State of Utah Department of Agriculture and Food

2009 State of Utah Ground-Water Program

By
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Ground Water Specialist

ACKNOWLEDGMENTS

The Utah Department of Agriculture and Food's (UDAF) 2009 Ground-Water Sampling Program is successful because of contributions made by many people. UDAF's ground-water steering committee includes of Commissioner Leonard Blackham; Directors George Hopkin, Clair Allen, and Dr. David Clark; and Program Leader Clark Burgess. This committee gives guidance, support, and direction to the program.

Efforts by members of the Utah Association of Conservation Districts (UACD) have also contributed greatly to the success of the 2009 sampling program. They helped select sampling sites and navigate us to the locations of wells to be sampled. Their knowledge of local areas and contact with people who desired well sampling proves invaluable.

Terry Monroe and Will Atkin of Utah Division of Water Rights (WR) helped in selection of well sites in the Pahvant and Curlew valleys. Mike Handy and Dana Dredge with WR helped us in sampling various areas of the state and acted as liaison with UDAF and WR. Water Rights also provided a sampling vehicle for this year's effort.

This program has received excellent support from the UDAF Chemistry Laboratory Division, which performs the sample analyses. The State Chemist, Dr. David Clark; staff chemists, Mohammed Sharaf, Cham Hoang, and Ivett McQueen and technical assistant; James Palmer provided prompt analysis of pesticide and inorganic samples collected during the year.

A critical part of the program is the collection, distribution, and maintenance of data. Anne M. Johnson, UDAF's GIS Coordinator, has been most helpful by efficiently producing GIS-based maps and giving suggestions for proper data management. Her work is exhibited throughout this report. This year a new computerized data collection and management software package has been written which binds sample collection, testing, reporting, and data management into one system. Pavel Milyavskiy a computer programmer for UDAF has written the software. Much of this report is generated by this software. We are grateful for Pavel's help and support.

Virginia Sligting, secretary in The Division of Marketing and Conservation, has prepared all individual report mailings for those participating in this program.

Finally, thanks are extended to the owners of wells without whose participation and trust this program would not have functioned.

Prepared by:
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Front Cover: *Well in central Utah.*

Utah Department of Agriculture & Food
State Ground-Water Program
Report 2009

Utah Department of Agriculture and Food's (UDAF) State Ground-Water Program is funded by the legislature to assist private well owners and other agencies, organizations, and concerned citizens to have a better understanding of water quality. Provisions of the Federal Clean Water Act require drinking water testing of public water systems. This act does not require testing of private wells used for drinking water, irrigation, and livestock watering even though these wells account for the majority of ground-water use in the State of Utah.

This year because of budget restrictions UDAF was only able to sample 86 wells. To reduce sampling costs UDAF also allowed well owners to ship samples to UDAF from remote areas of the state. This allowed samples to be tested in every UACD Zone without the expense of traveling. This report covers the 86 wells tested during 2009.

Cooperative Effort

UDAF has a memorandum of understanding with the Utah Division of Water Rights (WR) for collecting ground-water data from Pahvant and Curlew valleys. Sample analyses were done for inorganic and organic constituents that influence water quality. Guidance from WR has helped in selecting sampling sites and sharing data.

UDAF also works closely with the Department of Environmental Quality (DEQ) in providing expertise for the State Pesticide Management Plan and other ground-water programs. This relationship benefits UDAF by allowing agriculture's voice to be heard and its ideas considered during the planning process. UDAF is an essential link between DEQ and farmers and ranchers of the state regarding environmental issues.

The State Ground-Water Program works with members of local Soil Conservation Districts (SCDs) and Utah Association of Conservation Districts (UACD) to identify private wells for sampling. SCD cooperation and knowledge of the local area has been very beneficial in identifying wells for sampling, meeting well owners, and distributing information. The work of local district members who advertise, collect names, and organize sampling events helps to make the program successful.

UDAF's Ground-Water Sampling Procedures

UDAF meets with SCDs to inform and update members on ground-water issues. Districts then select wells for sampling in their area and obtain preliminary sample information by using UDAF's Pre-Sample Information Form (Fig. 1). WR selected wells to be sampled for Pahvant and Curlew valleys.

Local SCD members accompanied UDAF personnel to selected well sites. At each well, location was determined using a Global Positioning System (GPS) receiver. Using established protocol, water was then collected for inorganic, bacteria, and pesticide analyses. Samples were packed in ice and taken to the laboratory for analysis. Reports summarizing laboratory results were sent to each well owner. GPS information was provided to UDAF's GIS administrator who provided maps of the sampled areas.

During 2009, UDAF tested all samples for coliform and E. coli bacteria using IDEXX Colilert MUG kits in the field. This has been a significant addition to the program. Major changes in chemical analysis have taken place during 2007. UDAF's laboratory has added three new analytical devices, Dionex IC3000 for ion measurements, automated titrator for carbonate and

bicarbonate, and an ICP mass spectrophotometer for elements. These advancements have increased the number elements, ions, and compounds that can be tested as well as improved the accuracy of the analysis. The laboratory now reports to us Fluoride, Mercury, Nitrate, Perchlorate, and Silver as well as lower detection limits for many of the elements. Total Dissolved Solids (TDS) is now calculated using "sum of constituents" instead of using electrical conductivity measurements.

Areas Sampled

During 2009, 86 samples were taken from wells, drains, and springs in all of the seven UACD zones in the state. Each UACD zone and district sampled is addressed in this report, with a map showing sample location and a table of chemical analyses. Narrative reports are also provided for each sampled district. Below is a general summary of ground-water quality for samples taken during 2009, based on EPA standards.

At the well owner's requests, UDAF provided all collected data on over 65 wells and springs to WR to be included in their database. This will assist well owners by having a permanent record of their well's chemistry on file. (See Map 1. and Map 2.)

Summary of Water Quality for 2009

There were no confirmed pesticide detections in the 86 samples taken during the 2009 sampling season based on EPA standards.

Bacteria (Coliform & Ecoli)

As found in previous years, bacteria are a major problem for private water systems. Thirty-eight percent (38%) of the wells and springs sampled this year tested positive for coliform bacteria, as compared to 59% in 1999, 36% in 2000, 29% in 2001, 27% in 2002, 31% in 2003, 33% in 2004, 35% in 2005, 29% in 2006, 34% in 2007, and 23% in 2008. Although most coliform bacteria do not pose a health problem, their presence in well water indicates that surface waters, soil, or other contamination is getting into the well. Bacteria problems are usually seen in older wells, wells with improper casing and caps, wells that are too shallow or systems that have been improperly maintained.

Of greater concern is the presence of E. coli in water samples. Even though the percentage of contaminated wells is dropping, E. coli is still a serious problem as it indicates that fecal material has gotten into the well. During 2009, 10% of the wells and springs sampled tested positive for E. coli as compared to 34% in 1999, 7% in 2000, 4% in 2001, 3.4% in 2002, 5.8% in 2003, 6.6% in 2004, 7.8% in 2005, 4% in 2006, 3% in 2007, and 3.5% in 2008. These wells have been contaminated with mammalian fecal material, the only source for this bacterium. The source could be effluent from septic systems near the well, poor well construction with livestock near the well head, or open wells in areas where animals and manure are present.

Specific elements that exceed irrigation, livestock, or drinking water standards are discussed in the district reports as described below.

More detailed descriptions of water quality for each sampled area are presented in this report. The report covers specific UACD zones and districts where sampling was conducted, and in some cases separate areas within districts are included where circumstances warrant separate treatment. Tables of chemical, bacterial, and physical characteristics of sampled water are also included. Each district report will include 4 tables, Primary Drinking Water Standards, Secondary Drinking Water Standards, Irrigation Standards, and Livestock Standards. The tables show standard values, detection limits, and measured results for each sample. If a standard is exceeded the result is underlined and highlighted. A map for each district is included in the report showing each sample location.

Sample site locations can be identified on the map using the “Id#” column from the related table. Values of “ND” indicate that this element or compound was not measured above the detection limit of the procedure used to test for the element or compound.

Pesticides

The generic Pesticide Management Plan (PMP) for the State of Utah identifies five pesticides which have the potential to be a threat to the ground water supply. Each of these pesticides is broad-spectrum herbicides. The pesticides are: (1) Alachlor, (2) Atrazine, (3) Cyanazine, (4) Metolachlor, and (5) Simazine. In addition to these pesticides, the UDAF laboratory also screens for a broad range of other pesticides which are sold and used in the state that have the potential to contaminate ground water resources according to the following list.

List of Pesticides

Hexachlorocyclopentadiene	Alpha Chlordane	2,4,5-TP (Silvex)
Hexachlorobenzene	Dieldrin	Picloram
Simazine *	Endrin	Aldicarb
Atrazine *	Methoxychlor	Aldicarb sulfone
Gamma-Lindane	Chlordane "T"	Aldicarb sulfoxide
Heptachlor	Toxaphene "T"	Carbofuran
Alachlor *	Prometon	Methomyl
Aldrin	Dicamba	Oxamyl (Vydate)
Heptachlor-Epoxide	2,4-D	3-OH Carbofuran
Gamma Chlordane	PCP	3-Keto Carbofuran
Disulfton	Diazinon	Metolachlor *

* Pesticide identified for restriction under the proposed PMP rule.

Laboratory Screening for Pesticides

The UDAF laboratory performs a screening analysis of all water samples using four different EPA approved screening methods. The methods are as follows: (1) EPA Method 515.1 used for detecting chlorinated phenoxy acid, (2) EPA Method 505 for detection of chlorinated pesticides and organophosphates, (3) EPA Method 531.1 for detection of carbamates, and (4) an immunoassay method for pesticide residue screening used for detection of chlorinated phenoxy acid and carbamates. The immunoassay method indicates the presence or absence of pesticides in the ground water sample. In the event that a sample tests positive for the presence of pesticides using the screening procedure, a more extensive laboratory process utilizing Gas Chromotography(GC) or High Performance Liquid Chromatography(HPLC) is used to determine the actual contamination level of the suspected pesticide.

Water wells constructed of materials containing Poly-Vinyl Chloride (PVC) can produce “false positives” using the immunoassay method for pesticide screening. Other environmental conditions can also combine to produce “hits” in the screening procedure which include: welding done on the well head, which can release compounds from the PVC well casing, dead animals in the wells during sampling, and large diameter shallow wells located in the middle of agricultural fields. When these conditions cause positive “hits” in the screening method, the samples are subjected to the more rigorous GC analysis for further quantification and evaluation.

Figure 1.

UTAH DEPARTMENT OF AGRICULTURE AND FOOD

State Ground Water Program

350 N. Redwood Road
P.O. Box 146500
Salt Lake City, UT 84114-6500
(801) 538-9905 Program Manager (801) 538-9436 FAX

RECEIVED: _____
PLOTTED: _____
SAMPLED: _____
REPORT: _____
Office Use Only

Ground Water Pre-Sample Information Form

This is a non-regulatory program. Your personal information is protected under GRAMA provisions. Giving your permission to attach your well information to the Water Rights database will make your name and address public.

Name: _____ Telephone #: _____
Address: _____ Other phone #: _____
City: _____ Depth of well: _____
Conservation District: _____ Depth of water: _____
GPS Coordinates of well (if you have them): _____

Please sketch a map showing how to locate your well (North is the top of the page). Please give street name, and distances from major intersections or any other landmarks that may be significant.

Can we sample your water without you being present? _____

Are there instructions we need to sample your well? _____

Would you like your test information to be attached to your Water Right information at the Division of Water Rights? This will allow you to read your report at any time in the future, and provide a permanent record of the chemistry of your well.

YES ☐ (Please enter your water right number if you have it) _____ NO ☐ (do not attach)

By signing this form you are giving permission for the State of Utah Department of Agriculture and Food to enter your property and sample your well.

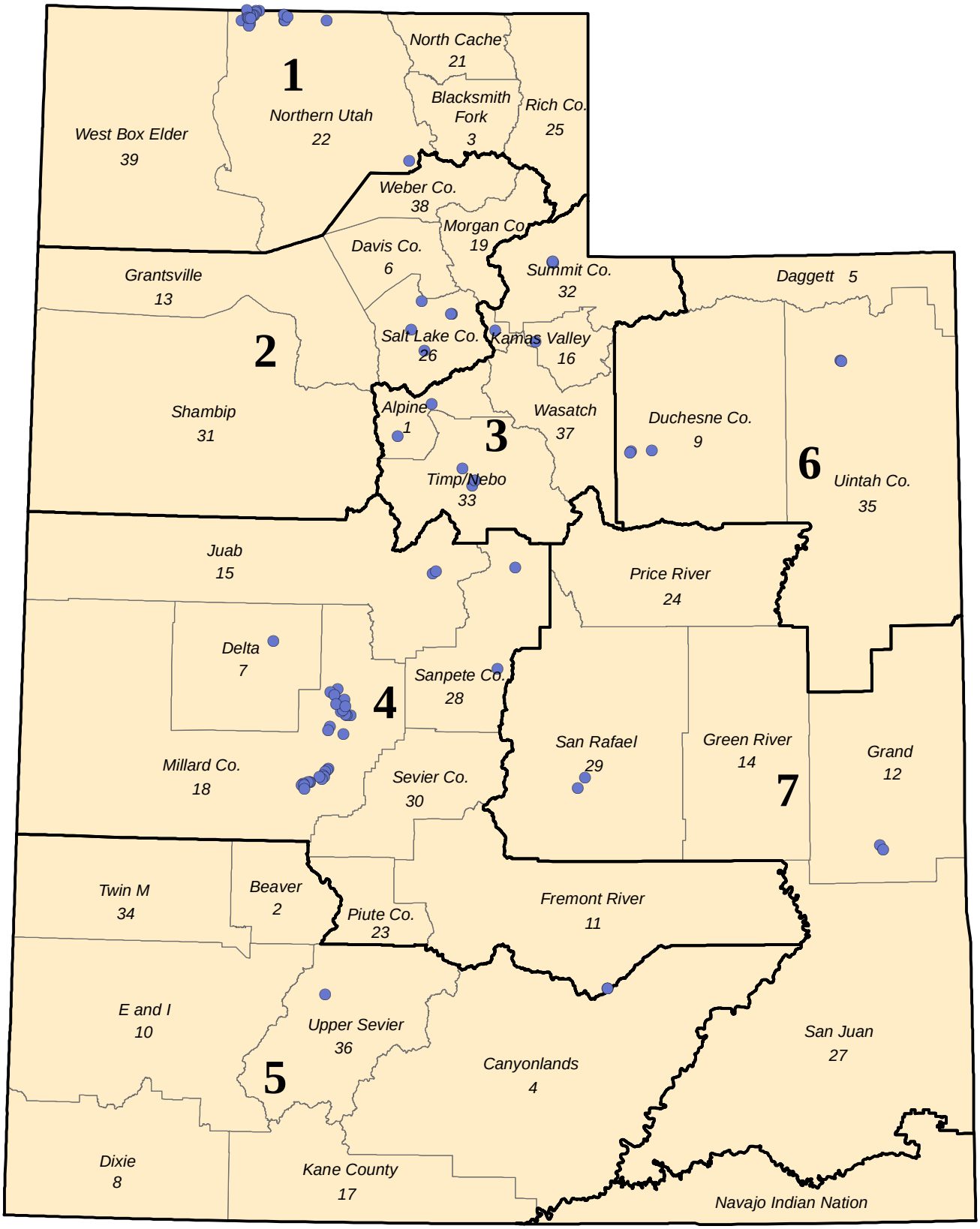
I, the undersigned am the lawful agent of the above described well and grant permission to the Utah Department of Agriculture and Food to access and sample the above-described well.

_____ Signature

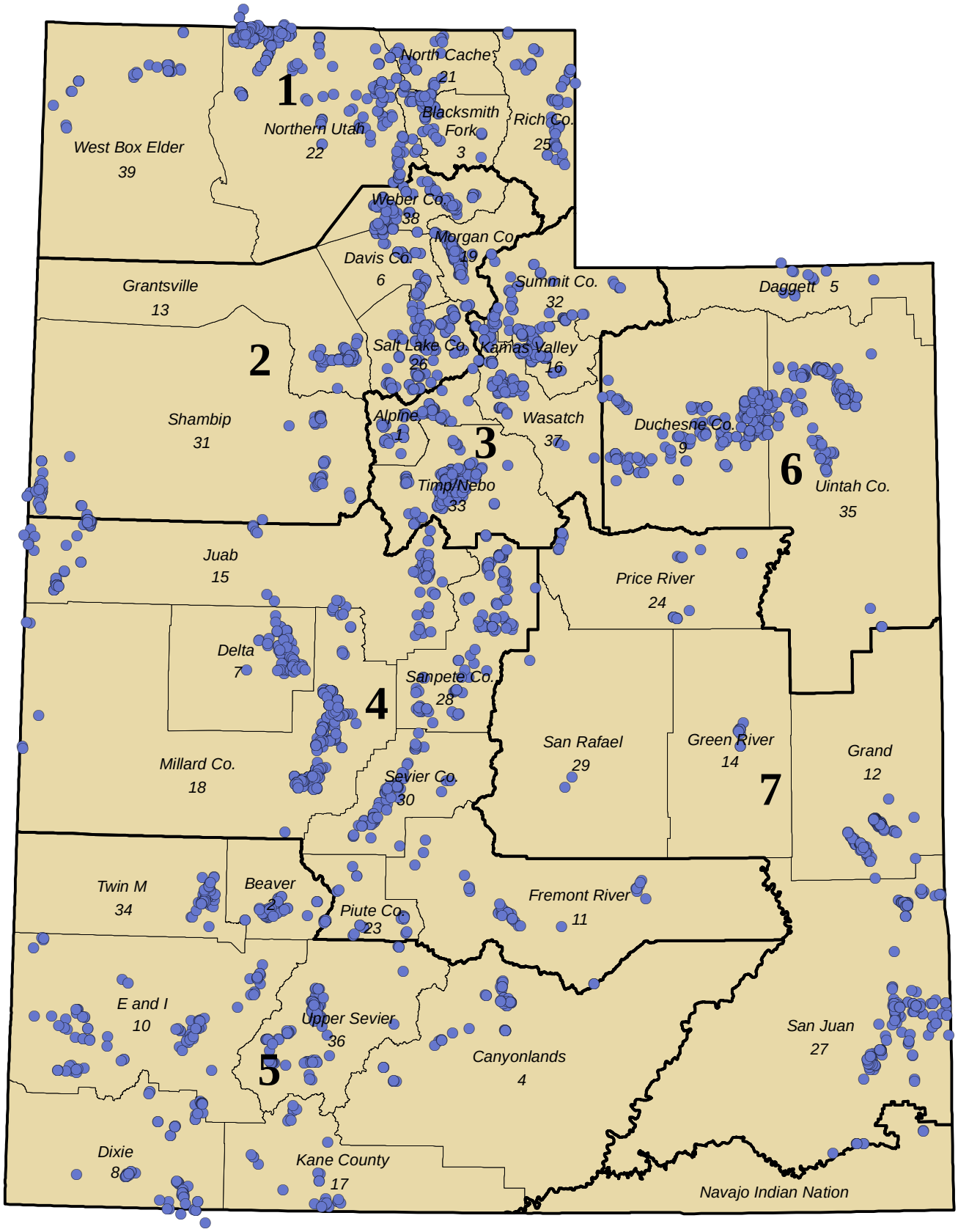
_____ Date

For further information contact Mark Quilter at mquilter@utah.gov, or at the above phone numbers.

