1000.0	1500.0	2300.0						5600.0	100000		181000	154400	75		
611	*TO-10		100000	3800.0	1300.0	1900.0			1.9	32.0	38.0	4100.0	170000		297000	281119	95		
612	*TO-11		110000	6600.0	1200.0	4000.0			2.8	63.0	85.0	4100.0	150000		255000	275942	123		
613	*TO-12		100000	7700.0	1100.0	4900.0			4.9	73.0	160.0	5700.0	180000		313000	299479	96		
614	*TO-13		110000	8000.0	1100.0	4400.0			6.8	70.0	120.0	5400.0	180000		314000	308959	104		
615	*TO-14		100000	7900.0	1100.0	4700.0			4.7	68.0	150.0	5700.0	180000		314000	299474	96		
616	TO-15		71000	2600.0	1800.0	1200.0			2.2	21.0	57.0	4600.0	120000		204000	201228	96		
617	*TO-16		93000	7500.0	990.0	5400.0			6.6	71.0	170.0	7100.0	160000		304000	274074	101		
618	*TO-16		100000	7900.0	1000.0	5200.0			5.9	70.0	160.0	6300.0	180000		310000	300479	96		
619	*TO-17		63000	3800.0	1700.0	2400.0			3.4	33.0	120.0	6100.0	110000		195000	187059	96		
620	TO-18		24000	1800.0	330.0	330.0			4.0	11.0	200.0	1600.0	40000		70200	68158	97		
621	*TO-19		88000	3600.0	1200.0	1900.0			1.9	30.0	42.0	4500.0	150000		249000	249221	95		
622	TO-20	7.7	2200	130.0	91.0	71.0	0.030	41	1.0		180.0	240.0	3400	1.40	6260	6222	105		
623	TO-21																		
624	TO-22		4700	300.0	380.0	86.0			0.7	1.8	42.0	960.0	9100		15500	15547	85		
625	TO-23																		
626	TO-24																		
627	TO-25		89000	2000.0	1500.0	980.0			1.4	16.0	37.0	4600.0	140000		251000	238098	100		
628	TO-26		59000	3400.0	1300.0	1300.0			3.0	16.0	49.0	3200.0	96000		171000	164224	101		
629	*TO-27		48000	1900.0	780.0	990.0			1.1	17.0	66.0	2200.0	76000		133000	129902	103		
630	TO-28	6.9	3490	89.0	303.0	98.0		18			319.0	152.0	6000	0.60	10300	10307	100		
631	TO-28	6.9	3670	89.0	321.0	103.0	0.100	17			325.0	148.0	6280	0.60	10800	10772	100		
632	TO-29																		
633	TO-30																		
634	TO-31																		
635	TO-32	7.7	2250	105.0	130.0	80.0		15	0.8		175.0	300.0	4200	0.22		7151	89	-112.0	-13.8
636	TO-33																		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
637	TO-34																		
638	TO-35																		
639	TO-36																		
640	TO-37	6.8	49000	2500.0	1700.0	1600.0						5600.0	69000			129400	116		
641	*TO-38	7.2	37000	2500.0	2500.0	2800.0						5800.0	70000	9.20		120609	96		
642	*TO-39	6.9	51000	1800.0	880.0	1900.0						5700.0	70000			131280	117		
643	TO-40	8.5	50000	1900.0	1500.0	450.0						3000.0	78000			134850	103		
644	TO-41																		
645	TO-42																		
646	*TO-43	7.1	54000	3200.0	3000.0	3400.0						5700.0	99000	13.00		168313	98		
647	*TO-44	6.7	78000	2900.0	1700.0	2500.0						6600.0	98000			189700	129		
648	*TO-45	6.9	72000	2600.0	1300.0	2500.0										78400			
649	*TO-46		100000	5100.0	1300.0	2900.0			2.8	45.0	85.0	5200.0	170000		295000	284542	97		
650	TO-47		100000	8000.0	1100.0	5300.0			5.7	75.0	170.0	5800.0	180000		305000	300284	97		
651	*TO-48		110000	5700.0	1100.0	3400.0			3.9	51.0	75.0	5500.0	190000		329000	315737	96		
652	*TO-49		100000	9200.0	1100.0	5700.0			6.8	90.0	140.0	5300.0	180000		312000	301369	98		
653	*TO-50		95000	4200.0	1400.0	2100.0			2.6	36.0	53.0	4500.0	160000		280000	267226	97		