Map 1. 2009 Ground Water Sample Locations



Map 2. Historic Ground Water Sample Locations 1996 - 2009



UACD Zone 1 **(Box Elder, Cache, and Rich counties)**

Twenty (20) sites were sampled in the Northern Utah Conservation Districts in Zone 1 during the spring, summer, and fall of 2009. No samples were collected in the Blacksmith Fork, North Cache, Rich County or West Box Elder districts.

The Statistical Report below shows a summary of the total number of chemical tests collected (Test Count) for each district in Zone 1. The next four columns summarize the number of tests which exceed the standards for either Primary Drinking Water (DW Primary), Secondary Drinking Water (DW Secondary), Irrigation, or Livestock.

Ground Water UACD Zone No 1 Statistical Report
For the Samples Collected Between: 4/1/2009 And 11/18/2009

District Name	Sample Count	Test Count	Test Count Which Result Exceeded Standards			
			DW Primary	DW Secondary	Irrigation	Livestock
Northern Utah	20	800	4	55	76	11
Zone Totals:	**20**	**800**	**4**	**55**	**76**	**11**

Detailed tables follow, covering the above water quality categories - General, Irrigation, Livestock, and Culinary (which includes Primary Drinking Water Standards and Secondary Drinking Water Standards) for each district along with a map(s). For the Irrigation, Livestock, and Culinary tables the first row lists the explicit standard for each element or compound (column). The standards for irrigation and livestock originated from *Water Quality for Agriculture 29, Revision 1*, published by the Food and Agriculture Organization of the United Nations. The drinking water primary and secondary standards are from the State of Utah's water quality standards. Below the standards are the column headings (expressed as the chemical abbreviation) for each element or compound tested. Units used in measuring the concentrations of each element or compound are found below each abbreviation. Each row of the table is a single sample identified with a sample number. This sample number shows the sampling location on the map(s) located after the chemistry tables. Highlighted sample results show samples that exceed a standard for that element or compound. Totals at the bottom of each table show how many samples in each column exceeded the standard for that column. The value "ND" indicates that a particular element or compound was "Not Detected" for a given sample.

Northern Utah District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9045	7/28/2009	POS	ND	73.9 F (23.3 C)	313	122.0	0.600	84.00	Well	Clean	Gravel	Steel	Sealed	✓	✓					
2	9046	7/28/2009	ND	ND	57.6 F (14.2 C)	997	439.0	1.000	335.2	Well	Clean	Well House	Steel	Open	✓	✓					
3	9047	7/28/2009	POS	POS	66.9 F (19.4 C)	1197	580.0	3.300	306.7	Stream	Surface Water	Soil	Earth	Open		✓					
4	9048	7/28/2009	ND	ND	54.0 F (12.2 C)	3560	1775.	5.900	825.7	Well	Clean	Concrete Pad	Steel	Sealed		✓					
5	9049	7/28/2009	POS	ND	87.8 F (31.0 C)	5920	3008.	24.10	379.5	Well	Clean	Well House	Steel	Open							
6	9050	7/28/2009	POS	POS	77.0 F (25.0 C)	8040	4109.	7.600	2155.	Well	Surface Water	Concrete Pad	Steel	Open		✓					
7	9051	7/28/2009	POS	POS	73.8 F (23.2 C)	7110	3715.	9.800	1467.	Well	Clean	Concrete Pad	Steel	Open		✓					
8	9052	7/28/2009	POS	ND	67.8 F (19.9 C)	3130	1289.	2.100	1000.	Well	Clean	Concrete Pad	Steel	Sealed		✓					
9	9053	7/28/2009	POS	ND	65.1 F (18.4 C)	1432	666.0	1.000	473.3	Well	Clean	Concrete Pad	Steel	Open		✓					
10	9054	7/28/2009	POS	ND	67.3 F (19.6 C)	1295	596.0	1.100	379.7	Well	Clean	Concrete Pad	Steel	Sealed		✓					
11	9055	7/28/2009	ND	ND	65.7 F (18.7 C)	745	353.0	0.900	221.1	Well	Clean	Concrete Pad	Steel	Sealed		✓					
12	9056	7/28/2009	POS	ND	61.5 F (16.4 C)	694	349.0	0.600	258.3	Well	Clean	Concrete Pad	Steel	Sealed		✓					
13	9057	7/28/2009	POS	ND	73.9 F (23.3 C)	626	316.0	1.100	168.4	Well	Clean	Concrete Pad	Steel	Open		✓					
14	9058	7/28/2009	ND	ND	63.0 F (17.2 C)	3350	1572.	2.900	973.6	Well	Clean	Concrete Pad	Steel	Sealed		✓					
15	9059	7/28/2009	POS	ND	60.3 F (15.7 C)	2590	1137.	1.800	776.1	Well	Clean	Concrete Pad	Steel	Open		✓					
16	9060	7/28/2009	ND	ND	63.1 F (17.3 C)	771	387.0	0.800	286.9	Well	Livestock	Soil	Steel	Subsidence	✓	✓					
17	9061	7/28/2009	ND	ND	62.2 F (16.8 C)	716	367.0	1.000	252.9	Well	Clean	Soil	Steel	Sealed	✓	✓					
18	9062	7/28/2009	ND	ND	64.9 F (18.3 C)	2570	1186.	2.100	807.5	Well	Clean	Soil	Steel	Subsidence	✓	✓					
19	9063	7/28/2009	ND	ND	58.1 F (14.5 C)	3730	1896.	4.200	1062.	Well	Clean	Soil	Steel	Open		✓					
20	9064	7/28/2009	ND	ND	57.7 F (14.3 C)	1910	921.0	4.700	345.0	Well	Clean	Pit Concrete	Steel	Sealed	✓	✓					
Bacteria Positive Sample Count			**11**	**3**	ND - Not Detected																

Irrigation:

Irrigation Standards

	Sample No	Tested Date	5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
1	9045	7/30/2009	ND	0.0246	ND	24.3127	ND	ND	ND	ND	0.0124	ND	ND	88.3892	0.7287	ND	5.6319
2	9046	7/30/2009	ND	0.0641	ND	105.4865	126.5074	ND	ND	ND	0.0222	ND	ND	156.3490	11.3742	0.0232	17.3594
3	9047	7/30/2009	ND	0.0940	ND	67.7230	137.5978	ND	ND	ND	0.0106	ND	0.0261	250.8900	9.8337	0.0527	33.3377
4	9048	7/30/2009	ND	0.1062	ND	181.4200	638.1674	ND	ND	0.0012	0.0227	ND	ND	291.5940	22.3865	0.1020	90.3310
5	9049	7/30/2009	ND	0.1279	ND	99.3317	1555.4330	ND	ND	0.0006	0.0093	ND	ND	191.1060	36.2970	0.2777	31.8268
6	9050	7/30/2009	ND	0.0629	ND	602.6161	2348.8280	0.0007	ND	ND	0.0096	ND	0.1099	34.7758	55.5146	0.1507	157.6098
7	9051	7/30/2009	ND	0.0869	ND	416.8876	1928.0320	0.0003	ND	0.0020	0.0319	ND	ND	140.3700	43.7651	0.1319	103.1992
8	9052	7/30/2009	ND	0.0432	ND	285.0968	587.5376	ND	ND	0.0015	0.0061	ND	ND	136.2580	22.3880	0.0434	69.8462
9	9053	7/30/2009	ND	0.0392	ND	137.4355	301.1657	ND	ND	0.0014	0.0126	ND	ND	142.4830	12.1078	0.0230	31.4749
10	9054	7/30/2009	ND	0.0433	ND	106.8917	261.7954	ND	ND	0.0013	0.0169	ND	ND	146.6450	14.6699	0.0285	27.3012
11	9055	7/30/2009	ND	0.0360	ND	62.7870	104.6465	ND	ND	0.0017	0.0096	ND	ND	160.5510	8.2298	0.0183	15.5657
12	9056	7/30/2009	ND	0.0303	ND	76.6562	98.2786	ND	ND	0.0019	0.0252	ND	ND	161.7530	7.0189	0.0137	16.1769
13	9057	7/30/2009	ND	0.0481	ND	41.6450	92.8055	ND	ND	0.0014	0.0098	ND	ND	153.1870	8.4544	0.0194	15.6119
14	9058	7/30/2009	ND	0.0937	ND	271.0663	817.8143	ND	ND	0.0009	0.0188	ND	0.0144	162.5290	21.5325	0.0712	71.8375
15	9059	7/30/2009	ND	0.0910	ND	216.8701	566.0501	ND	ND	0.0011	0.0182	ND	ND	156.0360	16.0567	0.0498	56.7715
16	9060	7/30/2009	ND	0.0429	ND	84.0874	114.3044	ND	ND	0.0022	0.0218	ND	ND	160.9660	8.1646	0.0186	18.6215
17	9061	7/30/2009	ND	0.0457	ND	72.6073	104.9793	ND	ND	0.0022	0.0179	ND	ND	161.5220	9.4439	0.0218	17.3267
18	9062	7/30/2009	ND	0.0729	ND	233.3537	547.2332	0.0005	ND	0.0027	0.0104	ND	ND	141.7490	17.6969	0.0418	54.3948
19	9063	7/30/2009	ND	0.1199	ND	269.2931	751.9719	ND	ND	0.0005	0.0123	ND	ND	260.5080	17.3352	0.1018	94.3688
20	9064	7/30/2009	ND	0.1096	ND	82.5356	390.4190	ND	ND	0.0022	0.0105	ND	ND	264.4330	9.3992	0.0719	33.6553
Test Count that Exceeded Standard			0	0	0	0	19	0	0	0	0	0	0	19	0	0	0

ND - Not Detected

Irrigation Standards Continues			.2	.01	70;230	.2	5	10000	3;9	.02	151;451;13	.1	2
	Sample No	Tested Date	Mn mg/L	Mo mg/L	Na mg/L	Ni mg/L	Pb mg/L	PO4 mg/L	SAR meq/L	Se mg/L	TDS mg/L	V mg/L	Zn mg/L
1	9045	7/30/2009	0.0024	0.0078	12.8658	ND	ND	ND	0.6000	ND	122.0000	ND	0.0168
2	9046	7/30/2009	0.0039	0.0006	42.6819	ND	ND	ND	1.0000	ND	439.0000	0.0026	0.8435
3	9047	7/30/2009	0.0026	0.0028	131.8134	ND	ND	ND	3.3000	ND	580.0000	0.0056	0.0040
4	9048	7/30/2009	0.0036	0.0025	390.4549	ND	ND	ND	5.9000	0.0061	1775.0000	0.0042	0.0063
5	9049	7/30/2009	0.0060	0.0017	1080.4290	ND	ND	ND	24.1000	ND	3008.0000	0.0056	0.0137
6	9050	7/30/2009	0.6961	ND	815.4401	0.0019	ND	ND	7.6000	ND	4109.0000	ND	0.0137
7	9051	7/30/2009	0.0043	0.0010	864.3347	ND	ND	ND	9.8000	0.0127	3715.0000	0.0049	0.0092
8	9052	7/30/2009	0.0004	0.0006	150.9525	ND	ND	ND	2.1000	0.0052	1289.0000	0.0037	0.0038
9	9053	7/30/2009	0.0003	0.0006	48.3867	ND	ND	ND	1.0000	ND	666.0000	0.0032	0.0040
10	9054	7/30/2009	0.0003	0.0008	51.0943	ND	ND	ND	1.1000	ND	596.0000	0.0035	0.0039
11	9055	7/30/2009	0.0011	0.0011	30.4848	ND	ND	ND	0.9000	ND	353.0000	0.0037	0.0165
12	9056	7/30/2009	0.0009	0.0007	22.1210	ND	ND	ND	0.6000	ND	349.0000	0.0031	0.0058
13	9057	7/30/2009	0.0014	0.0018	31.5684	ND	ND	ND	1.1000	ND	316.0000	0.0037	0.0044
14	9058	7/30/2009	0.0025	0.0005	208.3558	ND	ND	ND	2.9000	ND	1572.0000	0.0042	0.0058
15	9059	7/30/2009	ND	0.0005	116.1006	ND	ND	ND	1.8000	ND	1137.0000	0.0037	0.0096
16	9060	7/30/2009	0.0008	0.0007	31.0457	ND	ND	ND	0.8000	ND	387.0000	0.0037	0.0309
17	9061	7/30/2009	0.0008	0.0009	35.5961	ND	ND	ND	1.0000	ND	367.0000	0.0044	0.1419
18	9062	7/30/2009	0.0072	0.0009	139.8621	0.0222	ND	ND	2.1000	0.0070	1186.0000	0.0028	0.0357
19	9063	7/30/2009	0.0008	0.0007	315.2030	ND	ND	ND	4.2000	0.0119	1896.0000	0.0030	0.0493
20	9064	7/30/2009	0.0008	0.0021	201.1119	0.0008	ND	ND	4.7000	ND	921.0000	0.0037	0.0468
Test Count that Exceeded Standard:			1	0	11	0	0	0	7	0	19	0	0

ND - Not Detected

Livestock:

Livestock Standards			5	0.2	5	.1	0.05	1	1	.5	2	10	440	.1	5.5-8.3	.05	167;333	1000;3000;	25
	Sample No	Tested Date	Al mg/L	As mg/L	B mg/L	Be mg/L	Cd mg/L	Co mg/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	NO3 mg/L	Pb mg/L	pH -	Se mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9045	7/30/2009	ND	ND	0.0246	ND	ND	ND	ND	0.0124	ND	ND	ND	ND	7.0200	ND	ND	122.0000	0.0168
2	9046	7/30/2009	ND	0.0022	0.0641	ND	ND	ND	ND	0.0222	ND	ND	8.9853	ND	7.6300	ND	ND	439.0000	0.8435
3	9047	7/30/2009	ND	0.0067	0.0940	ND	ND	ND	ND	0.0106	ND	ND	ND	ND	8.2000	ND	63.7190	580.0000	0.0040
4	9048	7/30/2009	ND	0.0079	0.1062	ND	ND	ND	0.0012	0.0227	ND	ND	8.1073	ND	7.8100	0.0061	277.0239	1775.0000	0.0063
5	9049	7/30/2009	ND	0.0055	0.1279	ND	ND	ND	0.0006	0.0093	ND	ND	ND	ND	7.7700	ND	71.1657	3008.0000	0.0137
6	9050	7/30/2009	ND	ND	0.0629	ND	ND	0.0007	ND	0.0096	ND	ND	ND	ND	6.3100	ND	99.9522	4109.0000	0.0137
7	9051	7/30/2009	ND	0.0031	0.0869	ND	ND	0.0003	0.0020	0.0319	ND	ND	160.0555	ND	7.5100	0.0127	98.8949	3715.0000	0.0092
8	9052	7/30/2009	ND	0.0020	0.0432	ND	ND	ND	0.0015	0.0061	ND	ND	32.1496	ND	7.5700	0.0052	45.4359	1289.0000	0.0038
9	9053	7/30/2009	ND	0.0018	0.0392	ND	ND	ND	0.0014	0.0126	ND	ND	8.9964	ND	7.8400	ND	30.6498	666.0000	0.0040
10	9054	7/30/2009	ND	0.0023	0.0433	ND	ND	ND	0.0013	0.0169	ND	ND	ND	ND	7.7900	ND	28.4583	596.0000	0.0039
11	9055	7/30/2009	ND	0.0036	0.0360	ND	ND	ND	0.0017	0.0096	ND	ND	ND	ND	7.9100	ND	23.3482	353.0000	0.0165
12	9056	7/30/2009	ND	0.0029	0.0303	ND	ND	ND	0.0019	0.0252	ND	ND	5.9271	ND	7.8700	ND	ND	349.0000	0.0058
13	9057	7/30/2009	ND	0.0050	0.0481	ND	ND	ND	0.0014	0.0098	ND	ND	ND	ND	7.8800	ND	ND	316.0000	0.0044
14	9058	7/30/2009	ND	0.0028	0.0937	ND	ND	ND	0.0009	0.0188	ND	ND	5.9454	ND	7.7400	ND	69.6645	1572.0000	0.0058
15	9059	7/30/2009	ND	0.0026	0.0910	ND	ND	ND	0.0011	0.0182	ND	ND	5.9181	ND	7.8000	ND	58.6832	1137.0000	0.0096
16	9060	7/30/2009	ND	0.0026	0.0429	ND	ND	ND	0.0022	0.0218	ND	ND	ND	ND	7.8300	ND	ND	387.0000	0.0309
17	9061	7/30/2009	ND	0.0028	0.0457	ND	ND	ND	0.0022	0.0179	ND	ND	7.4957	ND	7.8200	ND	ND	367.0000	0.1419
18	9062	7/30/2009	ND	ND	0.0729	ND	ND	0.0005	0.0027	0.0104	ND	ND	29.8787	ND	7.7200	0.0070	69.0087	1186.0000	0.0357
19	9063	7/30/2009	ND	0.0045	0.1199	ND	ND	ND	0.0005	0.0123	ND	ND	6.6371	ND	7.7500	0.0119	292.1109	1896.0000	0.0493
20	9064	7/30/2009	ND	0.0038	0.1096	ND	ND	ND	0.0022	0.0105	ND	ND	ND	ND	7.9400	ND	53.4718	921.0000	0.0468
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	9	0

ND - Not Detected

Culinary:

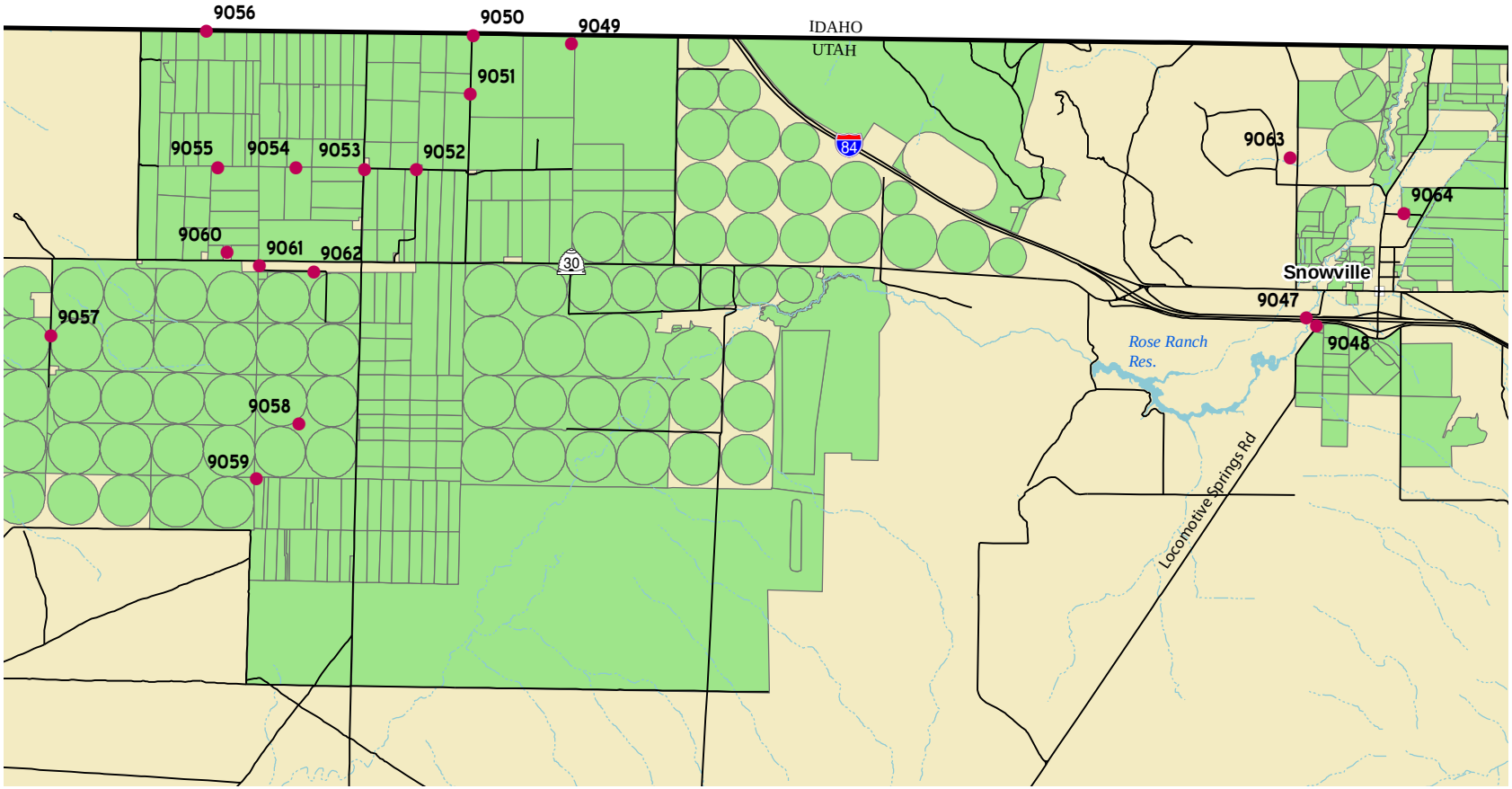
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9045	7/30/2009	ND	0.0095	ND	ND	ND	ND	0.0124	ND	ND	12.8658	ND	ND	ND	ND	ND	122.0000
2	9046	7/30/2009	0.0022	0.2451	ND	ND	ND	ND	0.0222	ND	ND	42.6819	ND	8.9853	ND	ND	ND	439.0000
3	9047	7/30/2009	0.0067	0.0705	ND	ND	ND	ND	0.0106	ND	ND	131.8134	ND	ND	ND	ND	63.7190	580.0000
4	9048	7/30/2009	0.0079	0.0549	ND	ND	ND	0.0012	0.0227	ND	ND	390.4549	ND	8.1073	ND	0.0061	277.0239	1775.0000
5	9049	7/30/2009	0.0055	0.1656	ND	ND	ND	0.0006	0.0093	ND	ND	1080.4290	ND	ND	ND	ND	71.1657	3008.0000
6	9050	7/30/2009	ND	0.2921	ND	ND	ND	ND	0.0096	ND	ND	815.4401	0.0019	ND	ND	ND	99.9522	4109.0000
7	9051	7/30/2009	0.0031	0.2136	ND	ND	ND	0.0020	0.0319	ND	ND	864.3347	ND	160.0555	ND	0.0127	98.8949	3715.0000
8	9052	7/30/2009	0.0020	0.2967	ND	ND	ND	0.0015	0.0061	ND	ND	150.9525	ND	32.1496	ND	0.0052	45.4359	1289.0000
9	9053	7/30/2009	0.0018	0.2448	ND	ND	ND	0.0014	0.0126	ND	ND	48.3867	ND	8.9964	ND	ND	30.6498	666.0000
10	9054	7/30/2009	0.0023	0.1935	ND	ND	ND	0.0013	0.0169	ND	ND	51.0943	ND	ND	ND	ND	28.4583	596.0000
11	9055	7/30/2009	0.0036	0.1068	ND	ND	ND	0.0017	0.0096	ND	ND	30.4848	ND	ND	ND	ND	23.3482	353.0000
12	9056	7/30/2009	0.0029	0.1226	ND	ND	ND	0.0019	0.0252	ND	ND	22.1210	ND	5.9271	ND	ND	ND	349.0000
13	9057	7/30/2009	0.0050	0.1177	ND	ND	ND	0.0014	0.0098	ND	ND	31.5684	ND	ND	ND	ND	ND	316.0000
14	9058	7/30/2009	0.0028	0.1430	ND	ND	ND	0.0009	0.0188	ND	ND	208.3558	ND	5.9454	ND	ND	69.6645	1572.0000
15	9059	7/30/2009	0.0026	0.3051	ND	ND	ND	0.0011	0.0182	ND	ND	116.1006	ND	5.9181	ND	ND	58.6832	1137.0000
16	9060	7/30/2009	0.0026	0.1424	ND	ND	ND	0.0022	0.0218	ND	ND	31.0457	ND	ND	ND	ND	ND	387.0000
17	9061	7/30/2009	0.0028	0.1247	ND	ND	ND	0.0022	0.0179	ND	ND	35.5961	ND	7.4957	ND	ND	ND	367.0000
18	9062	7/30/2009	ND	0.0755	ND	ND	ND	0.0027	0.0104	ND	ND	139.8621	0.0222	29.8787	ND	0.0070	69.0087	1186.0000
19	9063	7/30/2009	0.0045	0.0374	ND	ND	ND	0.0005	0.0123	ND	ND	315.2030	ND	6.6371	ND	0.0119	292.1109	1896.0000
20	9064	7/30/2009	0.0038	0.1047	ND	ND	ND	0.0022	0.0105	ND	ND	201.1119	0.0008	ND	ND	ND	53.4718	921.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3

ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9045	7/30/2009	ND	ND	ND	0.0124	ND	ND	84.0000	0.0024	7.0200	4.8526	ND	122.0000	0.0168
2	9046	7/30/2009	ND	ND	126.5074	0.0222	ND	ND	335.2000	0.0039	7.6300	30.2822	ND	439.0000	0.8435
3	9047	7/30/2009	ND	ND	137.5978	0.0106	ND	0.0261	306.7000	0.0026	8.2000	8.8832	63.7190	580.0000	0.0040
4	9048	7/30/2009	ND	ND	638.1674	0.0227	ND	ND	825.7000	0.0036	7.8100	22.7842	277.0239	1775.0000	0.0063
5	9049	7/30/2009	ND	ND	1555.4330	0.0093	ND	ND	379.5000	0.0060	7.7700	35.2379	71.1657	3008.0000	0.0137
6	9050	7/30/2009	ND	ND	2348.8280	0.0096	ND	0.1099	2155.9000	0.6961	6.3100	7.8016	99.9522	4109.0000	0.0137
7	9051	7/30/2009	ND	ND	1928.0320	0.0319	ND	ND	1467.4000	0.0043	7.5100	31.0360	98.8949	3715.0000	0.0092
8	9052	7/30/2009	ND	ND	587.5376	0.0061	ND	ND	1000.5000	0.0004	7.5700	29.0768	45.4359	1289.0000	0.0038
9	9053	7/30/2009	ND	ND	301.1657	0.0126	ND	ND	473.3000	0.0003	7.8400	25.2580	30.6498	666.0000	0.0040
10	9054	7/30/2009	ND	ND	261.7954	0.0169	ND	ND	379.7000	0.0003	7.7900	28.0572	28.4583	596.0000	0.0039
11	9055	7/30/2009	ND	ND	104.6465	0.0096	ND	ND	221.1000	0.0011	7.9100	23.5430	23.3482	353.0000	0.0165
12	9056	7/30/2009	ND	ND	98.2786	0.0252	ND	ND	258.3000	0.0009	7.8700	23.8739	ND	349.0000	0.0058
13	9057	7/30/2009	ND	ND	92.8055	0.0098	ND	ND	168.4000	0.0014	7.8800	29.4589	ND	316.0000	0.0044
14	9058	7/30/2009	ND	ND	817.8143	0.0188	ND	0.0144	973.6000	0.0025	7.7400	26.1711	69.6645	1572.0000	0.0058
15	9059	7/30/2009	ND	ND	566.0501	0.0182	ND	ND	776.1000	ND	7.8000	24.1487	58.6832	1137.0000	0.0096
16	9060	7/30/2009	ND	ND	114.3044	0.0218	ND	ND	286.9000	0.0008	7.8300	27.1566	ND	387.0000	0.0309
17	9061	7/30/2009	ND	ND	104.9793	0.0179	ND	ND	252.9000	0.0008	7.8200	23.3733	ND	367.0000	0.1419
18	9062	7/30/2009	ND	ND	547.2332	0.0104	ND	ND	807.5000	0.0072	7.7200	24.7681	69.0087	1186.0000	0.0357
19	9063	7/30/2009	ND	ND	751.9719	0.0123	ND	ND	1062.0000	0.0008	7.7500	20.7946	292.1109	1896.0000	0.0493
20	9064	7/30/2009	ND	ND	390.4190	0.0105	ND	ND	345.0000	0.0008	7.9400	15.6621	53.4718	921.0000	0.0468
Test Count that Exceeded Standard:			0	0	12	0	0	0	20	1	1	0	2	19	0

ND - Not Detected

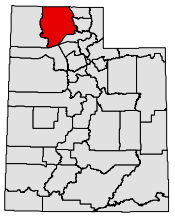
Map 3. Northern Utah District - Snowville Area



Map Scale 1:106,000 (1 inch = 1.7 miles)

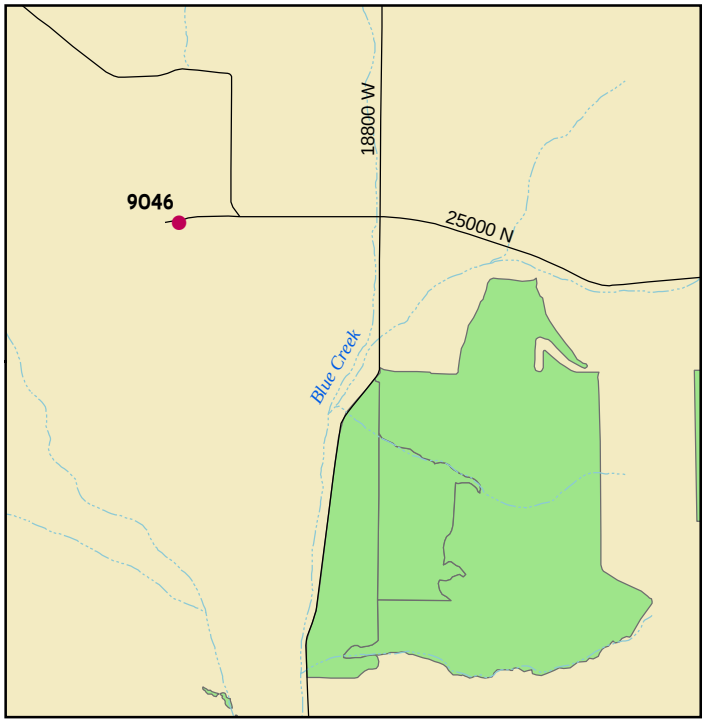
N
W E
S

District Location

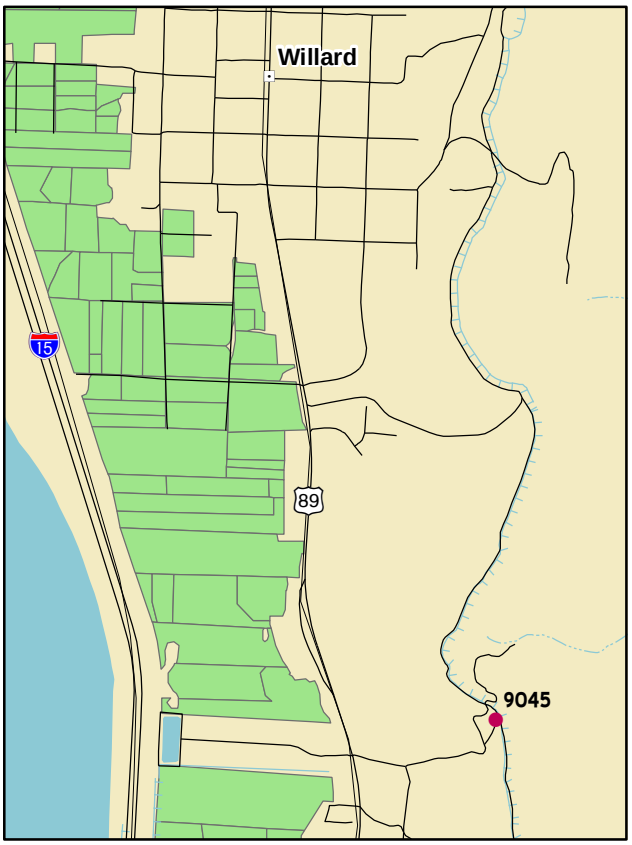


- Sample location
- Road
- Stream
- Ditch or canal
- Aqueduct
- Intermittent stream
- Water body
- Irrigated cropland
- District boundary

Map 4. Northern Utah District - Other Areas

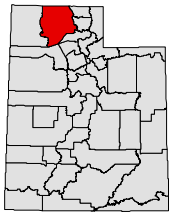


Map Scale 1:40,000 (1 inch = 0.6 miles)



Map Scale 1:28,000 (1 inch = 0.44 miles)

District Location



- Sample location
- Road
- Stream
- Ditch or canal
- Aqueduct
- Intermittent stream
- Water body
- Irrigated cropland
- District boundary

UACD Zone 2 **(Davis, Morgan, Grantsville, Salt Lake, Shambip, and Weber counties)**

Five (5) sites were sampled in the Salt Lake Conservation Districts in Zone 2 during the spring, summer, and fall of 2009.

The Statistical Report below shows a summary of the total number of chemical tests collected (Test Count) for each district in Zone 2. The next four columns summarize the number of tests which exceed the standards for either Primary Drinking Water (DW Primary), Secondary Drinking Water (DW Secondary), Irrigation, or Livestock.

Ground Water UACD Zone No 2 Statistical Report
For the Samples Collected Between: 4/1/2009 And 11/18/2009

District Name	Sample Count	Test Count	Test Count Which Result Exceeded Standards			
			DW Primary	DW Secondary	Irrigation	Livestock
Salt Lake	5	200	1	17	25	4
Zone Totals:	**5**	**200**	**1**	**17**	**25**	**4**

Detailed tables follow, covering the above water quality categories - General, Irrigation, Livestock, and Culinary (which includes Primary Drinking Water Standards and Secondary Drinking Water Standards) for each district along with a map(s). For the Irrigation, Livestock, and Culinary tables the first row lists the explicit standard for each element or compound (column). The standards for irrigation and livestock originated from *Water Quality for Agriculture 29, Revision 1*, published by the Food and Agriculture Organization of the United Nations. The drinking water primary and secondary standards are from the State of Utah's water quality standards. Below the standards are the column headings (expressed as the chemical abbreviation) for each element or compound tested. Units used in measuring the concentrations of each element or compound are found below each abbreviation. Each row of the table is a single sample identified with a sample number. This sample number shows the sampling location on the map(s) located after the chemistry tables. Highlighted sample results show samples that exceed a standard for that element or compound. Totals at the bottom of each table show how many samples in each column exceeded the standard for that column. The value "ND" indicates that a particular element or compound was "Not Detected" for a given sample.

Salt Lake District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9032	6/22/2009			39.2 F (4.0 C)	864	491.0	2.500	231.6	Ditch	Surface Water	Soil	Earth	Open	☐	☑	☐	☐	☐	☐	☐
2	9044	9/22/2009	POS	ND	32.0 F (0.0 C)	1931	1139.	3.600	597.9	Spring	Clean	Inside Home	Steel	Open	☑	☑	☐	☐	☐	☐	☐
3	9075	8/11/2009	POS	ND	68.2 F (20.1 C)	5180	3026.	43.50	86.10	Well	Clean	Pit Concrete	Concrete	Sealed	☐	☑	☐	☐	☐	☐	☐
4	9085	9/22/2009	ND	ND	63.9 F (17.7 C)	1730	890.0	2.500	527.2	Well	Vegetated	Covered	Steel	Sealed	☑	☑	☐	☐	☐	☐	☐
5	9086	9/22/2009	ND	ND	57.4 F (14.1 C)	1562	760.0	2.300	456.0	Well	Clean	Gravel	Steel	Sealed	☑	☑	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			**2**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards

	Sample No	Tested Date	5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
1	9032	7/16/2009	ND	0.1566	ND	57.9539	117.6403	0.0011	ND	ND	0.0365	ND	1.2444	187.6680	15.5586	0.0476	21.0567
2	9044	9/28/2009	ND	0.3390	ND	140.3394	280.2504	ND	ND	0.0029	0.0124	ND	ND	358.9710	11.7733	0.1289	59.9682
3	9075	8/18/2009	ND	1.4690	ND	8.1981	1049.0590	ND	284.8820	0.0038	0.0296	ND	ND	916.9230	244.1434	0.5984	15.9339
4	9085	9/28/2009	ND	0.0724	ND	146.7986	341.6575	ND	ND	0.0006	0.0614	ND	ND	323.3150	3.2242	0.0176	38.8925
5	9086	9/28/2009	ND	0.0592	ND	131.4774	271.2131	ND	ND	ND	0.0211	ND	ND	303.0110	2.7984	0.0136	30.9048
Test Count that Exceeded Standard			0	1	0	0	5	0	0	0	0	0	0	5	0	0	0

ND - Not Detected

Irrigation Standards Continues

	Sample No	Tested Date	.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
1	9032	7/16/2009	0.3642	0.0071	86.1263	0.0084	0.0016	ND	2.5000	ND	491.0000	ND	0.0094
2	9044	9/28/2009	0.0011	0.0120	202.7074	0.0009	ND	ND	3.6000	ND	1139.0000	0.0034	0.0045
3	9075	8/18/2009	0.0008	0.0021	928.1031	0.0012	0.0015	ND	43.5000	ND	3026.0000	0.0058	0.0035
4	9085	9/28/2009	0.0022	ND	133.4307	0.0027	ND	ND	2.5000	ND	890.0000	ND	0.4460
5	9086	9/28/2009	0.0021	ND	115.3055	0.0012	ND	ND	2.3000	ND	760.0000	ND	0.0226
Test Count that Exceeded Standard:			1	1	5	0	0	0	2	0	5	0	0

ND - Not Detected

Livestock:

Livestock Standards			5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
	Sample No	Tested Date																	
1	9032	7/16/2009	ND	ND	0.1566	ND	ND	0.0011	ND	0.0365	ND	ND	ND	0.0016	7.6400	ND	97.3526	491.0000	0.0094
2	9044	9/28/2009	ND	0.0063	0.3390	ND	ND	ND	0.0029	0.0124	ND	ND	20.5789	ND	7.6100	ND	230.3306	1139.0000	0.0045
3	9075	8/18/2009	ND	0.0037	1.4690	ND	ND	ND	0.0038	0.0296	ND	ND	14.3966	0.0015	9.1100	ND	ND	3026.0000	0.0035
4	9085	9/28/2009	ND	ND	0.0724	ND	ND	ND	0.0006	0.0614	ND	ND	16.6304	ND	7.5000	ND	43.2003	890.0000	0.4460
5	9086	9/28/2009	ND	ND	0.0592	ND	ND	ND	ND	0.0211	ND	ND	ND	ND	7.5400	ND	47.4501	760.0000	0.0226
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0

ND - Not Detected

Culinary:

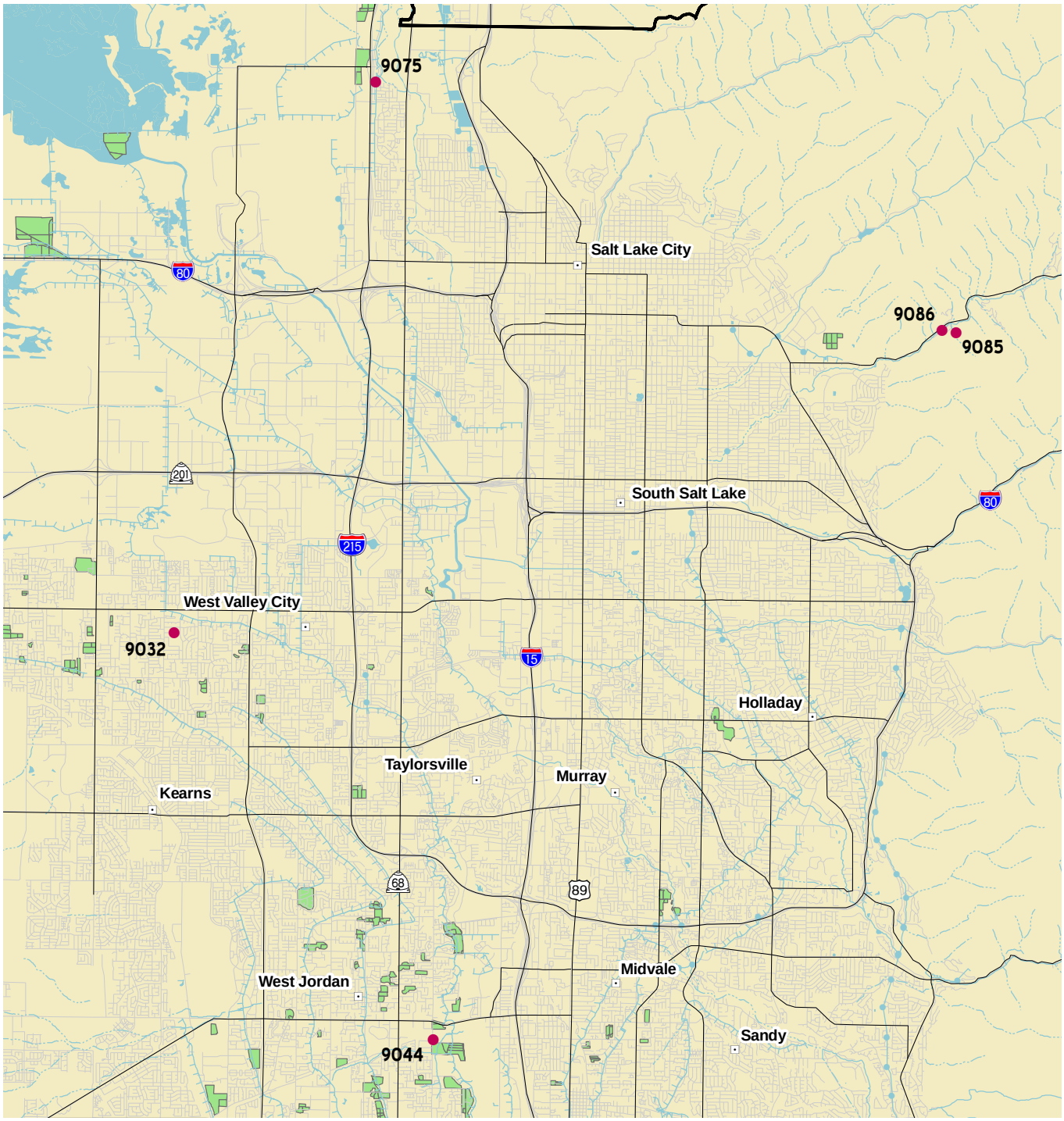
Drinking Water Primary Standards			0.01 As mg/L	2 Ba mg/L	0.004 Be mg/L	0.005 Cd mg/L	25 ClO4 ug/L	0.1 Cr mg/L	1.3 Cu mg/L	4 F mg/L	2 Hg ug/L	10000 Na mg/L	1000 Ni mg/L	44.3 NO3 mg/L	.015 Pb mg/L	.05 Se mg/L	500 SO4 mg/L	2000 TDS mg/L
	Sample No	Tested Date																
1	9032	7/16/2009	ND	0.0286	ND	ND	21.9048	ND	0.0365	ND	ND	86.1263	0.0084	ND	0.0016	ND	97.3526	491.0000
2	9044	9/28/2009	0.0063	0.0476	ND	ND	ND	0.0029	0.0124	ND	ND	202.7074	0.0009	20.5789	ND	ND	230.3306	1139.0000
3	9075	8/18/2009	0.0037	0.0211	ND	ND	ND	0.0038	0.0296	ND	ND	928.1031	0.0012	14.3966	0.0015	ND	ND	3026.0000
4	9085	9/28/2009	ND	0.2094	ND	ND	ND	0.0006	0.0614	ND	ND	133.4307	0.0027	16.6304	ND	ND	43.2003	890.0000
5	9086	9/28/2009	ND	0.1266	ND	ND	ND	ND	0.0211	ND	ND	115.3055	0.0012	ND	ND	ND	47.4501	760.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

ND - Not Detected

Drinking Water Secondary Standards:			0.1 Ag mg/L	0.5 Al mg/L	250 Cl mg/L	1 Cu mg/L	2 F mg/L	0.3 Fe mg/L	60;120;180 Hardness	.05 Mn mg/L	6.5-8.5 pH -	1000 Si mg/L	250 SO4 mg/L	200 TDS mg/L	5 Zn mg/L
	Sample No	Tested Date													
1	9032	7/16/2009	ND	ND	117.6403	0.0365	ND	1.2444	231.6000	0.3642	7.6400	2.8689	97.3526	491.0000	0.0094
2	9044	9/28/2009	ND	ND	280.2504	0.0124	ND	ND	597.9000	0.0011	7.6100	16.3379	230.3306	1139.0000	0.0045
3	9075	8/18/2009	ND	ND	1049.0590	0.0296	ND	ND	86.1000	0.0008	9.1100	15.5121	ND	3026.0000	0.0035
4	9085	9/28/2009	ND	ND	341.6575	0.0614	ND	ND	527.2000	0.0022	7.5000	6.4268	43.2003	890.0000	0.4460
5	9086	9/28/2009	ND	ND	271.2131	0.0211	ND	ND	456.0000	0.0021	7.5400	6.1132	47.4501	760.0000	0.0226
Test Count that Exceeded Standard:			0	0	4	0	0	1	5	1	1	0	0	5	0

ND - Not Detected

Map 5. Salt Lake County District

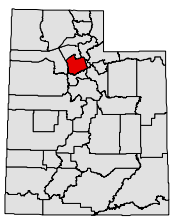


Map Scale 1:140,000 (1 inch = 2.2 miles)

N
W E
S

- Sample location
- Road
- Stream
- Ditch or canal
- Aqueduct
- Intermittent stream
- Water body
- Irrigated cropland
- District boundary

District Location



UACD Zone 3 **(Wasatch County and most of Summit and Utah counties)**

Twelve (12) sites were sampled in four of the five Conservation Districts in Zone 3 during the spring, summer, and fall of 2009. These include the number of samples in the following districts: two (2) in Alpine, three (3) in Kamas Valley, three (3) in Summit, and four (4) in Timp-Nebo districts.

The Statistical Report below shows a summary of the total number of chemical tests collected (Test Count) for each district in Zone 3. The next four columns summarize the number of tests which exceed the standards for either Primary Drinking Water (Primary), Secondary Drinking Water (DW Secondary), Irrigation, or Livestock.

Ground Water UACD Zone No 3 Statistical Report
For the Samples Collected Between: 4/1/2009 And 11/18/2009

District Name	Sample Count	Test Count	Test Count Which Result Exceeded Standards			
			DW Primary	DW Secondary	Irrigation	Livestock
Alpine	2	80	0	4	4	0
Kamas Valley	3	120	0	5	7	0
Summit	3	120	0	7	6	0
Timp-Nebo	4	160	0	10	9	0
Zone Totals:	**12**	**480**	**0**	**26**	**26**	**0**

Detailed tables follow, covering the above water quality categories - General, Irrigation, Livestock, and Culinary (which includes Primary Drinking Water Standards and Secondary Drinking Water Standards) for each district along with a map(s). For the Irrigation, Livestock, and Culinary tables the first row lists the explicit standard for each element or compound (column). The standards for irrigation and livestock originated from *Water Quality for Agriculture 29, Revision 1*, published by the Food and Agriculture Organization of the United Nations. The drinking water primary and secondary standards are from the State of Utah's water quality standards. Below the standards are the column headings (expressed as the chemical abbreviation) for each element or compound tested. Units used in measuring the concentrations of each element or compound are found below each abbreviation. Each row of the table is a single sample identified with a sample number. This sample number shows the sampling location on the map(s) located after the chemistry tables. Highlighted sample results show samples that exceed a standard for that element or compound. Totals at the bottom of each table show how many samples in each column exceeded the standard for that column. The value "ND" indicates that a particular element or compound was "Not Detected" for a given sample.

Alpine District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9073	8/11/2009	ND	ND	60.1 F (15.6 C)	593	298.0	0.400	261.3	Well	Clean	Pit Masonry	Steel	Open	☑	☑	☐	☐	☐	☐	☐
2	9074	8/11/2009	ND	ND	56.1 F (13.4 C)	631	303.0	0.500	252.9	Flowing Well	Clean	Well House	Steel	Sealed	☑	☑	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			**0**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards

	Sample No	Tested Date	5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
1	9073	8/18/2009	ND	0.0541	ND	52.1386	21.3834	ND	ND	0.0082	0.0055	ND	ND	259.8240	3.5190	0.0260	31.7814
2	9074	8/18/2009	ND	0.0159	ND	62.4858	37.0150	ND	ND	0.0006	0.0096	ND	ND	191.0450	1.8813	0.0040	23.4588
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	2	0	0	0

ND - Not Detected

Irrigation Standards Continues

	Sample No	Tested Date	.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
1	9073	8/18/2009	0.0188	0.0048	14.5050	0.0114	ND	ND	0.4000	ND	298.0000	ND	0.0067
2	9074	8/18/2009	0.0017	0.0012	20.0369	ND	ND	ND	0.5000	ND	303.0000	ND	0.0064
Test Count that Exceeded Standard:			0	0	0	0	0	0	0	0	2	0	0

ND - Not Detected

Livestock:

Livestock Standards

	Sample No	Tested Date	5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
1	9073	8/18/2009	ND	0.0026	0.0541	ND	ND	ND	0.0082	0.0055	ND	ND	ND	ND	7.7800	ND	25.5423	298.0000	0.0067
2	9074	8/18/2009	ND	ND	0.0159	ND	ND	ND	0.0006	0.0096	ND	ND	ND	ND	7.8500	ND	52.8677	303.0000	0.0064
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Culinary:

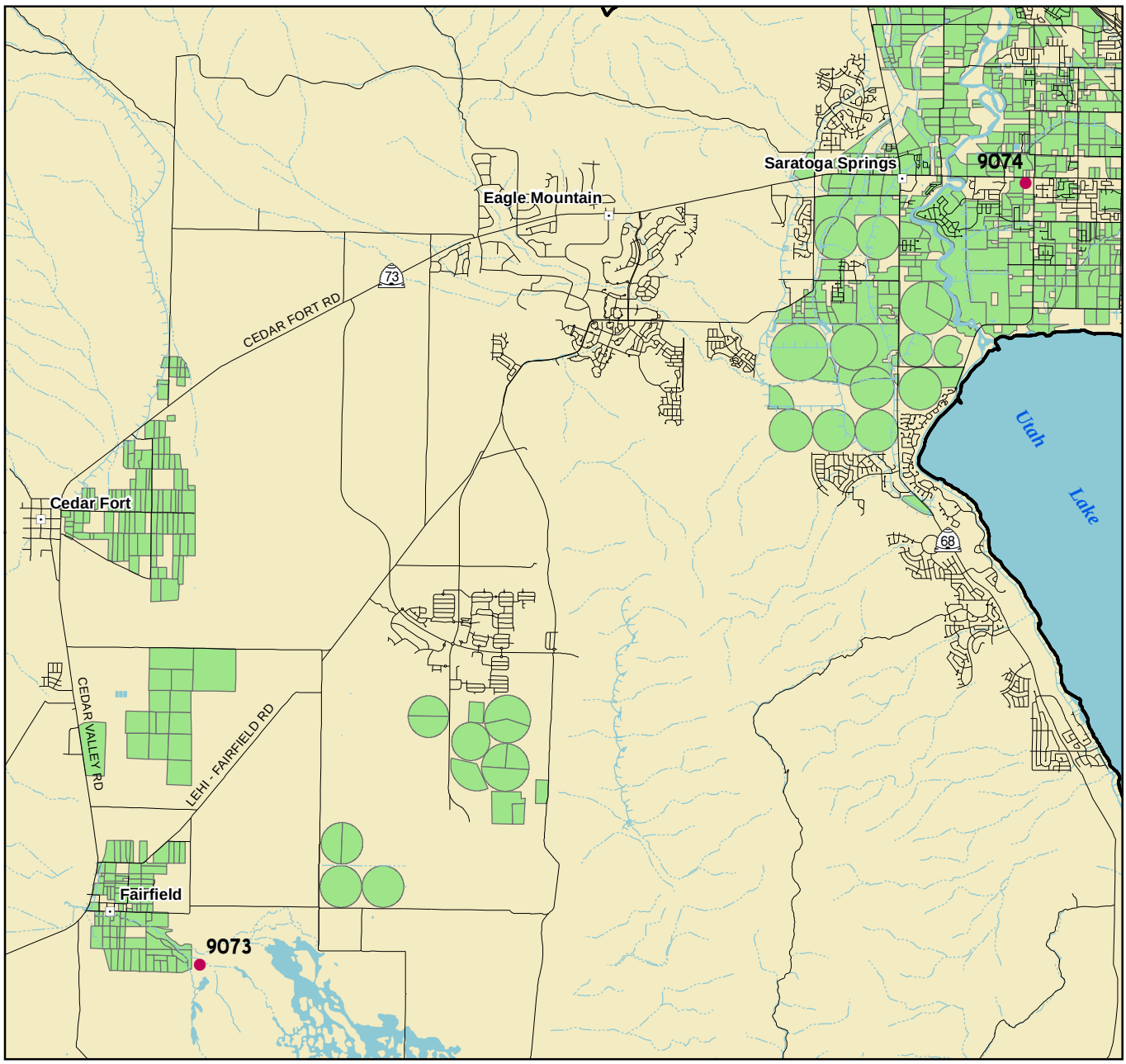
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9073	8/18/2009	0.0026	0.0656	ND	ND	ND	0.0082	0.0055	ND	ND	14.5050	0.0114	ND	ND	ND	25.5423	298.0000
2	9074	8/18/2009	ND	0.1192	ND	ND	ND	0.0006	0.0096	ND	ND	20.0369	ND	ND	ND	ND	52.8677	303.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9073	8/18/2009	ND	ND	21.3834	0.0055	ND	ND	261.3000	0.0188	7.7800	21.3268	25.5423	298.0000	0.0067
2	9074	8/18/2009	ND	ND	37.0150	0.0096	ND	ND	252.9000	0.0017	7.8500	6.4728	52.8677	303.0000	0.0064
Test Count that Exceeded Standard:			0	0	0	0	0	0	2	0	0	0	0	2	0

ND - Not Detected

Map 6. Alpine District

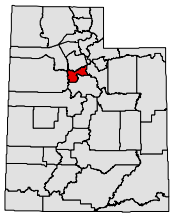


Map Scale 1:118,000 (1 inch = 1.9 miles)

N
W E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



Kamas District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9037	7/29/2009	POS	ND	50.7 F (10.4 C)	510	274.0	0.100	281.8	Spring	Clean	Covered	Concrete		✓						
2	9043	9/22/2009	ND	ND	65.3 F (18.5 C)	289	183.0	0.500	136.9	Well	Vegetated	Covered	Steel	Sealed	✓	✓					
3	9084	9/22/2009	POS	POS	50.2 F (10.1 C)	1087	524.0	0.900	406.7	Spring	Clean	Pit Concrete	Concrete	Sealed	✓	✓					
Bacteria Positive Sample Count			**2**	**1**	ND - Not Detected																

Irrigation:

Irrigation Standards			5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
	Sample No	**Tested Date**															
1	9037	7/30/2009	ND	0.0200	ND	68.5563	ND	ND	ND	0.0012	0.0348	ND	ND	309.8070	0.4684	0.0031	26.7888
2	9043	9/28/2009	ND	0.0251	ND	39.6556	ND	ND	ND	ND	0.0630	ND	ND	148.6860	2.7414	0.0038	9.1580
3	9084	9/28/2009	ND	0.0307	ND	140.9605	169.0872	ND	ND	0.0013	0.0121	ND	ND	248.9670	1.4755	0.0072	13.1893
Test Count that Exceeded Standard			0	0	0	0	1	0	0	0	0	0	0	3	0	0	0

ND - Not Detected

Irrigation Standards Continues			.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
	Sample No	**Tested Date**											
1	9037	7/30/2009	0.0007	0.0010	4.2413	ND	ND	ND	0.1000	ND	274.0000	0.0022	0.1173
2	9043	9/28/2009	0.0033	ND	12.5848	ND	ND	ND	0.5000	ND	183.0000	0.0032	0.3306
3	9084	9/28/2009	0.0003	ND	43.4930	0.0008	ND	ND	0.9000	ND	524.0000	ND	0.0073
Test Count that Exceeded Standard:			0	0	0	0	0	0	0	0	3	0	0

ND - Not Detected

Livestock:

Livestock Standards			5	0.2	5	.1	0.05	1	1	.5	2	10	440	.1	5.5-8.3	.05	167;333	1000;3000;	25
	Sample No	Tested Date	Al mg/L	As mg/L	B mg/L	Be mg/L	Cd mg/L	Co mg/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	NO3 mg/L	Pb mg/L	pH -	Se mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9037	7/30/2009	ND	ND	0.0200	ND	ND	ND	0.0012	0.0348	ND	ND	ND	ND	8.0700	ND	ND	274.0000	0.1173
2	9043	9/28/2009	ND	ND	0.0251	ND	ND	ND	ND	0.0630	ND	ND	ND	ND	6.7400	ND	ND	183.0000	0.3306
3	9084	9/28/2009	ND	ND	0.0307	ND	ND	ND	0.0013	0.0121	ND	ND	ND	ND	7.3600	ND	23.1402	524.0000	0.0073
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Culinary:

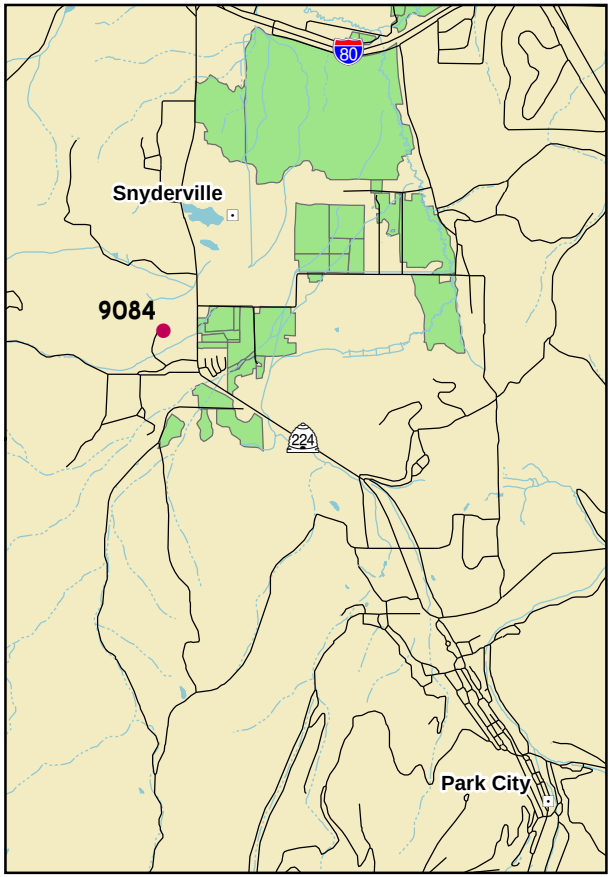
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9037	7/30/2009	ND	0.0566	ND	ND	ND	0.0012	0.0348	ND	ND	4.2413	ND	ND	ND	ND	ND	274.0000
2	9043	9/28/2009	ND	0.0518	ND	ND	ND	ND	0.0630	ND	ND	12.5848	ND	ND	ND	ND	ND	183.0000
3	9084	9/28/2009	ND	0.1509	ND	ND	ND	0.0013	0.0121	ND	ND	43.4930	0.0008	ND	ND	ND	23.1402	524.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