654	*TO-51		100000	8400.0	1200.0	4600.0			7.7	75.0	130.0	5000.0	180000		323000	299264	96		
655	*TO-52		110000	7000.0	1300.0	3000.0			6.8	55.0	60.0	4300.0	190000		328000	315630	96		
656	TO-53		110000	2400.0	1500.0	960.0			1.7	17.0	33.0	4100.0	180000		302000	298976	96		
657	TO-54		120000	2900.0	1400.0	1400.0			2.5	22.0	42.0	4000.0	190000		324000	319721	100		
658	*TO-55		110000	7000.0	1100.0	3900.0			6.6	61.0	120.0	5000.0	190000		321000	317059	97		
659	*TO-56		110000	7600.0	1100.0	4100.0			7.0	69.0	100.0	5100.0	180000		317000	307949	103		
660	TO-57	7.5	2000	120.0	79.0	63.0	0.010	42			212.0	190.0	3100	1.80	5700	5658	104		
661	TO-58		1100	66.0	49.0	39.0			0.7	0.9	190.0	180.0	2500		4330	4027	71		
662	TO-59																		
663	TO-60		2300	150.0	100.0	84.0			1.0	1.5	180.0	240.0	3700		6760	6663	103		
664	TO-61		3700	210.0	200.0	59.0			1.4	1.5	270.0	420.0	5000		9470	9722	117		
665	TO-62		2100	100.0	100.0	80.0				1.2		300.0	3700			6380			
666	TO-62		2700	130.0	160.0	110.0			1.2	1.8	180.0	340.0	4600		8740	8129	98		
667	TO-63		50800	2210.0	1650.0	1540.0				8.8		6840.0	80300			143340			
668	TO-64																		
669	TO-65																		
670	TO-66																		
671	TO-67	7.5	894		112.0	44.0		30			231.0	66.0	1520		2780	2750			
672	TO-68																		
673	TO-69	7.8									124.0		510			571			
674	TO-69																		
675	TO-70	7.1	300	9.0	120.0	54.0		28	0.2		230.0	88.0	650	0.40	1370	1334	99		
676	TO-71																		
677	TO-72		900	19.0	220.0	93.0		30	0.2		190.0	100.0	1900	0.50	3360	3326	99		
678	TO-72	7.6									208.0		1700			1802			
679	TO-73	7.7	204		74.0	34.0		28			252.0	91.0	332		889	859			
680	TO-74																		
681	TO-75																		
682	TO-76																		
683	TO-77																		
684	TO-78																		
685	TO-79																		
686	TO-80		9000	270.0	750.0	200.0		26	1.7		220.0	630.0	16000	1.00	27000	26959	96		
687	TO-80	7.5	8900	240.0	580.0	190.0		27	0.2		230.0	660.0	15000	1.70	26700	25685	99		
688	TO-80	7.7	7500	210.0	250.0	150.0	0.100	26	1.6		205.0	500.0	11800	0.34		20511	102	-107.0	-13.8
689	TO-80	7.5	8910	237.0	584.0	188.0	0.007	27	1.5		233.0	662.0	15000	1.70	25800	25697	99		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
690	TO-81																		
691	TO-82	7.5	200	19.0	40.0	16.0	0.030	52	0.1		206.0	31.0	295	0.60	774	703	101		
692	TO-82	7.7	231		46.0	16.0		62			206.0	35.0	337		822	766			
693	TO-84	7.7	210	20.0	36.0	15.0		55	0.1		183.0	41.0	300	0.50	770	712	102		
694	TO-84	7.9	160	17.0	28.0	12.0	0.010	52	0.1		190.0	32.0	210	0.60	605	553	100		
695	TO-85	7.3	1060	25.0	101.0	46.0	0.530	18	0.3		183.0	133.0	1790	0.10	3490	3246	98		
696	TO-86	7.8	1500	47.0	126.0	47.0	0.500	47	0.4		244.0	190.0	2420	0.20	4720	4451	100		
697	TO-87	7.3	1720	59.0	123.0	49.0	0.110	29	0.4		246.0	227.0	2700	0.70	5120	5000	101		
698	TO-88	7.7	314	8.2	180.0	96.0	0.010	15	0.2		232.0	163.0	840	0.20	1930	1715	99		
699	TO-89		70000	1900.0	1200.0	980.0			1.5	16.0	37.0	3600.0	110000		196000	187698	101		
700	TO-89		70000	1900.0	1200.0	980.0			1.5	16.0	37.0	3600.0	110000		196000	187698	101		