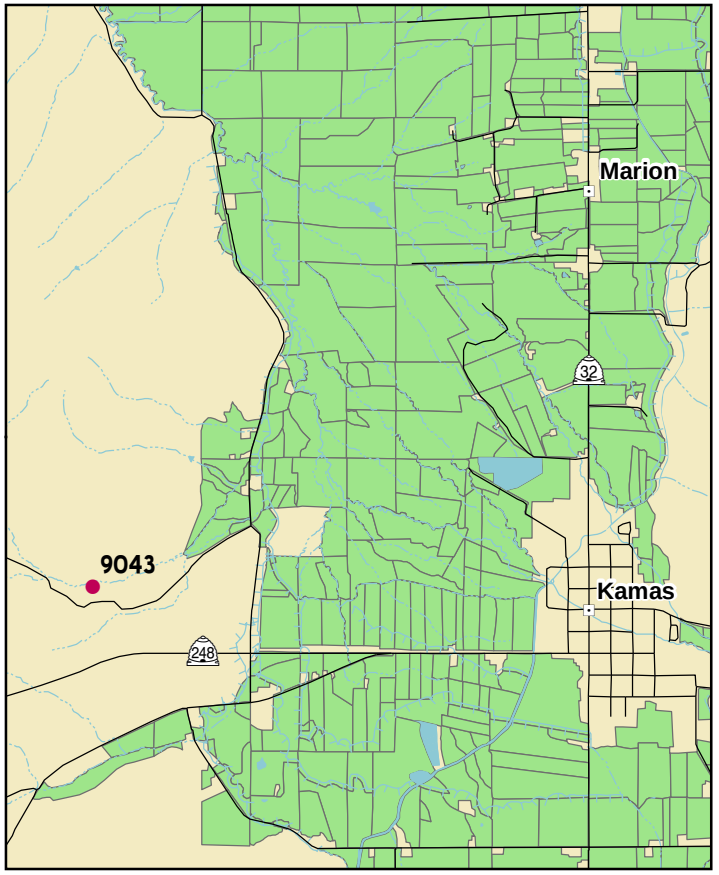
Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9037	7/30/2009	ND	ND	ND	0.0348	ND	ND	281.8000	0.0007	8.0700	3.8404	ND	274.0000	0.1173
2	9043	9/28/2009	ND	ND	ND	0.0630	ND	ND	136.9000	0.0033	6.7400	22.0270	ND	183.0000	0.3306
3	9084	9/28/2009	ND	ND	169.0872	0.0121	ND	ND	406.7000	0.0003	7.3600	5.3015	23.1402	524.0000	0.0073
Test Count that Exceeded Standard:			0	0	0	0	0	0	3	0	0	0	0	2	0

ND - Not Detected

Map 7. Kamas Valley District



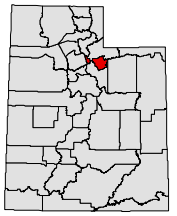
Map Scale 1:90,000 (1 inch = 1.4 miles)



Map Scale 1:63,360 (1 inch = 1 mile)

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



Summit District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9040	8/10/2009	POS	ND	39.2 F (4.0 C)	738	431.0	1.000	327.0	Spring	Livestock	Soil	Steel	Corroded	☑	☐	☐	☐	☐	☐	☐
2	9041	8/10/2009	POS	ND	39.2 F (4.0 C)	688	364.0	0.800	302.1	Spring	Clean	Pit Masonry	Concrete	Piping	☑	☐	☐	☐	☐	☐	☐
3	9042	8/10/2009	ND	ND	39.2 F (4.0 C)	566	297.0	0.500	264.5	Spring	Livestock	Soil	Steel	Corroded	☐	☑	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			**2**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards			5	0.5;1.0;2.0;	.1	100000	71;355	1	1000	1	0.2	2	5	73.2;152.5	10000	2.5	100000
	Sample No	Tested Date	Al mg/L	B mg/L	Be mg/L	Ca mg/L	Cl mg/L	Co mg/L	CO3 mg/L	Cr mg/L	Cu mg/L	F mg/L	Fe mg/L	HCO3 mg/L	K mg/L	Li mg/L	Mg mg/L
1	9040	8/18/2009	ND	0.0521	ND	91.0526	61.1132	ND	ND	0.0015	0.0165	ND	ND	269.6260	0.8711	0.0166	24.1145
2	9041	8/18/2009	ND	0.0396	ND	86.7011	51.0564	ND	ND	0.0012	0.0110	ND	ND	247.5230	1.0318	0.0133	20.7139
3	9042	8/18/2009	ND	0.0347	ND	73.3794	38.5539	ND	ND	0.0011	0.0084	ND	ND	226.6990	2.5694	0.0155	19.6675
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	3	0	0	0

ND - Not Detected

Irrigation Standards Continues			.2	.01	70;230	.2	5	10000	3;9	.02	151;451;13	.1	2
	Sample No	Tested Date	Mn mg/L	Mo mg/L	Na mg/L	Ni mg/L	Pb mg/L	PO4 mg/L	SAR meq/L	Se mg/L	TDS mg/L	V mg/L	Zn mg/L
1	9040	8/18/2009	0.0184	ND	40.1093	0.0009	ND	ND	1.0000	ND	431.0000	ND	0.0106
2	9041	8/18/2009	0.0015	ND	30.7580	0.0008	ND	ND	0.8000	ND	364.0000	ND	0.0095
3	9042	8/18/2009	0.1345	0.0037	17.0961	ND	ND	ND	0.5000	ND	297.0000	ND	0.2324
Test Count that Exceeded Standard:			0	0	0	0	0	0	0	0	3	0	0

ND - Not Detected

Livestock:

Livestock Standards			5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
	Sample No	Tested Date																	
1	9040	8/18/2009	ND	ND	0.0521	ND	ND	ND	0.0015	0.0165	ND	ND	ND	ND	7.2400	ND	69.5285	431.0000	0.0106
2	9041	8/18/2009	ND	ND	0.0396	ND	ND	ND	0.0012	0.0110	ND	ND	ND	ND	7.3400	ND	44.7164	364.0000	0.0095
3	9042	8/18/2009	ND	ND	0.0347	ND	ND	ND	0.0011	0.0084	ND	ND	ND	ND	7.6700	ND	29.5385	297.0000	0.2324
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Culinary:

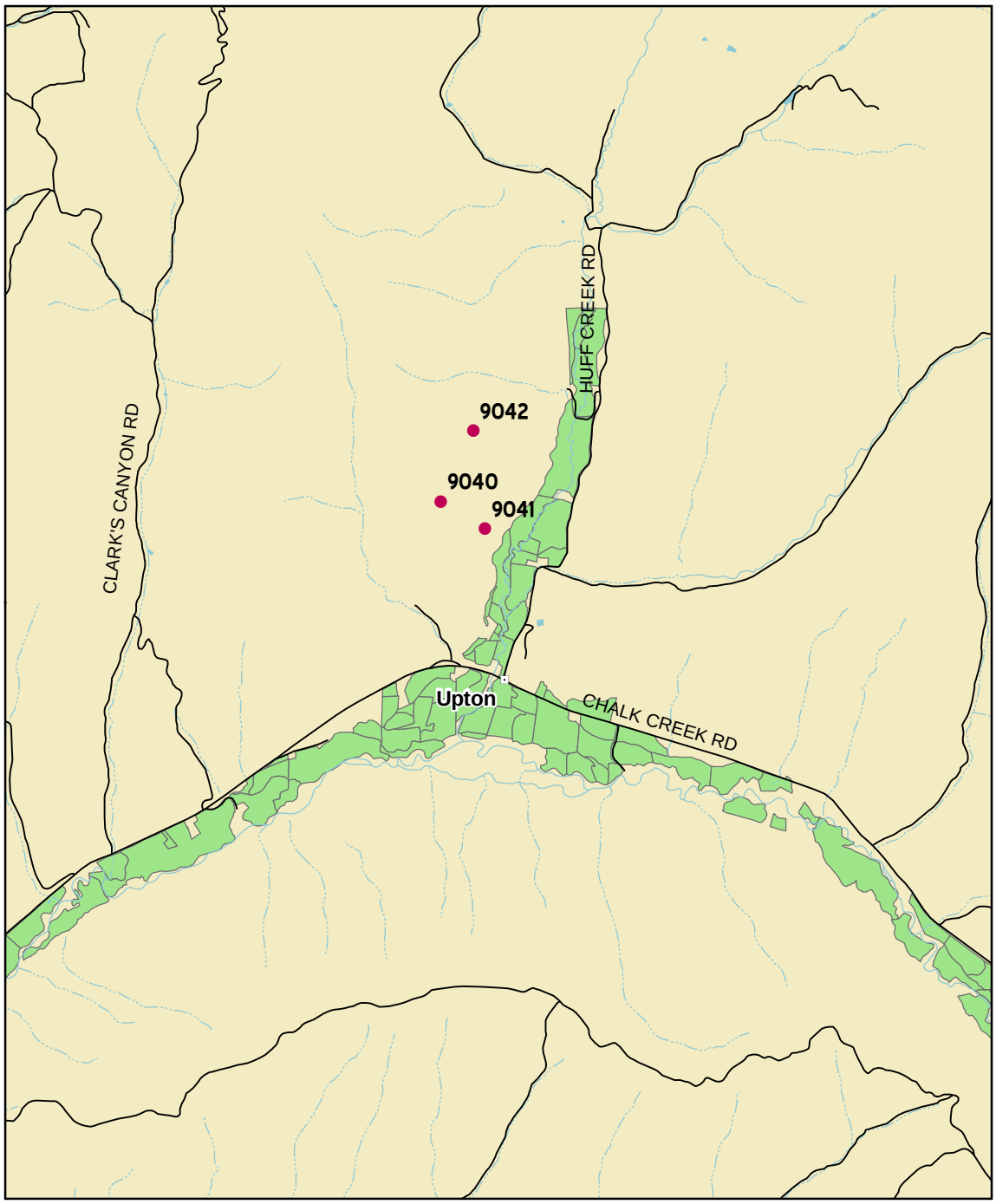
Drinking Water Primary Standards			0.01 As mg/L	2 Ba mg/L	0.004 Be mg/L	0.005 Cd mg/L	25 ClO4 ug/L	0.1 Cr mg/L	1.3 Cu mg/L	4 F mg/L	2 Hg ug/L	10000 Na mg/L	1000 Ni mg/L	44.3 NO3 mg/L	.015 Pb mg/L	.05 Se mg/L	500 SO4 mg/L	2000 TDS mg/L
	Sample No	Tested Date																
1	9040	8/18/2009	ND	0.0655	ND	ND	ND	0.0015	0.0165	ND	ND	40.1093	0.0009	ND	ND	ND	69.5285	431.0000
2	9041	8/18/2009	ND	0.0653	ND	ND	ND	0.0012	0.0110	ND	ND	30.7580	0.0008	ND	ND	ND	44.7164	364.0000
3	9042	8/18/2009	ND	0.0740	ND	ND	ND	0.0011	0.0084	ND	ND	17.0961	ND	ND	ND	ND	29.5385	297.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1 Ag mg/L	0.5 Al mg/L	250 Cl mg/L	1 Cu mg/L	2 F mg/L	0.3 Fe mg/L	60;120;180 Hardness	.05 Mn mg/L	6.5-8.5 pH -	1000 Si mg/L	250 SO4 mg/L	200 TDS mg/L	5 Zn mg/L
	Sample No	Tested Date													
1	9040	8/18/2009	ND	ND	61.1132	0.0165	ND	ND	327.0000	0.0184	7.2400	6.8224	69.5285	431.0000	0.0106
2	9041	8/18/2009	ND	ND	51.0564	0.0110	ND	ND	302.1000	0.0015	7.3400	6.7157	44.7164	364.0000	0.0095
3	9042	8/18/2009	ND	ND	38.5539	0.0084	ND	ND	264.5000	0.1345	7.6700	4.5272	29.5385	297.0000	0.2324
Test Count that Exceeded Standard:			0	0	0	0	0	0	3	1	0	0	0	3	0

ND - Not Detected

Map 8. Summit County District

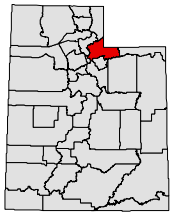


Map Scale 1:47,520 (1 inch = 0.75 miles)

N
W E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



Timp - Nebo District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9071	8/11/2009	POS	POS	58.1 F (14.5 C)	970	500.0	0.600	422.3	Spring	Clean	Soil	PVC	Sealed	☐	☑	☐	☐	☐	☑	☐
2	9072	8/11/2009	ND	ND	57.4 F (14.1 C)	724	386.0	2.000	214.5	Well	Livestock	Soil	Steel	Sealed	☑	☑	☐	☐	☐	☐	☐
3	9082	9/22/2009	POS	POS	61.3 F (16.3 C)	878	427.0	0.600	378.2	Well	Livestock	Soil	Steel	Sealed	☑	☑	☐	☐	☐	☐	☐
4	9083	9/22/2009	POS	POS	67.1 F (19.5 C)	582	274.0	0.900	204.2	Well	Clean	Well House	PVC	Open	☐	☑	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			3	3	ND - Not Detected																

Irrigation:

Irrigation Standards

	Sample No	Tested Date	Al mg/L	B mg/L	Be mg/L	Ca mg/L	Cl mg/L	Co mg/L	CO3 mg/L	Cr mg/L	Cu mg/L	F mg/L	Fe mg/L	HCO3 mg/L	K mg/L	Li mg/L	Mg mg/L
Irrigation Standards			5	0.5;1.0;2.0;	.1	100000	71;355	1	1000	1	0.2	2	5	73.2;152.5	10000	2.5	100000
1	9071	8/18/2009	ND	0.0587	ND	112.8886	66.3125	ND	ND	0.0015	0.0151	ND	ND	368.9240	8.4361	0.0256	34.0017
2	9072	8/18/2009	ND	0.1514	ND	46.3275	38.6247	ND	ND	0.0010	0.0058	ND	0.0581	356.6780	5.7068	0.0238	23.9515
3	9082	9/28/2009	ND	0.0629	ND	81.4785	26.3642	ND	ND	0.0006	0.0070	ND	ND	348.3640	4.0067	0.0142	42.3500
4	9083	9/28/2009	ND	0.0548	ND	54.0142	26.8094	ND	ND	0.0007	0.0217	ND	0.1437	198.1960	2.4135	0.0198	16.7838
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	4	0	0	0

ND - Not Detected

Irrigation Standards Continues

	Sample No	Tested Date	Mn mg/L	Mo mg/L	Na mg/L	Ni mg/L	Pb mg/L	PO4 mg/L	SAR meq/L	Se mg/L	TDS mg/L	V mg/L	Zn mg/L
Irrigation Standards Continues			.2	.01	70;230	.2	5	10000	3;9	.02	151;451;13	.1	2
1	9071	8/18/2009	0.0003	0.0008	27.2458	0.0012	ND	ND	0.6000	ND	500.0000	0.0058	0.0027
2	9072	8/18/2009	0.1073	0.0041	66.9893	ND	ND	ND	2.0000	ND	386.0000	ND	0.0045
3	9082	9/28/2009	0.4099	0.0021	26.3931	ND	ND	ND	0.6000	ND	427.0000	ND	0.0206
4	9083	9/28/2009	0.0011	0.0012	28.8558	0.0014	ND	ND	0.9000	ND	274.0000	ND	0.0058
Test Count that Exceeded Standard:			1	0	0	0	0	0	0	0	4	0	0

ND - Not Detected

Livestock:

Livestock Standards			5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
	Sample No	Tested Date																	
1	9071	8/18/2009	ND	0.0070	0.0587	ND	ND	ND	0.0015	0.0151	ND	ND	22.7276	ND	7.5100	ND	31.2362	500.0000	0.0027
2	9072	8/18/2009	ND	0.0032	0.1514	ND	ND	ND	0.0010	0.0058	ND	ND	ND	ND	8.0500	ND	ND	386.0000	0.0045
3	9082	9/28/2009	ND	0.0047	0.0629	ND	ND	ND	0.0006	0.0070	ND	ND	ND	ND	7.7700	ND	64.3649	427.0000	0.0206
4	9083	9/28/2009	ND	ND	0.0548	ND	ND	ND	0.0007	0.0217	ND	ND	ND	ND	8.0000	ND	42.0845	274.0000	0.0058
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Culinary:

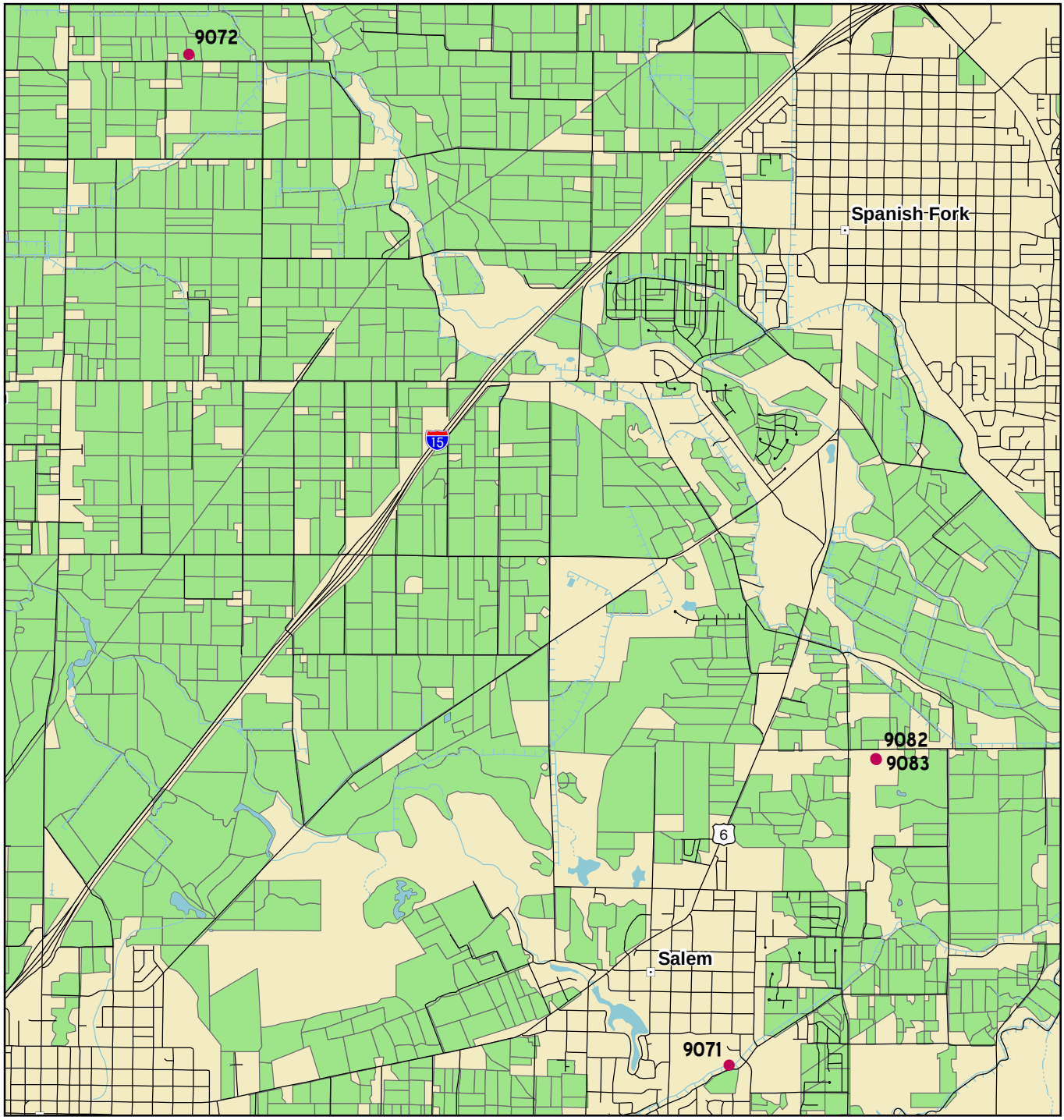
Drinking Water Primary Standards			0.01 As mg/L	2 Ba mg/L	0.004 Be mg/L	0.005 Cd mg/L	25 ClO4 ug/L	0.1 Cr mg/L	1.3 Cu mg/L	4 F mg/L	2 Hg ug/L	10000 Na mg/L	1000 Ni mg/L	44.3 NO3 mg/L	.015 Pb mg/L	.05 Se mg/L	500 SO4 mg/L	2000 TDS mg/L
	Sample No	Tested Date																
1	9071	8/18/2009	0.0070	0.1592	ND	ND	ND	0.0015	0.0151	ND	ND	27.2458	0.0012	22.7276	ND	ND	31.2362	500.0000
2	9072	8/18/2009	0.0032	0.3308	ND	ND	ND	0.0010	0.0058	ND	ND	66.9893	ND	ND	ND	ND	ND	386.0000
3	9082	9/28/2009	0.0047	0.2183	ND	ND	ND	0.0006	0.0070	ND	ND	26.3931	ND	ND	ND	ND	64.3649	427.0000
4	9083	9/28/2009	ND	0.0717	ND	ND	ND	0.0007	0.0217	ND	ND	28.8558	0.0014	ND	ND	ND	42.0845	274.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1 Ag mg/L	0.5 Al mg/L	250 Cl mg/L	1 Cu mg/L	2 F mg/L	0.3 Fe mg/L	60;120;180 Hardness	.05 Mn mg/L	6.5-8.5 pH -	1000 Si mg/L	250 SO4 mg/L	200 TDS mg/L	5 Zn mg/L
	Sample No	Tested Date													
1	9071	8/18/2009	ND	ND	66.3125	0.0151	ND	ND	422.3000	0.0003	7.5100	14.9805	31.2362	500.0000	0.0027
2	9072	8/18/2009	ND	ND	38.6247	0.0058	ND	0.0581	214.5000	0.1073	8.0500	18.2515	ND	386.0000	0.0045
3	9082	9/28/2009	ND	ND	26.3642	0.0070	ND	ND	378.2000	0.4099	7.7700	10.2431	64.3649	427.0000	0.0206
4	9083	9/28/2009	ND	ND	26.8094	0.0217	ND	0.1437	204.2000	0.0011	8.0000	3.5694	42.0845	274.0000	0.0058
Test Count that Exceeded Standard:			0	0	0	0	0	0	4	2	0	0	0	4	0

ND - Not Detected

Map 9. Timp/Nebo District

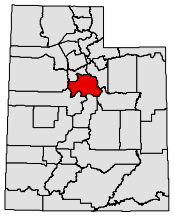


Map Scale 1:48,660 (1 inch = 0.77 miles)

N
W
E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



UACD Zone 4 **(Juab, Millard, and Wayne counties, most of Piute, Sanpete and Sevier counties, and a small part of Garfield County)**

Thirty-six (36) sites were sampled in five (5) of the seven (7) Soil Conservation Districts in Zone 4 during the spring, summer, and fall of 2009. These include the number of samples in the following districts: One (1) in Delta, two (2) in Fremont River, two (2) in Juab, Millard twenty nine (29) in Millard, and two (2) in Sanpete County.

The Statistical Report below shows a summary of the total number of chemical tests collected (Test Count) for each district in Zone 4. The next four columns summarize the number of tests which exceed the standards for either Primary Drinking Water (DW Primary), Secondary Drinking Water (DW Secondary), Irrigation, or Livestock.

Ground Water UACD Zone No 4 Statistical Report
For the Samples Collected Between: 4/1/2009 And 11/18/2009

District Name	Sample Count	Test Count	Test Count Which Result Exceeded Standards			
			DW Primary	DW Secondary	Irrigation	Livestock
Delta	1	40	1	1	5	0
Fremont River	2	80	0	8	6	2
Juab	2	80	0	6	9	1
Millard	29	1160	15	78	118	22
Sanpete Co.	2	80	1	4	7	0
Zone Totals:	**36**	**1440**	**17**	**97**	**145**	**25**

Detailed tables follow, covering the above water quality categories - General, Irrigation, Livestock, and Culinary (which includes Primary Drinking Water Standards and Secondary Drinking Water Standards) for each district along with a map(s). For the Irrigation, Livestock, and Culinary tables the first row lists the explicit standard for each element or compound (column). The standards for irrigation and livestock originated from *Water Quality for Agriculture 29, Revision 1*, published by the Food and Agriculture Organization of the United Nations. The drinking water primary and secondary standards are from the State of Utah's water quality standards. Below the standards are the column headings (expressed as the chemical abbreviation) for each element or compound tested. Units used in measuring the concentrations of each element or compound are found below each abbreviation. Each row of the table is a single sample identified with a sample number. This sample number shows the sampling location on the map(s) located after the chemistry tables. Highlighted sample results show samples that exceed a standard for that element or compound. Totals at the bottom of each table show how many samples in each column exceeded the standard for that column. The value "ND" indicates that a particular element or compound was "Not Detected" for a given sample.

Delta District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9081	9/22/2009	ND	ND	58.1 F (14.5 C)	1155	577.0	15.30	42.30	Well	Vegetated	Well House	Steel	Open	☑	☑	☑	☐	☐	☐	☐
Bacteria Positive Sample Count			**0**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards			5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
	Sample No	**Tested Date**															
1	9081	9/28/2009	ND	0.4864	ND	8.8976	155.5388	ND	ND	ND	0.0055	ND	0.0154	194.1780	2.6206	0.0720	4.8629
Test Count that Exceeded Standard			0	0	0	0	1	0	0	0	0	0	0	1	0	0	0

ND - Not Detected

Irrigation Standards Continues			.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
	Sample No	**Tested Date**											
1	9081	9/28/2009	0.0042	0.0063	228.2873	ND	ND	ND	15.3000	ND	577.0000	ND	ND
Test Count that Exceeded Standard:			0	0	1	0	0	0	1	0	1	0	0

ND - Not Detected

Livestock:

Livestock Standards			5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
	Sample No	**Tested Date**																	
1	9081	9/28/2009	ND	0.1393	0.4864	ND	ND	ND	ND	0.0055	ND	ND	ND	ND	8.2400	ND	70.1482	577.0000	ND
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Culinary:

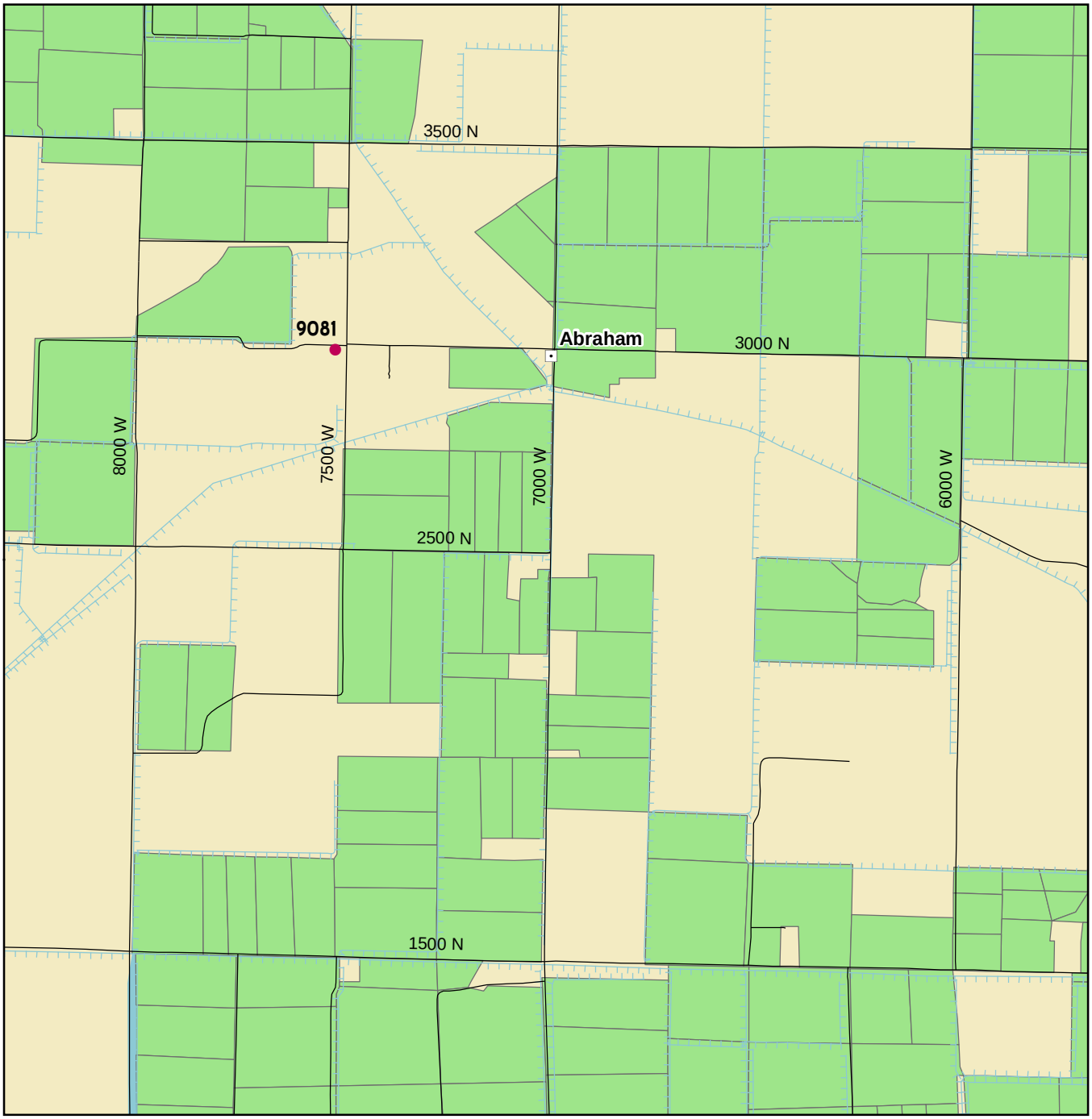
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9081	9/28/2009	0.1393	0.0284	ND	ND	ND	ND	0.0055	ND	ND	228.2873	ND	ND	ND	ND	70.1482	577.0000
Test Count that Exceeded Standard			1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9081	9/28/2009	ND	ND	155.5388	0.0055	ND	0.0154	42.3000	0.0042	8.2400	10.5308	70.1482	577.0000	ND
Test Count that Exceeded Standard:			0	0	0	0	0	0	0	0	0	0	0	1	0

ND - Not Detected

Map 10. Delta District

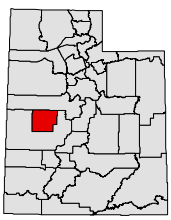


Map Scale 1:24,000 (1 inch = 0.4 miles)

N
W E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



Fremont River District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9076	9/7/2009	POS	ND	32.0 F (0.0 C)	1484	973.0	0.600	786.2	Pond	Vegetated	Soil	Earth	Open	☐	☐	☐	☐	☐	☐	☐
2	9077	9/7/2009	POS	POS	32.0 F (0.0 C)	1500	969.0	0.600	791.8	Well	Clay Soil	Soil	Steel	Sealed	☐	☐	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			**2**	**1**	ND - Not Detected																

Irrigation:

Irrigation Standards			5	0.5;1.0;2.0;	.1	100000	71;355	1	1000	1	0.2	2	5	73.2;152.5	10000	2.5	100000
	Sample No	Tested Date	Al mg/L	B mg/L	Be mg/L	Ca mg/L	Cl mg/L	Co mg/L	CO3 mg/L	Cr mg/L	Cu mg/L	F mg/L	Fe mg/L	HCO3 mg/L	K mg/L	Li mg/L	Mg mg/L
1	9076	9/15/2009	ND	0.0758	ND	212.6345	21.9865	ND	ND	0.0012	0.0135	ND	ND	295.8790	3.9882	0.0600	61.7989
2	9077	9/15/2009	ND	0.0732	ND	215.4348	22.7299	ND	ND	0.0013	0.0153	ND	ND	307.5540	3.7940	0.0610	61.4596
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	2	0	0	0

ND - Not Detected

Irrigation Standards Continues			.2	.01	70;230	.2	5	10000	3;9	.02	151;451;13	.1	2
	Sample No	Tested Date	Mn mg/L	Mo mg/L	Na mg/L	Ni mg/L	Pb mg/L	PO4 mg/L	SAR meq/L	Se mg/L	TDS mg/L	V mg/L	Zn mg/L
1	9076	9/15/2009	0.5960	ND	38.2575	0.0011	ND	ND	0.6000	ND	973.0000	ND	0.0207
2	9077	9/15/2009	0.7404	ND	38.8402	0.0013	ND	ND	0.6000	ND	969.0000	ND	0.3398
Test Count that Exceeded Standard:			2	0	0	0	0	0	0	0	2	0	0

ND - Not Detected

Livestock:

Livestock Standards			5	0.2	5	.1	0.05	1	1	.5	2	10	440	.1	5.5-8.3	.05	167;333	1000;3000;	25
	Sample No	Tested Date	Al mg/L	As mg/L	B mg/L	Be mg/L	Cd mg/L	Co mg/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	NO3 mg/L	Pb mg/L	pH -	Se mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9076	9/15/2009	ND	ND	0.0758	ND	ND	ND	0.0012	0.0135	ND	ND	ND	ND	7.0400	ND	484.0763	973.0000	0.0207
2	9077	9/15/2009	ND	ND	0.0732	ND	ND	ND	0.0013	0.0153	ND	ND	ND	ND	7.0200	ND	471.6621	969.0000	0.3398
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0

ND - Not Detected

Culinary:

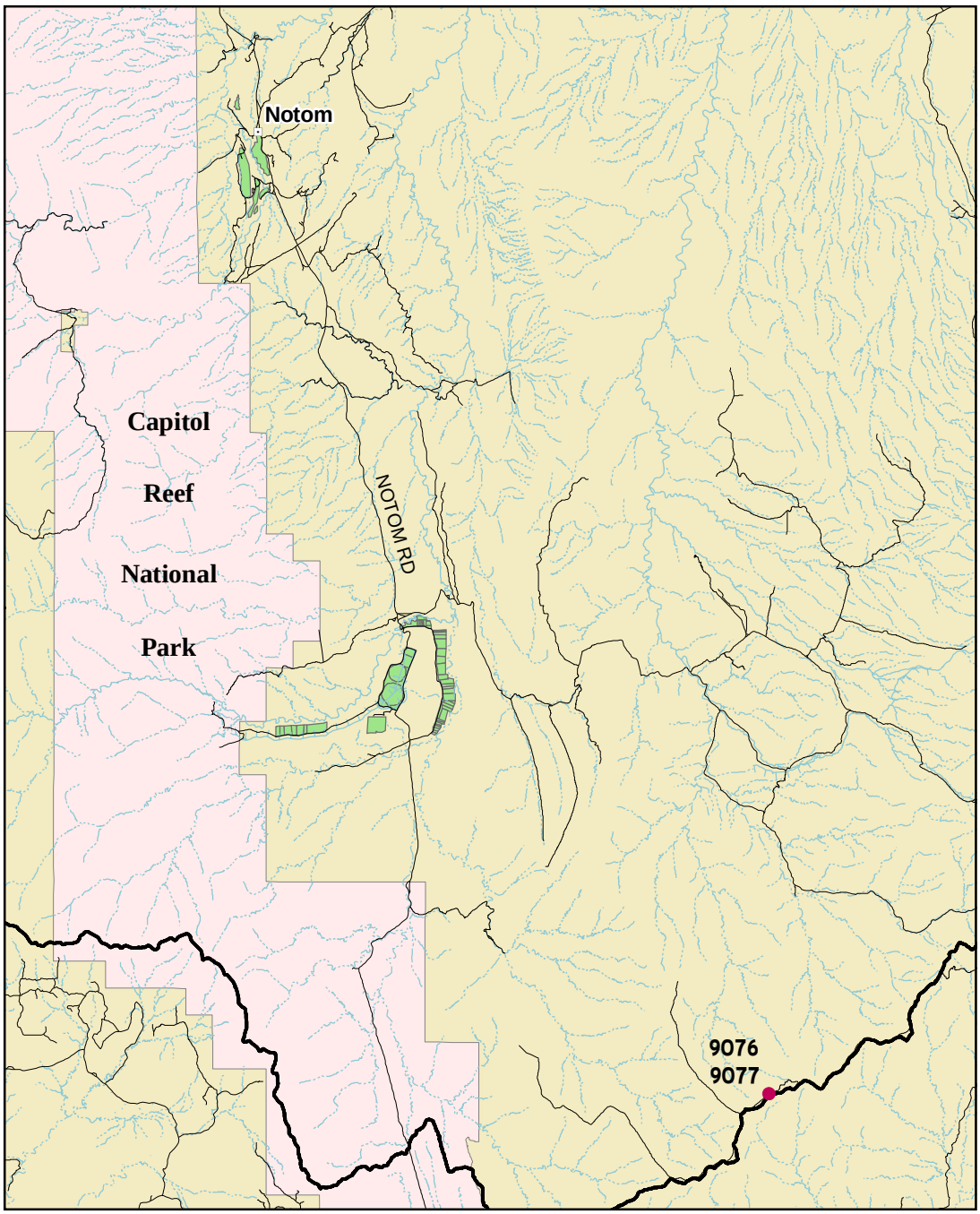
Drinking Water Primary Standards			0.01 As mg/L	2 Ba mg/L	0.004 Be mg/L	0.005 Cd mg/L	25 ClO4 ug/L	0.1 Cr mg/L	1.3 Cu mg/L	4 F mg/L	2 Hg ug/L	10000 Na mg/L	1000 Ni mg/L	44.3 NO3 mg/L	.015 Pb mg/L	.05 Se mg/L	500 SO4 mg/L	2000 TDS mg/L
	Sample No	Tested Date																
1	9076	9/15/2009	ND	0.0194	ND	ND	ND	0.0012	0.0135	ND	ND	38.2575	0.0011	ND	ND	ND	484.0763	973.0000
2	9077	9/15/2009	ND	0.0150	ND	ND	ND	0.0013	0.0153	ND	ND	38.8402	0.0013	ND	ND	ND	471.6621	969.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1 Ag mg/L	0.5 Al mg/L	250 Cl mg/L	1 Cu mg/L	2 F mg/L	0.3 Fe mg/L	60;120;180 Hardness	.05 Mn mg/L	6.5-8.5 pH -	1000 Si mg/L	250 SO4 mg/L	200 TDS mg/L	5 Zn mg/L
	Sample No	Tested Date													
1	9076	9/15/2009	ND	ND	21.9865	0.0135	ND	ND	786.2000	0.5960	7.0400	3.8824	484.0763	973.0000	0.0207
2	9077	9/15/2009	ND	ND	22.7299	0.0153	ND	ND	791.8000	0.7404	7.0200	3.7980	471.6621	969.0000	0.3398
Test Count that Exceeded Standard:			0	0	0	0	0	0	2	2	0	0	2	2	0

ND - Not Detected

Map 11. Fremont River District

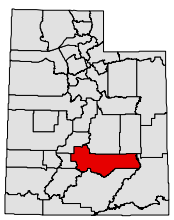


Map Scale 1:204,000 (1 inch = 3.2 miles)

N
W E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary
National Park boundary

District Location



Juab District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9030	7/14/2009	ND	ND	61.2 F (16.2 C)	1355	676.0	1.500	451.0	Well	Clean	Pit Concrete	Steel	Sealed	☑	☑	☐	☐	☐	☐	☐
2	9031	7/14/2009	ND	ND	54.7 F (12.6 C)	1925	1076.	3.300	601.9	Well	Clean	Soil	Steel	Subsidence	☑	☑	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			**0**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards

	Sample No	Tested Date	5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
1	9030	7/16/2009	ND	0.1116	ND	83.1412	255.8091	ND	ND	0.0008	0.0181	ND	ND	189.5040	1.9454	0.0253	59.0086
2	9031	7/16/2009	ND	0.1254	ND	159.1867	285.8316	ND	ND	0.0017	0.0187	ND	ND	438.2630	4.2526	0.0206	49.4904
Test Count that Exceeded Standard			0	0	0	0	2	0	0	0	0	0	0	2	0	0	0

ND - Not Detected

Irrigation Standards Continues

	Sample No	Tested Date	.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
1	9076	9/15/2009	0.5960	ND	38.2575	0.0011	ND	ND	0.6000	ND	973.0000	ND	0.0207
2	9077	9/15/2009	0.7404	ND	38.8402	0.0013	ND	ND	0.6000	ND	969.0000	ND	0.3398
Test Count that Exceeded Standard:			2	0	0	0	0	0	0	0	2	0	0

ND - Not Detected

Livestock:

Livestock Standards

	Sample No	Tested Date	5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
1	9030	7/16/2009	ND	0.0057	0.1116	ND	ND	ND	0.0008	0.0181	ND	ND	32.7410	ND	7.9700	0.0040	67.5759	676.0000	0.0211
2	9031	7/16/2009	ND	0.0020	0.1254	ND	ND	ND	0.0017	0.0187	ND	ND	25.1500	ND	7.7000	ND	137.9216	1076.0000	0.0353
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

ND - Not Detected

Culinary:

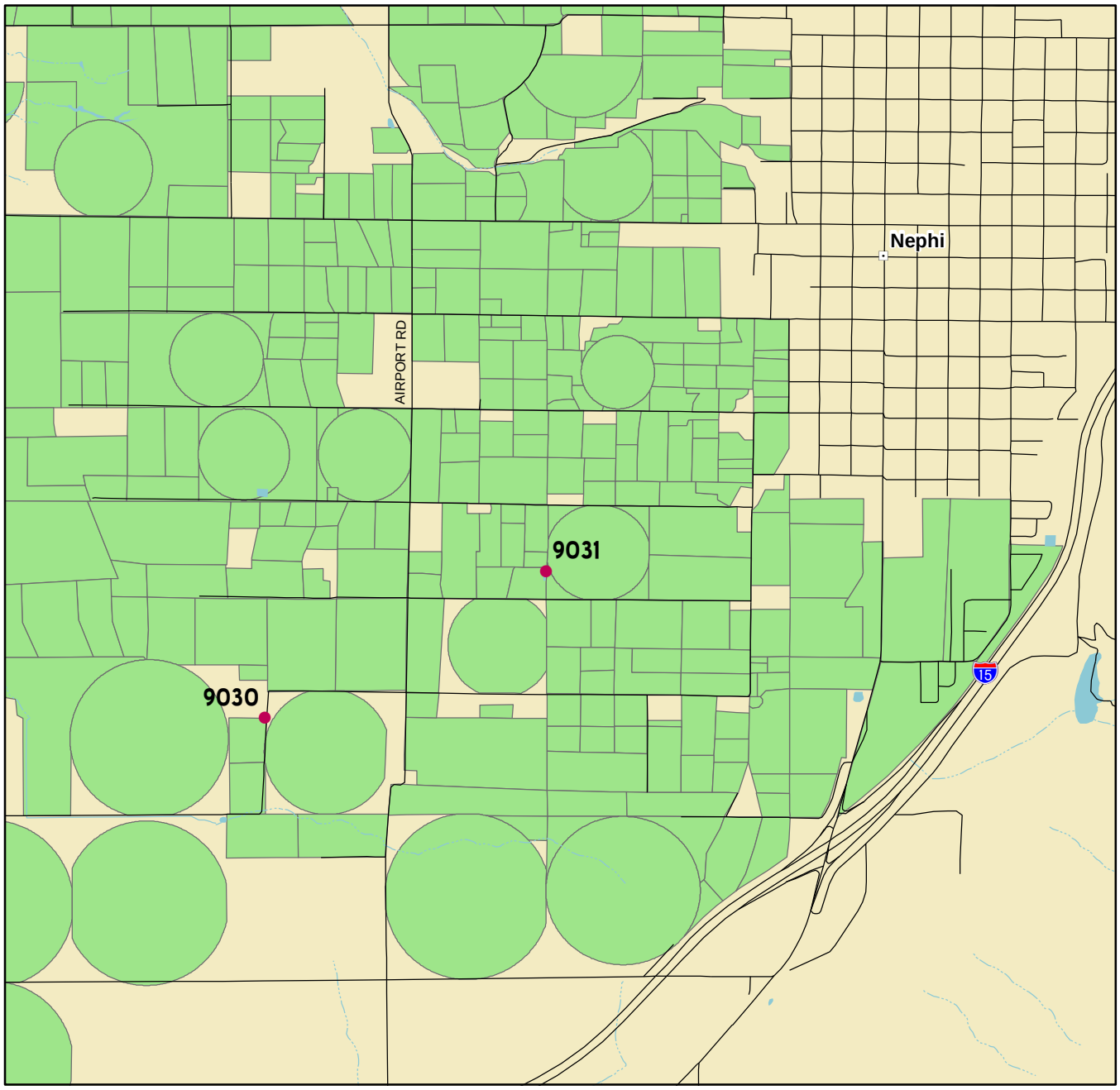
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9030	7/16/2009	0.0057	0.1172	ND	ND	ND	0.0008	0.0181	ND	ND	73.7738	0.0010	32.7410	ND	0.0040	67.5759	676.0000
2	9031	7/16/2009	0.0020	0.0679	ND	ND	ND	0.0017	0.0187	ND	ND	184.3944	0.0015	25.1500	ND	ND	137.9216	1076.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9030	7/16/2009	ND	ND	255.8091	0.0181	ND	ND	451.0000	0.0037	7.9700	8.4878	67.5759	676.0000	0.0211
2	9031	7/16/2009	ND	ND	285.8316	0.0187	ND	ND	601.9000	ND	7.7000	12.8352	137.9216	1076.0000	0.0353
Test Count that Exceeded Standard:			0	0	2	0	0	0	2	0	0	0	0	2	0

ND - Not Detected

Map 12. Juab District

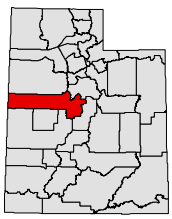


Map Scale 1:32,000 (1 inch = 0.5 miles)

N
W E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



Millard District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9001	7/14/2009	ND	ND	57.9 F (14.4 C)	866	459.0	2.100	277.5	Well	Clean	Soil	Steel	Sealed	✔						
2	9002	7/14/2009	POS	ND	60.4 F (15.8 C)	1016	547.0	1.200	381.9	Well	Clean	Concrete Pad	Steel	Open		✔					
3	9003	7/14/2009	POS	ND	61.3 F (16.3 C)	1287	746.0	1.000	562.0	Well	Clean	Covered	Steel	Sealed		✔					
4	9004	7/14/2009	POS	ND	60.4 F (15.8 C)	1686	971.0	0.900	744.4	Well	Livestock	Concrete Pad	Steel	Sealed		✔					
5	9005	7/14/2009	POS	ND	57.7 F (14.3 C)	1598	834.0	1.000	642.5	Well	Clean	Concrete Pad	Steel	Open		✔					
6	9006	7/14/2009	ND	ND	62.2 F (16.8 C)	556	289.0	0.600	223.6	Well	Livestock	Soil	Steel	Open							
7	9007	7/14/2009	POS	ND	64.9 F (18.3 C)	961	481.0	1.000	346.2	Well	Clean	Pit Concrete	Steel	Sealed	✔	✔					
8	9008	7/14/2009	POS	ND	62.6 F (17.0 C)	985	510.0	1.000	371.2	Well	Clean	Concrete Pad	Steel	Sealed		✔					
9	9009	7/14/2009	POS	ND	64.4 F (18.0 C)	1163	530.0	0.800	431.8	Well	Clean	Covered	Steel	Sealed		✔					
10	9010	7/14/2009	ND	ND	65.1 F (18.4 C)	844	400.0	1.000	310.0	Well	Clean	Concrete Pad	Steel	Sealed		✔					
11	9011	7/14/2009	POS	ND	63.7 F (17.6 C)	619	334.0	0.500	261.8	Well	Clean	Soil	Steel	Open		✔					
12	9012	7/14/2009	POS	ND	58.5 F (14.7 C)	1020	530.0	0.700	340.3	Well	Clean	Concrete Pad	Steel	Sealed		✔					
13	9013	7/14/2009	ND	ND	65.7 F (18.7 C)	2220	1186.	1.000	873.7	Well	Clean	Concrete Pad	Steel	Sealed		✔					
14	9014	7/14/2009	POS	ND	65.7 F (18.7 C)	1396	775.0	1.700	479.1	Well	Clean	Concrete Pad	Steel	Sealed		✔					
15	9015	7/14/2009	ND	ND	72.9 F (22.7 C)	1411	1145	8.600	4617.	Well	Clean	Covered	Steel	Sealed	✔	✔					
16	9016	7/14/2009	POS	ND	58.5 F (14.7 C)	1068	541.0	2.000	296.0	Well	Clean	Gravel	Steel	Sealed		✔					
17	9017	7/14/2009	POS	ND	60.6 F (15.9 C)	1425	875.0	2.500	410.7	Well	Clean	Concrete Pad	Steel	Open		✔					
18	9018	7/14/2009	ND	ND	57.9 F (14.4 C)	1144	710.0	1.200	434.4	Well	Livestock	Concrete Pad	Steel	Sealed		✔					
19	9019	7/14/2009	POS	POS	56.3 F (13.5 C)	967	517.0	1.000	402.6	Well	Clean	Concrete Pad	Steel	Open		✔					
20	9020	7/14/2009	ND	ND	58.3 F (14.6 C)	721	407.0	0.700	309.5	Well	Clean	Soil	Steel	Subsidence		✔					
21	9021	7/14/2009	ND	ND	55.6 F (13.1 C)	757	413.0	0.500	345.9	Well	Clean	Soil	Steel	Sealed		✔					
22	9022	7/14/2009	ND	ND	59.2 F (15.1 C)	1358	723.0	1.800	457.8	Well	Clean	Lawn	Steel	Sealed	✔	✔					
23	9023	7/14/2009	POS	ND	76.3 F (24.6 C)	4140	2609.	5.300	1075.	Well	Clean	Gravel	Steel	Sealed		✔					
24	9024	7/14/2009	POS	ND	63.3 F (17.4 C)	2930	1636.	3.800	702.1	Well	Clean	Concrete Pad	Steel	Sealed		✔					
25	9025	7/14/2009	POS	ND	66.0 F (18.9 C)	2960	1709.	4.600	619.5	Well	Clean	Concrete Pad	Steel	Open		✔					
26	9026	7/14/2009	POS	ND	60.8 F (16.0 C)	7500	6536.	7.300	1945.	Well	Clean	Soil	Steel	Open		✔					
27	9027	7/14/2009	ND	ND	62.2 F (16.8 C)	1129	8396.	8.600	2756.	Well	Clean	Soil	Steel	Open		✔					
28	9028	7/14/2009	POS	ND	59.2 F (15.1 C)	8380	7084.	6.000	2930.	Well	Clean	Concrete Pad	Steel	Open		✔					
29	9029	7/14/2009	ND	ND	57.9 F (14.4 C)	7120	5676.	5.500	2554.	Well	Clean	Soil	Steel	Sealed		✔					
Bacteria Positive Sample Count			**18**	**1**	ND - Not Detected																

Irrigation:

Irrigation Standards			5	0.5;1.0;2.0;	.1	100000	71;355	1	1000	1	0.2	2	5	73.2;152.5	10000	2.5	100000
	Sample No	Tested Date	Al mg/L	B mg/L	Be mg/L	Ca mg/L	Cl mg/L	Co mg/L	CO3 mg/L	Cr mg/L	Cu mg/L	F mg/L	Fe mg/L	HCO3 mg/L	K mg/L	Li mg/L	Mg mg/L
1	9001	7/16/2009	ND	0.1306	ND	58.9298	38.4690	ND	ND	0.0012	0.0228	ND	ND	357.6400	2.1758	0.0118	31.5943
2	9002	7/16/2009	ND	0.0745	ND	95.9758	88.5839	ND	ND	0.0020	0.0186	ND	ND	315.1490	3.0871	0.0291	34.4598
3	9003	7/16/2009	ND	0.0824	ND	147.9644	128.1816	0.0004	ND	0.0017	0.0158	ND	ND	285.6910	4.2561	0.0426	46.6310
4	9004	7/16/2009	ND	0.0781	ND	182.1270	201.8083	ND	ND	0.0011	0.0176	ND	ND	257.5190	4.1124	0.0376	70.1713
5	9005	7/16/2009	ND	0.0451	ND	140.6852	277.0772	ND	ND	0.0014	0.0522	ND	ND	230.8950	2.5901	0.0178	70.5851
6	9006	7/16/2009	ND	0.0345	ND	39.3959	51.0310	ND	ND	0.0017	0.0101	ND	ND	202.7870	1.4497	0.0311	30.3565
7	9007	7/16/2009	ND	0.0548	ND	66.5518	179.1766	ND	ND	0.0008	0.0048	ND	ND	168.5830	2.0067	0.0332	43.6517
8	9008	7/16/2009	ND	0.0515	ND	84.9900	164.4149	ND	ND	0.0007	0.0193	ND	ND	191.9490	1.8303	0.0236	38.5361
9	9009	7/16/2009	ND	0.0368	ND	99.0815	224.2698	ND	ND	0.0009	0.0084	ND	ND	115.8960	1.7995	0.0265	44.6744
10	9010	7/16/2009	ND	0.0948	ND	59.2330	129.4592	ND	ND	0.0017	0.0086	ND	ND	194.4090	1.9439	0.0516	39.3057
11	9011	7/16/2009	ND	0.0289	ND	52.9620	60.9605	ND	ND	0.0015	0.0165	ND	ND	245.3630	1.0560	0.0138	31.3957
12	9012	7/16/2009	ND	0.0442	ND	75.3977	140.2566	ND	ND	0.0015	0.0320	ND	ND	251.7870	0.8647	0.0122	36.8398
13	9013	7/16/2009	ND	0.1387	ND	160.7387	263.7148	ND	ND	0.0015	0.0150	ND	ND	193.2020	4.6528	0.0974	114.5386
14	9014	7/16/2009	ND	0.1948	ND	86.8814	190.0656	ND	ND	0.0011	0.0185	ND	ND	215.8290	11.9374	0.2699	63.5579
15	9015	7/16/2009	ND	1.6080	ND	691.3025	6294.7150	0.0008	ND	ND	0.0303	ND	ND	160.9290	42.3842	1.1100	701.3130
16	9016	7/16/2009	ND	0.4021	ND	78.2132	131.5068	ND	ND	0.0015	0.0141	ND	ND	256.6080	13.1334	0.2288	24.3807
17	9017	7/16/2009	ND	0.5223	ND	107.1939	236.7113	ND	ND	0.0012	0.0041	ND	ND	225.8480	15.1383	0.3300	34.6348
18	9018	7/16/2009	ND	0.1247	ND	121.2457	189.5916	ND	ND	0.0008	0.0179	ND	ND	230.8890	2.8325	0.0386	31.8557
19	9019	7/16/2009	ND	0.1342	ND	104.8351	85.4703	ND	ND	0.0006	0.0107	ND	ND	311.3800	1.8562	0.0194	34.1161
20	9020	7/16/2009	ND	0.0759	ND	81.8599	60.6674	ND	ND	ND	0.0098	ND	ND	277.0650	1.2193	0.0148	25.4514
21	9021	7/16/2009	ND	0.0739	ND	88.3677	43.8501	ND	ND	0.0006	0.0157	ND	ND	325.1760	1.4493	0.0162	30.3262
22	9022	7/16/2009	ND	0.2320	ND	109.5921	231.4242	ND	ND	0.0008	0.0140	ND	ND	259.2400	4.1937	0.0591	44.6057
23	9023	7/16/2009	ND	2.1560	ND	271.6873	1055.3960	0.0003	ND	0.0013	0.0087	ND	ND	297.6620	38.9538	1.2460	96.1854
24	9024	7/16/2009	ND	1.4210	ND	169.8163	620.2313	ND	ND	0.0015	0.0141	ND	ND	261.6930	20.6605	0.6732	67.3666
25	9025	7/16/2009	ND	1.6110	ND	140.5591	664.7141	ND	ND	0.0016	0.0104	ND	ND	306.5230	21.1109	0.8159	65.0617
26	9026	7/16/2009	ND	2.8390	ND	439.2552	2939.5470	0.0004	ND	0.0008	0.0241	ND	ND	302.8100	58.6082	2.3580	205.5678
27	9027	7/16/2009	ND	2.8680	ND	559.3896	4147.8340	0.0005	ND	0.0017	0.0147	ND	ND	213.3070	128.3397	2.8310	329.6454
28	9028	7/16/2009	ND	1.3940	ND	586.7424	3202.2140	0.0004	ND	0.0020	0.0234	ND	ND	258.6420	36.8200	0.8876	355.3502
29	9029	7/16/2009	ND	1.1280	ND	456.0034	2430.5740	0.0003	ND	0.0016	0.0152	ND	0.1169	195.0830	15.4313	0.7720	343.4261
Test Count that Exceeded Standard			0	9	0	0	24	0	0	0	0	0	0	29	0	1	0