701	*TO-90		88000	11000.0	1100.0	6900.0			7.4		170.0	6500.0	160000		291000	273584	101		
702	*TO-91		100000	4700.0	1300.0	2600.0			2.2	44.0	88.0	5000.0	170000		292000	283643	96		
703	*TO-92		100000	6300.0	1200.0	4000.0			5.2	61.0	170.0	5700.0	170000		295000	287284	99		
704	*TO-93		96000	13000.0	1100.0	8000.0			8.1		210.0	6300.0	180000		314000	304503	100		
705	TO-94		47000	2100.0	1600.0	1500.0			13.0	21.0	135.0	5600.0	77000		136000	134866	100		
706	TO-95																		
707	TO-96																		
708	TO-97	8.0	7	3.0	39.0	21.0		15			150.0	38.0	18	0.10	216	200	107		
709	TO-98	7.0	87		62.0	6.0	0.750	44			219.0	30.0	93	1.30	397	388			
710	TO-99		1600	21.0	540.0	200.0	1.000	18	0.2		180.0	86.0	3900	0.10	6450	6437	98		
711	TO-100	7.3	1970	66.0	152.0	61.0	0.090	17	0.5		241.0	280.0	3150	0.40	5980	5798	101		
712	TO-101	7.8	2000	80.0	160.0	60.0	0.100	17	0.6		200.0	200.0	3500	0.61		6099	96	-114.0	-15.5
713	TO-101	7.2	1960	66.0	138.0	55.0	0.150	16	0.4		223.0	260.0	3090	0.30	5770	5679	102		
714	TO-102	7.1	14	0.9	23.0	5.4	1.200	11			90.0	10.0	26	0.20	137	125	93		
715	TO-103		1400	100.0	200.0	50.0				1.4		300.0	3700			5750			
716	TO-103	8.0	1698	125.95	190.02	72.55	0.03	35	1.02	1.58	300	278	3063	0.75	5693	5616.5	96		
717	TO-104	7.5	1600	110.0	130.0	56.0		28			290.0	250.0	2500		4820	4789	103		
718	TO-105	7.7	1400	110.0	140.0	60.0		28			300.0	240.0	2300		4430	4398	101	-124.0	-15.4
719	TO-106	7.8	112	11.0	48.0	28.0		19	0.2		162.0	98.0	188	1.40	586	566	98		
720	TO-106	8.0	110	11.0	58.0	24.0	0.880	20	0.2		174.0	90.0	179	1.00	594	559	101		
721	TO-107	7.4	73	11.0	51.0	21.0		17	0.1		170.0	55.0	124	1.60	438	420	104		
722	TO-108	7.8	47	2.8	46.0	38.0	0.120	14	0.1		237.0	35.0	106	0.30	412	392	99		
723	TO-109	7.3	7243	216.4	855.7	250.7	0.140	45	3.7	3.2	183.0	1389.0	12530	2.75	22740	22647	100		
724	TO-109	7.4	7090	18.0	741.0	224.0		33	6.0		178.0	1560.0	11900	4.00	21800	21664	98		
725	TO-109	7.2	7600	250.0	740.0	220.0	0.040	33	3.1		190.0	1500.0	12000	1.80	22400	22405	105		
726	TO-109	7.1	6800	20.0	735.0	220.0	0.500	34	3.2		140.0	1000.0	12500	0.78		21345	93	-127.0	-12.3
727	UI-01	8.7	130	3.0	4.0	1.7	0.250	7	0.2		293.0	61.0	3	0.60	355	348	98		
728	UI-02	7.9	320	6.0	360.0	140.0					207.0					928	1283		
729	UI-03		193		97.0	32.0		18			198.0	212.0	291		942	922			
730	UI-03	7.4	180	13.0	94.0	30.0		17	0.2	0.1	196.0	220.0	290	0.50	938	924	95	-124.0	-16.5
731	UI-04	7.8	39	20.0	103.0	28.0	0.340		0.3		386.0	244.0	104		731	727	67		
732	UI-05	8.1	52		85.0	27.0		19			238.0	227.0	4		532	512			
733	UI-06	7.9	198		155.0	38.0		20			340.0	519.0	108		1210	1185			
734	UI-07																		
735	UI-08																		
736	UI-09																		
737	UI-10	7.3	73	19.0	390.0	65.0		30			133.0	1200.0	66	1.60		1880	98		
738	UI-11																		
739	UI-12																		
740	UI-13	7.5	70	21.0	250.0	50.0		26			161.0	770.0	67	1.60		1309	98		
741	UI-14	7.4	171	27.0	192.0	43.0	0.050	20	0.4		270.0	681.0	116		1380	1363	97		
742	UI-15	7.7																-117.0	-15.4

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
743	UI-16	7.1	104		357.0	75.0		10			141.0	1150.0	80		1990	1835			
744	UI-16	7.6	91	23.0	367.0	69.0		24			139.0	1150.0	78	1.80	2000	1872	100		
745	UI-17	7.5																	
746	UI-18	7.5																	
747	UI-19	7.5																	
748	UI-20	7.5																	
749	UI-21												31000			31000			
750	UI-22	8.6	16600	62.0	2.0	1.2		12	360.0		5940.0	400.0	21500	46.00	41800	41532	101		
751	UI-23	7.5	41000	60.0		0.2	0.300		240.0	0.3	128018.0	3500.0	650	450.00	109000	108607	81		
752	UI-24	9.5	34000	39.0	3.0	1.0	0.320		180.0		96684.0	7400.0	3100	26.00	92300	92109	81		
753	UI-25	8.6	880	2.0	2.0	0.7	0.020	17	18.0	0.4	1756.0	18.0	350	28.00	2230	2144	98	-132.0	-16.9
754	UI-26	8.3	900	4.0	2.0	0.2	0.100	17	11.0	0.4	1590.0	110.0	380		2310	2178	100		
755	UI-26																		
756	UI-27	8.0	1400	5.0	2.0	1.0	0.060	17	18.0		1870.0	82.0	990	19.00		3419	101		
757	UI-28	8.5	3100	11.0	4.0	1.0		15	21.0	0.6	1950.0	100.0	3300	25.00	7880	7500	106		
758	UI-28	8.0	2600	10.0	3.0	0.9	0.060	15	18.0		2340.0	38.0	2600	21.00		6424	100		
759	UI-28	8.3	2400	11.0	2.0	1.2	0.090	15	20.0	0.6	780.0	140.0	3200		7860	6138	98		
760	UI-28	8.3	2400	11.0	2.1	1.2	0.090	15	20.0	0.6	779.0	140.0	3200	2.00	6190	6139	98		
761	UI-29	8.3	1200	4.0	3.0	0.9	0.060	16	4.9		2630.0	130.0	300	10.00		2941	96		
762	UI-30	7.8	420	1.0	1.0	0.9	0.210	16	0.8	0.3	890.0	32.0	82	4.40	1090	979	104		
763	UI-31	8.8	420	1.0	5.8	0.7	0.040	14	0.1	0.1	602.0	310.0	36	2.80	1140	1072	107		
764	UI-32	9.0	410	1.0	2.0	0.5	0.020	16	0.6	0.1	510.0	390.0	31	2.00	1150	1087	103		
765	UI-32	8.3	400	1.1	1.9	0.8	0.020	15	0.7	0.1	568.0	360.0	33	2.00	1100	1078	99		
766	UI-32		410	0.9	1.7	0.5	0.020	16	0.6	0.1	510.0	390.0	31	2.00	1150	1087	103		
767	UI-33	8.6	450	2.0	3.0	1.2	0.140	13	0.4	0.1	600.0	350.0	92	2.20	1260	1196	100	-133.0	-17.3
768	UI-33	8.8	390	1.0	1.0	0.5		12	0.2		524.0	390.0	22	1.10	1080	1063	98	-133.0	-17.3
769	UI-33	8.2	2300	10.0	9.0	5.3	0.160	10	3.2	0.5	1180.0	270.0	2900	4.90	6110	6080	94	-133.0	-17.3
770	UI-33	8.7	480	2.0	2.0	0.9	0.130	13	0.4	0.1	610.0	380.0	110	2.10	1320	1277	100	-133.0	-17.3
771	UI-34	8.3	420	1.0	3.0	0.4	0.020	14	0.8	0.1	740.0	290.0	23	3.80	1140	1105	98		
772	UI-34		420	1.1	3.4	0.4	0.020	14	0.8	0.1	742.0	290.0	23		1130	1103	98		
773	UI-34		430	1.0	1.9	0.7	0.040	13	0.9	0.1	693.0	300.0	22	4.70	1150	1101	103		
774	UI-35	8.3	390	1.1	1.9	0.2	0.020	14	0.5	0.1	574.0	350.0	27	2.00	1070	1054	97		
775	UI-35	8.9	390	0.9	3.0	0.2	0.030	14	0.5	0.1	498.0	380.0	25	2.10	1110	1046	102		
776	UI-35	8.3	390	1.0	2.0	0.2	0.020	14	0.5	0.1	570.0	350.0	27	2.00	1110	1052	98		
777	UI-36		360	2.0	5.0	0.7	0.170	12	0.3		620.0	260.0	13	1.20	958	947	100		
778	UI-37	8.6	340	1.0	5.0	1.8	2.100	8	0.1		370.0	400.0	7	0.50	948	939	104		
779	UI-38	8.0																	
780	UI-39	7.7	220	1.0	1.0	0.3		8	0.1		380.0	50.0	87	1.80	555	548	99		
781	UI-40	7.5							11.0										
782	UT-01	6.9	213		182.0	55.0		26			233.0	438.0	352		1380	1168	60		
783	UT-02	7.5			128.0	44.0		36			255.0	266.0	218		1060	817	63		
784	UT-03																		
785	UT-04	7.0	204		180.0	51.0		34			330.0	386.0	302		1320	1115	60		
786	UT-05	7.3	235		191.0	52.0		28			320.0	441.0	338		1440	1442	100		
787	UT-06	7.2	246		192.0	50.0		27			339.0	448.0	338		1570	1468	100		
788	UT-07	7.0	220	23.0	180.0	49.0	0.030	26	0.5	0.4	317.0	420.0	320	0.20	1440	1368	100	-124.0	-16.6
789	UT-08	7.1	229		179.0	55.0		21			317.0	413.0	343	1.80	1510	1169	57		
790	UT-09	6.7	225	23.0	186.0	48.0	0.080	25	0.4	0.3	367.0	424.0	329	2.10	1436	1418	97	-137.0	-16.0
791	UT-10	6.8	223	24.0	234.0	49.0	0.270	25	0.4	0.3	351.0	417.0	325	2.10	1446	1447	110	-137.0	-16.0
792	UT-11	6.8	225	23.0	193.0	48.0	0.140	25	0.4	0.3	376.0	422.0	339	2.00	1428	1437	97	-137.0	-16.0
793	UT-11	7.4	210	24.0	88.0	49.0	0.300	21	0.9		260.0	300.0	430	1.00		1230	80	-137.0	-16.0
794	UT-12		197		158.0	52.0		29			310.0	328.0	312		1990	1031	59		
795	UT-13																		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
796	UT-14	7.8	202	12.0	124.0	61.0		25				509.0	440		1670	1373	88		
797	UT-15	7.7	39	4.0	69.0	26.0	0.010	21	0.1		244.0	65.0	65	0.50	411	388	102	-126.0	-16.8
798	UT-16	7.7	35		75.0	25.0		21			240.0	70.0	66		421	375	80		
799	UT-17																		
800	*UT-18	8.0	216	21.0	49.0	59.0	0.050	25	0.4	0.2	284.0	239.0	280	0.55	1040	1004	98		
801	UT-19	7.7	130		76.0	37.0	0.010	20		0.2	287.0	100.0	210	0.60		695	98		
802	UT-20	7.7																	
803	UT-21	7.7																	
804	UT-22	7.4	176	14.0	104.0	44.0		54			208.0	133.0	400		1030	1027	96		
805	UT-23	7.9																	
806	UT-24	7.9	14	7.0	38.0	25.0	0.300	49			259.0	28.4	15	0.49	260	256	90		
807	UT-25	7.4	42	11.0	34.0	17.0	0.440	63			284.0	26.6	15	0.48	300	286	92		
808	UT-26	6.7	464	32.0	88.0	33.0	0.130	46	0.7	0.4	476.0	182.0	680	1.10	1724	1714	91		
809	UT-27	7.9	76	24.0	56.0	27.0	0.720	68	0.2	0.1	234.0	24.8	180	0.38	580	504	95		
810	UT-28	7.3	125	11.0	78.0	36.0		11	0.3	0.2	334.0	94.0	210	0.80	776	719	94		
811	UT-29	7.4	94	7.6	46.0	17.0		71			201.0	44.0	135		513	513	99		
812	UT-30	7.6	120	15.0	80.0	26.0	0.010	77	0.2		167.0	59.0	290	0.20	759	672	96		
813	UT-31	6.5	92	10.0	68.0	25.0		64	0.1		190.0	100.0	150	0.20	602	539	102		
814	UT-31	7.5	61	11.0	52.0	18.0	0.010	78	0.1		228.0	38.0	73	0.20	455	365	106		
815	UT-32	7.4	125	18.0	55.0	27.0	0.080	60	0.3	0.1	242.0	34.0	300	0.44	740	679	82		
816	UT-33	8.0	26	10.0	62.0	16.0					200.0	46.0	58		373	316	98		
817	UT-34	8.0	110	24.0	240.0	110.0					63.0	480.0	560		1560	1555	98		
818	UT-35																		
819	UT-36	8.0	36	9.9	73.0	24.0		62			190.0	55.0	86	0.50	491	378	111		
820	UT-37	8.4	185	32.0	180.0	85.0					120.0	155.0	686		1780	1382	101		
821	UT-38	8.0	1930	180.0	327.0	75.0		35	4.7		646.0	404.0	3310	2.20	6610	6546	98		
822	UT-39																		
823	UT-40																		
824	UT-41	7.7	20	1.1	59.0	26.0		11			278.0	59.0	18	0.40	278	320	95		
825	UT-42	7.3	260	26.0	236.0	59.0		17	0.6	0.5	351.0	499.0	460	1.90	1790	1714	98		
826	UT-43																		
827	UT-44	6.9	342		144.0	58.0		15			348.0	325.0	510		1570	1223	45		
828	UT-45	7.5	342		88.0	59.0		16			196.0	314.0	510		1430	1083	38		
829	UT-46	6.4	2100	180.0	400.0	140.0	0.990	18	2.6	3.1	830.0	790.0	3400	3.80		7423	101	-124.0	-16.0
830	UT-47	7.8	1840	159.0	276.0	114.0			2.3		610.0	700.0	2912		6644	6301	100		
831	UT-47	6.5	2100	190.0	390.0	130.0	0.990	19	2.6	3.1	840.0	800.0	3100	4.10		7128	107	-123.0	-16.1
832	UT-48	8.1	21		86.0	29.0		9			336.0	67.0	20		391	376	89		
833	UT-49																		
834	UT-50	6.4	1500	140.0	420.0	110.0	0.180	22	2.2	2.0	462.0	800.0	2500	1.20		5699	104	-124.0	-16.2
835	UT-51	6.7	690	73.0	190.0	59.0	0.010	20	1.1	0.9	546.0	460.0	1100	2.50	2700	2843	93	-120.0	-15.8
836	UT-52	7.6	1510	159.0	451.0	136.0		21	1.7		751.0	940.0	2530	2.80	6140	6098	100		
837	UT-52	6.6	1200	140.0	360.0	97.0	0.300	20	2.0	1.8	691.0	820.0	2200	2.90		5160	90	-123.0	-16.1
838	UT-53	6.3	1500	160.0	450.0	110.0	0.280	23	2.4	3.3	756.0	980.0	2600	3.00		6175	95	-124.0	-16.2
839	UT-54	6.3	1500	190.0	440.0	110.0	1.200	24	2.4	2.3	750.0	1000.0	2700	3.00	6680	6313	92	-122.0	-16.2
840	UT-55	7.7	83	7.0	55.0	28.0	0.130	20	0.2		493.0	28.4	55	0.40	500	499	86		
841	UT-56																		
842	UT-57	8.0	65	2.4	42.0	16.0		77	0.1		201.0	48.0	79	0.60	451	429	96		
843	UT-58	7.5																	
844	UT-59	6.9																	
845	UT-60																		
846	UT-61																		
847	UT-62	7.6	117	8.3	104.0	32.0		17	0.2		264.0	390.0	36	1.60	837	836	97		
848	UT-63	6.5	1950	117.0	533.0	81.0	0.170	35	1.9	1.3	660.0	984.0	1035	2.60	7112	5027	200	-123.0	-16.7

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
849	UT-63	6.6	970	70.0	262.0	43.0	0.030	31	0.9	0.6	509.0	1516.0	2580	2.90	3640	5694	53	-123.0	-16.7
850	UT-63	7.0	1350	93.0	155.0	60.0	0.100	15	1.5		415.0	800.0	2850	1.30		5513	71	-123.0	-16.7
851	UT-63	7.9	1680	10.0	469.0	80.0		30	1.4		542.0	1400.0	2320	3.60	6360	6261	100		
852	UT-64	6.7	1117	22.0	79.0	13.0		42	0.6	0.2	426.0	425.0	1300	1.40	3094	3167	103		
853	UT-65	7.1	351	20.0	93.0	37.0		22	0.2	0.2	317.0	95.0	1953	1.00	1298	2706	37		
854	UT-66	6.7	301	16.0	84.0	36.0		23			350.0	94.0	475		1200	1201	98		
855	UT-67																		
856	UT-68																		
857	UT-69	7.4	460	38.0	110.0	54.0	0.070	36	0.4		365.0	120.0	860	0.30	1860	1822	94		
858	UT-70	7.1	306	9.93	17.29	4.75	0.08	43	0.9	0.21	613	46	153	2.88	928	887	96		
859	WA-01	7.5	9	3.0	23.0	4.4	0.020	23			106.0	5.0	5	0.30	125	102	99		
860	WA-02	7.6	13		51.0	16.0		26			222.0	17.0	14		246	233	88		
861	WA-03	7.4	180	9.0	90.0	40.0	0.010	14		0.1	234.0	280.0	260	0.30	1000	974	93		
862	WA-04																		
863	WA-05	7.9	8		58.0	23.0		28			228.0	18.0	33		295	280	102		
864	WA-06	7.9	32	4.4	59.0	29.0		30	0.1		220.0	100.0	30	0.60	402	393	104		
865	WA-06	7.5	32	3.8	56.3	28.4		38			245.0	86.0	30	0.34	408	356	99		
866	WA-07	5.9	1587	120.0	740.0	130.0		27	2.4	1.6	1104.0	1802.0	2250	2.70	7388	7175	100		
867	WA-07	6.1	2130	167.8	760.1	156.1		27	4.8	2.4	1238.0	1841.0	3195	3.00	9075	8907	100		
868	WA-07	7.2	2530	220.0	643.0	128.0		28	4.8		721.0	1990.0	3620	2.60	9530	9521	102		
869	*WA-07	7.1	2090	170.0	75.0	140.0	0.100	24	5.6		1090.0	1500.0	3800	0.84		8312	70	-111.0	-13.1
870	WA-08	7.1	1033	107.0	417.0	79.0		24	1.3		598.0	937.0	1700	1.50	5060	4594	97		
871	WA-09	8.3	13	3.0	35.0	12.0	0.030	14	0.2	0.1	117.0	59.0	15	0.70	226	210	103		
872	WA-10	7.6	15	6.0	65.0	14.0	0.010	22	0.1		238.0	37.0	17	0.30	296	271	100		
873	WA-11	7.7	37	2.0	46.0	27.0		15			154.0	106.0	44	0.30	382	338	103		
874	WA-12	8.0	80	9.8	200.0	72.0			0.4		182.0	667.0	64	0.80	1180	1183	105		
875	WA-13	7.9	24		172.0	90.0		24			188.0	562.0	70		1300	1034	102		
876	WA-14	7.3	62	8.0	150.0	79.0	0.020	27	0.2		232.0	550.0	58	0.40	1060	1021	99		
877	WA-15	7.8	71	8.0	161.0	90.0		23	0.2	0.1	202.0	636.0	86	0.30	1284	1152	98		
878	WA-16	8.2	29		52.0	23.0		15			154.0	62.0	68	0.30	318	310	100		
879	WA-17		180	19.0	96.0	18.0		19	0.7		200.0	480.0	48	2.40	962	942	99		
880	WA-17	7.0	176	19.0	90.0	18.0	0.060	20	0.5	0.2	197.0	462.0	41	2.70	952	906	100		
881	WA-18	7.7	9	3.1	62.0	22.0		18			189.0	86.0	17	0.30	338	293	100		
882	WA-19		283	25.0	100.0	22.0			0.8		214.0	415.0	285	1.60	1240	1238	97		
883	WA-19	7.0	274	24.1	104.0	22.7		22	0.4	0.3	234.0	404.0	270	1.29	1248	1215	98		
884	WA-20	7.6	562		369.0	148.0		82	2.0		320.0	2150.0	150		3740	3620	101		
885	WA-21	6.6	442	19.0	260.0	102.0	0.380	16	0.7	0.3	380.0	1138.0	416	2.30	2740	2567	98		
886	WA-22	8.0	847	21.0	79.0	47.0	0.150	9	0.9	0.1	536.0	1640.0	170	1.50	3140	3069	94		
887	WA-23	7.7	130	16.0	550.0	140.0	0.010	14	0.6		116.0	1900.0	78	0.20	2890	2871	103		
888	WA-23	7.2																	
889	WA-23	7.4																	
890	WA-24	7.1	484	7.0	637.0	154.0		25	0.7	0.4	341.0	1930.0	694	0.30	4398	4074	100		
891	WA-25	7.8	501	12.0	155.0	125.0		17	0.6	0.2	167.0	1164.0	430	0.90	2646	2470	102		
892	WA-26	7.8	1110		581.0	365.0		17	1.6		296.0	2790.0	1560		6860	6570	100		
893	WA-27	7.3	340	29.0	110.0	19.0		20	0.2		226.0	350.0	39	0.10		443			
894	WE-01	8.1	7		32.0	8.0		11			135.0	10.0	6		140	140	99		
895	WE-01	7.2	12	2.0	14.0	5.5		13			74.0	10.0	10	0.20	104	90	101		
896	WE-02		16	2.0	53.0	14.0			0.1		202.0	25.0	19		259	228	104		
897	WE-03	7.6	20	3.0	56.0	17.0	0.010	16	0.1		266.0	22.0	21	0.20	291	270	95		
898	WE-04	8.3	44	2.0	47.0	10.0					173.0	54.0	35		287	277	103		
899	WE-05	8.0	74	1.5	12.0	3.9		18	0.1		208.0	1.5	26	0.30	238	221	100		
900	WE-06	7.6	19		65.0	16.0	0.010	12				32.0	23	0.10		155	409		
901	WE-07	7.8	20	2.0	44.0	12.0	0.560	19			190.0	18.0	13	0.20	222	203	106		

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
902	WE-08	7.5									133.0		30			95			
903	WE-09	7.4	990	56.0	146.0	68.0		8			132.0		1930	1.10	3600	3256			
904	WE-10	7.7									163.0		29			109			
905	WE-10	8.5	56	3.1	18.0	6.2		25	0.3		200.0	1.0	25		233	233	98		
906	WE-10	7.9	55	4.0	21.0	6.5	0.120	24	0.4		202.0	1.0	22	0.30	233	209	103		
907	WE-11	7.7	2730	359.0	356.0	4.9		47			192.0	106.0	4940	3.70	8650	8594	100		
908	WE-11	6.9	2700	350.0	330.0	7.2		52			196.0	93.0	4950	3.30		8530	99		
909	WE-11	7.0	2989	315.0	315.0	6.0		41	3.6	5.7	244.0	96.0	4930	3.80		8775	106	-136.0	-16.0
910	WE-11	7.4	2740	407.0	337.0	8.0		53	3.6		200.0	100.0	5060	3.40	8820	8810	99		
911	WE-12		476	41.0	96.0	31.0					150.0	8.2	897		1760	1623	104		
912	WE-13	7.7	13	1.0	38.0	6.8	0.010	17			165.0	5.0	8	0.10	172	153	100		
913	WE-14	7.8	41	4.0	28.0	8.0	0.250	39	0.1		228.0	1.0	9	0.20	243	204	98		
914	WE-15	7.3	231		180.0	42.0		18			163.0	3.7	700		1260	1237			
915	WE-16	7.8	41		42.0	10.0		19			193.0	9.1	48		266	245			
916	WE-17	7.7	20		42.0	12.0		17			197.0	9.5	18		216	198			
917	WE-18	8.0	200	5.0	4.0	3.4		25	0.7		500.0	4.0	28	2.00	531	492	102		
918	WE-19	7.7									196.0		44			140			
919	WE-20	8.0	159	2.7	8.0	2.9		19	0.4		324.0	1.2	84	0.60	453	418	98		
920	WE-21	7.5	340		96.0	18.0		35			146.0	18.0	645		1230	1189			
921	WE-22	6.3	5900	790.0	890.0	24.0		38			206.0	180.0	11500	3.70		19389	97		
922	WE-22	6.4	6588	821.0	974.0	23.0		28	4.1	10.5	223.0	181.0	12850	4.00		21551	96	-136.0	-15.1
923	WE-22	7.5	6580	935.0	1020.0	39.0		35			182.0	201.0	12700	4.30	21600	21569	99		
924	WE-23	8.4	46	8.0	20.0	4.4	0.180	29	0.1		195.0	4.0	9	0.60	217	188	101		
925	WE-24	7.2	21	2.0	43.0	7.6	0.020	20			185.0	9.0	10	0.10	204	184	106		
926	WE-25	7.7	190	7.0	98.0	31.0	0.010	22	0.1		171.0	1.0	480	0.30	913	891	97		
927	WE-26	8.1	148	9.4	15.0	4.4		24			305.0	1.0	104	0.70	462	432	97		
928	WE-27	7.4	300	29.0	65.0	11.0		56	0.4		320.0	1.0	440	0.60	1060	1004	101		
929	WE-27	8.2	323		27.0	5.4		67			571.0	0.5	230		980	867			
930	WE-27	7.5	280		47.0	7.8		58	0.4		360.0	1.0	350	0.70	921	864	96		
931	WE-28																		
932	WE-29																		
933	WE-30																		
934	WE-31																		
935	WE-32																		
936	WE-33	7.7	157	7.6	14.0	1.9		44	0.2		339.0		89	0.90	491	437			
937	WE-34																		
938	WE-35																		
939	WE-36																		
940	WE-37	7.9	147		14.0	8.8		33			310.0	0.8	96		478	419			
941	WE-38	7.8	145	6.5	8.0	5.8		36	0.1		308.0	1.2	87	0.80	458	406	97		
942	WE-39	7.5	76	8.0	10.0	3.9	0.050	24			228.0	1.4	23	0.40	259	235	98		
943	WE-40	7.7	139	7.6	46.0	2.4		24	0.2		190.0	1.5	205	0.40	509	495	97		
944	WE-41	8.0	21	2.0	39.0	11.0		18	0.1		193.0	11.0	16	0.20	216	195	99		
945	WS-01	7.3	114	25.0	331.0	68.0		23	0.7		674.0	661.0	108	2.20	1730	1664	99		
946	WS-02	6.5	117	33.0	329.0			28			696.0		153			974			
947	WS-02	6.7	107	23.56	284.24	65.88		24	0.53	0.33	605	558	111	2.8	1525	1478.31	101		
948	WS-03	6.9	34	10.0	145.0			19			404.0		39			427			
949	WS-04	7.5	150	16.0	350.0	83.0		27	0.6		640.0	740.0	130	2.50	1910	1786	105		
950	WS-04	6.4	128	32.0	371.0			30			770.0		180			1090			
951	WS-04	6.2	140	34.0	360.0	70.0	0.120	29		0.5	707.0	820.0	130	2.60	1950	1904	94		
952	WS-05	7.3	151	31.0	389.0	73.0		28	0.8		728.0	820.0	138	2.50	1990	1991	99		
953	WS-06		102	22.0	336.0			30								460			
954	WS-07	6.5	120	22.0	383.0			62			990.0		165			1177			

ID	MAP NO.	pH	Na	K	Ca	Mg	Fe	SiO2	B	Li	HCO3	SO4	Cl	F	TDSm	TDSc	C/A (%)	δD (‰)	δO18 (‰)
955	WS-08	6.5	94	27.0	310.0			24			632.0		120			862			
956	WS-09		93	28.0	312.0			26			664.0		125			884			
957	WS-10		98	25.0	336.0			26					125			584			
958	WY-01	7.6	1400	7.0	250.0	65.0	0.030	10	0.3		226.0	1000.0	1900	0.50	4710	4734	100	-114.0	-15.2
959	WY-02	8.1	84	6.0	68.0	25.0		45	0.5		270.0	160.0	47	0.40	569	523	101		
960	WY-03	7.8	494	4.4	284.0	88.0		13				1070.0	625	0.40	3746	2566			
961	WY-04	8.4																	
962	WY-05	6.4	27	1.0	87.0	15.0	0.050	17			170.0	170.0	7	0.40	409	391	103		
963	WY-06		39	1.1				21	100.0		210.0	180.0	6	0.90	459	330			
964	WY-06		39	1.0	89.0	18.0		21	0.1		210.0	180.0	6	0.90	472	437	103		