ND - Not Detected

Irrigation Standards Continues			.2	.01	70;230	.2	5	10000	3;9	.02	151;451;13	.1	2
	Sample No	Tested Date	Mn mg/L	Mo mg/L	Na mg/L	Ni mg/L	Pb mg/L	PO4 mg/L	SAR meq/L	Se mg/L	TDS mg/L	V mg/L	Zn mg/L
1	9001	7/16/2009	0.0005	ND	78.8804	0.0008	ND	ND	2.1000	ND	459.0000	0.0042	0.0211
2	9002	7/16/2009	0.0004	0.0008	52.7583	0.0009	ND	ND	1.2000	ND	547.0000	ND	0.0050
3	9003	7/16/2009	0.0006	0.0010	55.4577	0.0014	ND	ND	1.0000	ND	746.0000	ND	0.0044
4	9004	7/16/2009	0.0005	ND	56.7617	0.0026	ND	ND	0.9000	ND	971.0000	0.0030	0.0939
5	9005	7/16/2009	0.0017	ND	56.5538	0.0014	ND	ND	1.0000	ND	834.0000	0.0019	0.0460
6	9006	7/16/2009	0.0004	0.0005	20.6845	ND	ND	ND	0.6000	ND	289.0000	0.0096	0.0030
7	9007	7/16/2009	0.0016	ND	41.7076	ND	ND	ND	1.0000	ND	481.0000	0.0052	0.0419
8	9008	7/16/2009	0.0004	ND	43.4981	0.0012	ND	ND	1.0000	ND	510.0000	ND	0.0196
9	9009	7/16/2009	0.0003	ND	38.0338	0.0008	ND	ND	0.8000	ND	530.0000	0.0022	0.0063
10	9010	7/16/2009	0.0003	ND	39.7969	ND	ND	ND	1.0000	ND	400.0000	0.0032	0.0042
11	9011	7/16/2009	ND	ND	20.0144	0.0010	ND	ND	0.5000	ND	334.0000	0.0035	0.0111
12	9012	7/16/2009	ND	ND	27.6133	0.0007	ND	ND	0.7000	ND	530.0000	0.0021	0.0072
13	9013	7/16/2009	0.0013	0.0007	69.6559	0.0014	ND	ND	1.0000	0.0055	1186.0000	0.0071	0.0094
14	9014	7/16/2009	0.0004	0.0011	86.6778	0.0008	ND	ND	1.7000	ND	775.0000	0.0093	0.0037
15	9015	7/16/2009	0.0081	0.0185	1343.1190	0.0028	ND	ND	8.6000	0.0459	11450.000	0.0033	0.2166
16	9016	7/16/2009	0.0003	0.0016	80.5588	0.0007	ND	ND	2.0000	ND	541.0000	ND	0.0081
17	9017	7/16/2009	0.0003	0.0009	115.9488	0.0008	ND	ND	2.5000	ND	875.0000	ND	0.0027
18	9018	7/16/2009	0.0011	ND	56.8695	0.0013	ND	ND	1.2000	ND	710.0000	ND	0.0102
19	9019	7/16/2009	0.0007	ND	45.6786	0.0011	ND	ND	1.0000	ND	517.0000	0.0030	0.0048
20	9020	7/16/2009	0.0003	ND	27.4553	0.0008	ND	ND	0.7000	ND	407.0000	0.0032	0.0056
21	9021	7/16/2009	0.0004	ND	23.1221	0.0010	ND	ND	0.5000	ND	413.0000	0.0026	0.0070
22	9022	7/16/2009	0.0007	ND	87.8504	0.0011	ND	ND	1.8000	ND	723.0000	0.0024	0.1078
23	9023	7/16/2009	0.0009	ND	399.2615	0.0024	ND	ND	5.3000	ND	2609.0000	0.0061	0.0303
24	9024	7/16/2009	0.0008	ND	233.3834	0.0018	ND	ND	3.8000	ND	1636.0000	0.0065	0.0046
25	9025	7/16/2009	0.0008	0.0007	264.9745	0.0018	ND	ND	4.6000	ND	1709.0000	0.0082	0.0128
26	9026	7/16/2009	0.0006	0.0012	740.5757	0.0019	ND	ND	7.3000	0.0229	6536.0000	0.0061	0.0231
27	9027	7/16/2009	0.0005	0.0011	1042.1280	0.0025	ND	ND	8.6000	0.0302	8396.0000	0.0062	0.0393
28	9028	7/16/2009	0.0007	ND	751.2114	0.0019	ND	ND	6.0000	0.0260	7084.0000	0.0042	0.0156
29	9029	7/16/2009	0.0003	0.0012	643.4995	ND	ND	ND	5.5000	0.0154	5676.0000	0.0044	0.0081
Test Count that Exceeded Standard:			0	1	13	0	0	0	8	4	29	0	0

ND - Not Detected

Livestock:

Livestock Standards			5	0.2	5	.1	0.05	1	1	.5	2	10	440	.1	5.5-8.3	.05	167;333	1000;3000;	25
	Sample No	Tested Date	Al mg/L	As mg/L	B mg/L	Be mg/L	Cd mg/L	Co mg/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	NO3 mg/L	Pb mg/L	pH -	Se mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9001	7/16/2009	ND	0.0026	0.1306	ND	ND	ND	0.0012	0.0228	ND	ND	20.7549	ND	8.1200	ND	41.5485	459.0000	0.0211
2	9002	7/16/2009	ND	0.0031	0.0745	ND	ND	ND	0.0020	0.0186	ND	ND	35.8143	ND	7.7200	ND	72.8883	547.0000	0.0050
3	9003	7/16/2009	ND	0.0031	0.0824	ND	ND	0.0004	0.0017	0.0158	ND	ND	35.7358	ND	7.8100	ND	179.3345	746.0000	0.0044
4	9004	7/16/2009	ND	0.0022	0.0781	ND	ND	ND	0.0011	0.0176	ND	ND	36.1315	ND	7.6800	ND	282.3725	971.0000	0.0939
5	9005	7/16/2009	ND	0.0019	0.0451	ND	ND	ND	0.0014	0.0522	ND	ND	30.9194	ND	7.6400	ND	131.4521	834.0000	0.0460
6	9006	7/16/2009	ND	0.0070	0.0345	ND	ND	ND	0.0017	0.0101	ND	ND	10.4983	ND	7.8700	ND	ND	289.0000	0.0030
7	9007	7/16/2009	ND	0.0039	0.0548	ND	ND	ND	0.0008	0.0048	ND	ND	17.4696	ND	7.8400	ND	35.7628	481.0000	0.0419
8	9008	7/16/2009	ND	0.0019	0.0515	ND	ND	ND	0.0007	0.0193	ND	ND	17.3631	ND	7.8500	ND	56.6110	510.0000	0.0196
9	9009	7/16/2009	ND	0.0027	0.0368	ND	ND	ND	0.0009	0.0084	ND	ND	13.4192	ND	7.4100	ND	44.0051	530.0000	0.0063
10	9010	7/16/2009	ND	0.0028	0.0948	ND	ND	ND	0.0017	0.0086	ND	ND	9.9895	ND	7.8800	ND	ND	400.0000	0.0042
11	9011	7/16/2009	ND	0.0032	0.0289	ND	ND	ND	0.0015	0.0165	ND	ND	14.1989	ND	7.8600	ND	22.4793	334.0000	0.0111
12	9012	7/16/2009	ND	0.0021	0.0442	ND	ND	ND	0.0015	0.0320	ND	ND	63.3833	ND	7.7500	ND	55.1292	530.0000	0.0072
13	9013	7/16/2009	ND	0.0061	0.1387	ND	ND	ND	0.0015	0.0150	ND	ND	18.4986	ND	7.7200	0.0055	443.6059	1186.0000	0.0094
14	9014	7/16/2009	ND	0.0072	0.1948	ND	ND	ND	0.0011	0.0185	ND	ND	ND	ND	7.8900	ND	205.0425	775.0000	0.0037
15	9015	7/16/2009	ND	0.0042	1.6080	ND	ND	0.0008	ND	0.0303	ND	ND	71.3659	ND	7.5400	0.0459	2206.1380	11450.000	0.2166
16	9016	7/16/2009	ND	ND	0.4021	ND	ND	ND	0.0015	0.0141	ND	ND	18.2554	ND	7.9700	ND	61.5025	541.0000	0.0081
17	9017	7/16/2009	ND	ND	0.5223	ND	ND	ND	0.0012	0.0041	ND	ND	17.0806	ND	7.8300	ND	230.1639	875.0000	0.0027
18	9018	7/16/2009	ND	ND	0.1247	ND	ND	ND	0.0008	0.0179	ND	ND	23.0474	ND	7.8900	ND	161.9394	710.0000	0.0102
19	9019	7/16/2009	ND	0.0028	0.1342	ND	ND	ND	0.0006	0.0107	ND	ND	24.1444	ND	7.7900	ND	57.1561	517.0000	0.0048
20	9020	7/16/2009	ND	0.0032	0.0759	ND	ND	ND	ND	0.0098	ND	ND	19.4527	ND	7.9900	ND	44.7772	407.0000	0.0056
21	9021	7/16/2009	ND	0.0029	0.0739	ND	ND	ND	0.0006	0.0157	ND	ND	13.4468	ND	7.9600	ND	42.6654	413.0000	0.0070
22	9022	7/16/2009	ND	0.0031	0.2320	ND	ND	ND	0.0008	0.0140	ND	ND	22.4722	ND	7.7900	ND	83.4304	723.0000	0.1078
23	9023	7/16/2009	ND	0.0044	2.1560	ND	ND	0.0003	0.0013	0.0087	ND	ND	20.5531	ND	7.7200	ND	563.3408	2609.0000	0.0303
24	9024	7/16/2009	ND	0.0042	1.4210	ND	ND	ND	0.0015	0.0141	ND	ND	25.1817	ND	7.6700	ND	356.3628	1636.0000	0.0046
25	9025	7/16/2009	ND	0.0056	1.6110	ND	ND	ND	0.0016	0.0104	ND	ND	13.4337	ND	7.8200	ND	375.0338	1709.0000	0.0128
26	9026	7/16/2009	ND	0.0057	2.8390	ND	ND	0.0004	0.0008	0.0241	ND	ND	10.8774	ND	7.5000	0.0229	1976.8160	6536.0000	0.0231
27	9027	7/16/2009	ND	0.0047	2.8680	ND	ND	0.0005	0.0017	0.0147	ND	ND	21.7502	ND	7.5700	0.0302	2043.3340	8396.0000	0.0393
28	9028	7/16/2009	ND	0.0047	1.3940	ND	ND	0.0004	0.0020	0.0234	ND	ND	16.3828	ND	7.4100	0.0260	1989.5850	7084.0000	0.0156
29	9029	7/16/2009	ND	0.0033	1.1280	ND	ND	0.0003	0.0016	0.0152	ND	ND	217.6272	ND	7.5700	0.0154	1458.9100	5676.0000	0.0081
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	9	0

ND - Not Detected

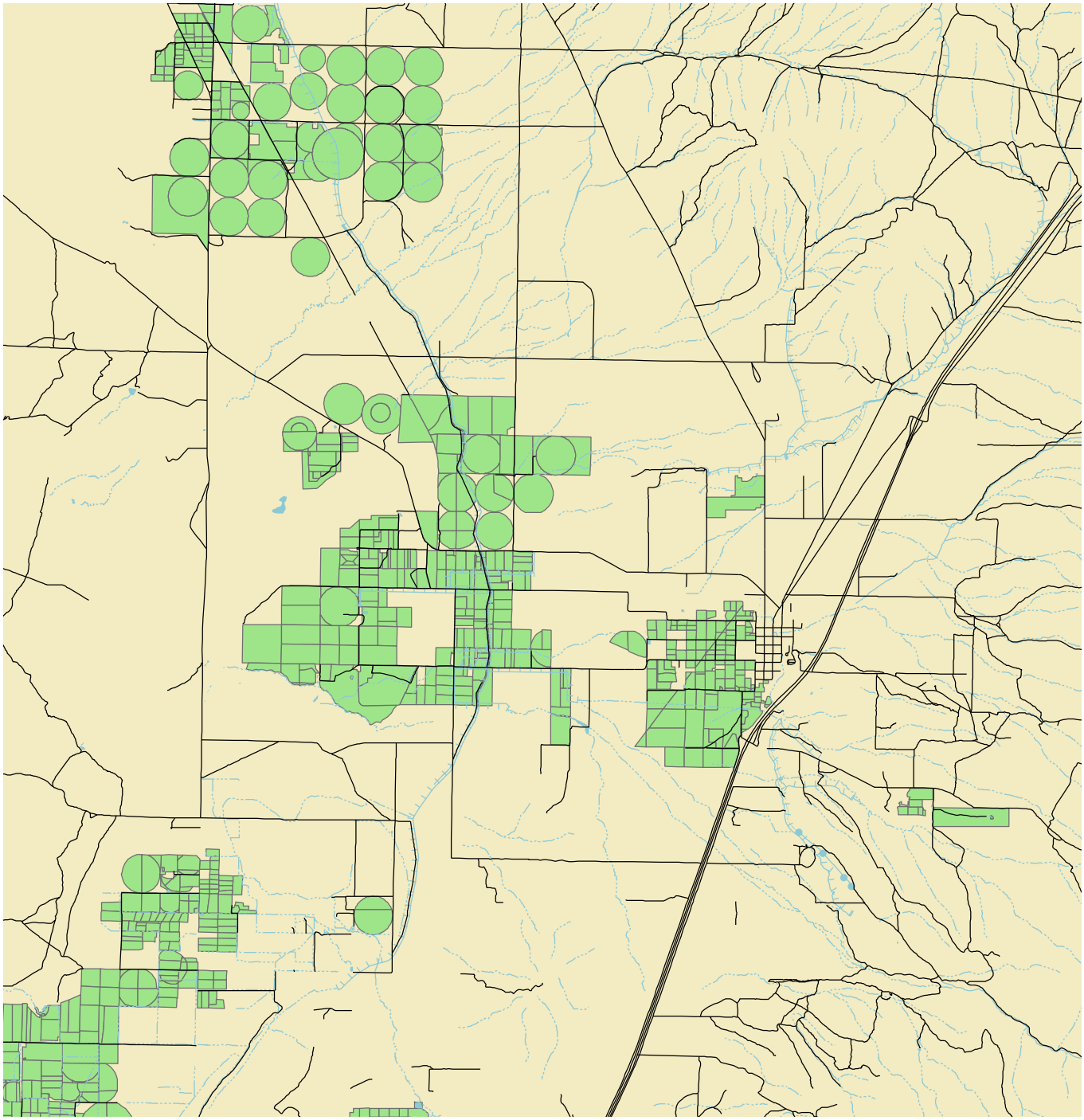
Culinary:

Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9001	7/16/2009	0.0026	0.0690	ND	ND	ND	0.0012	0.0228	ND	ND	78.8804	0.0008	20.7549	ND	ND	41.5485	459.0000
2	9002	7/16/2009	0.0031	0.0354	ND	ND	ND	0.0020	0.0186	ND	ND	52.7583	0.0009	35.8143	ND	ND	72.8883	547.0000
3	9003	7/16/2009	0.0031	0.0275	ND	ND	ND	0.0017	0.0158	ND	ND	55.4577	0.0014	35.7358	ND	ND	179.3345	746.0000
4	9004	7/16/2009	0.0022	0.0225	ND	ND	ND	0.0011	0.0176	ND	ND	56.7617	0.0026	36.1315	ND	ND	282.3725	971.0000
5	9005	7/16/2009	0.0019	0.0739	ND	ND	ND	0.0014	0.0522	ND	ND	56.5538	0.0014	30.9194	ND	ND	131.4521	834.0000
6	9006	7/16/2009	0.0070	0.1478	ND	ND	ND	0.0017	0.0101	ND	ND	20.6845	ND	10.4983	ND	ND	ND	289.0000
7	9007	7/16/2009	0.0039	0.2758	ND	ND	ND	0.0008	0.0048	ND	ND	41.7076	ND	17.4696	ND	ND	35.7628	481.0000
8	9008	7/16/2009	0.0019	0.1921	ND	ND	ND	0.0007	0.0193	ND	ND	43.4981	0.0012	17.3631	ND	ND	56.6110	510.0000
9	9009	7/16/2009	0.0027	0.1569	ND	ND	ND	0.0009	0.0084	ND	ND	38.0338	0.0008	13.4192	ND	ND	44.0051	530.0000
10	9010	7/16/2009	0.0028	0.2353	ND	ND	ND	0.0017	0.0086	ND	ND	39.7969	ND	9.9895	ND	ND	ND	400.0000
11	9011	7/16/2009	0.0032	0.1203	ND	ND	ND	0.0015	0.0165	ND	ND	20.0144	0.0010	14.1989	ND	ND	22.4793	334.0000
12	9012	7/16/2009	0.0021	0.1305	ND	ND	ND	0.0015	0.0320	ND	ND	27.6133	0.0007	63.3833	ND	ND	55.1292	530.0000
13	9013	7/16/2009	0.0061	0.0172	ND	ND	ND	0.0015	0.0150	ND	ND	69.6559	0.0014	18.4986	ND	0.0055	443.6059	1186.0000
14	9014	7/16/2009	0.0072	0.0331	ND	ND	ND	0.0011	0.0185	ND	ND	86.6778	0.0008	ND	ND	ND	205.0425	775.0000
15	9015	7/16/2009	0.0042	0.0348	ND	ND	13.8309	ND	0.0303	ND	ND	1343.1190	0.0028	71.3659	ND	0.0459	2206.1380	11450.000
16	9016	7/16/2009	ND	0.0549	ND	ND	ND	0.0015	0.0141	ND	ND	80.5588	0.0007	18.2554	ND	ND	61.5025	541.0000
17	9017	7/16/2009	ND	0.0591	ND	ND	ND	0.0012	0.0041	ND	ND	115.9488	0.0008	17.0806	ND	ND	230.1639	875.0000
18	9018	7/16/2009	ND	0.1006	ND	ND	ND	0.0008	0.0179	ND	ND	56.8695	0.0013	23.0474	ND	ND	161.9394	710.0000
19	9019	7/16/2009	0.0028	0.0717	ND	ND	ND	0.0006	0.0107	ND	ND	45.6786	0.0011	24.1444	ND	ND	57.1561	517.0000
20	9020	7/16/2009	0.0032	0.1518	ND	ND	ND	ND	0.0098	ND	ND	27.4553	0.0008	19.4527	ND	ND	44.7772	407.0000
21	9021	7/16/2009	0.0029	0.1824	ND	ND	ND	0.0006	0.0157	ND	ND	23.1221	0.0010	13.4468	ND	ND	42.6654	413.0000
22	9022	7/16/2009	0.0031	0.0878	ND	ND	ND	0.0008	0.0140	ND	ND	87.8504	0.0011	22.4722	ND	ND	83.4304	723.0000
23	9023	7/16/2009	0.0044	0.0372	ND	ND	ND	0.0013	0.0087	ND	ND	399.2615	0.0024	20.5531	ND	ND	563.3408	2609.0000
24	9024	7/16/2009	0.0042	0.0632	ND	ND	ND	0.0015	0.0141	ND	ND	233.3834	0.0018	25.1817	ND	ND	356.3628	1636.0000
25	9025	7/16/2009	0.0056	0.0673	ND	ND	ND	0.0016	0.0104	ND	ND	264.9745	0.0018	13.4337	ND	ND	375.0338	1709.0000
26	9026	7/16/2009	0.0057	0.0644	ND	ND	ND	0.0008	0.0241	ND	ND	740.5757	0.0019	10.8774	ND	0.0229	1976.8160	6536.0000
27	9027	7/16/2009	0.0047	0.0637	ND	ND	ND	0.0017	0.0147	ND	ND	1042.1280	0.0025	21.7502	ND	0.0302	2043.3340	8396.0000
28	9028	7/16/2009	0.0047	0.0505	ND	ND	ND	0.0020	0.0234	ND	ND	751.2114	0.0019	16.3828	ND	0.0260	1989.5850	7084.0000
29	9029	7/16/2009	0.0033	0.0427	ND	ND	ND	0.0016	0.0152	ND	ND	643.4995	ND	217.6272	ND	0.0154	1458.9100	5676.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	3	0	0	6	6

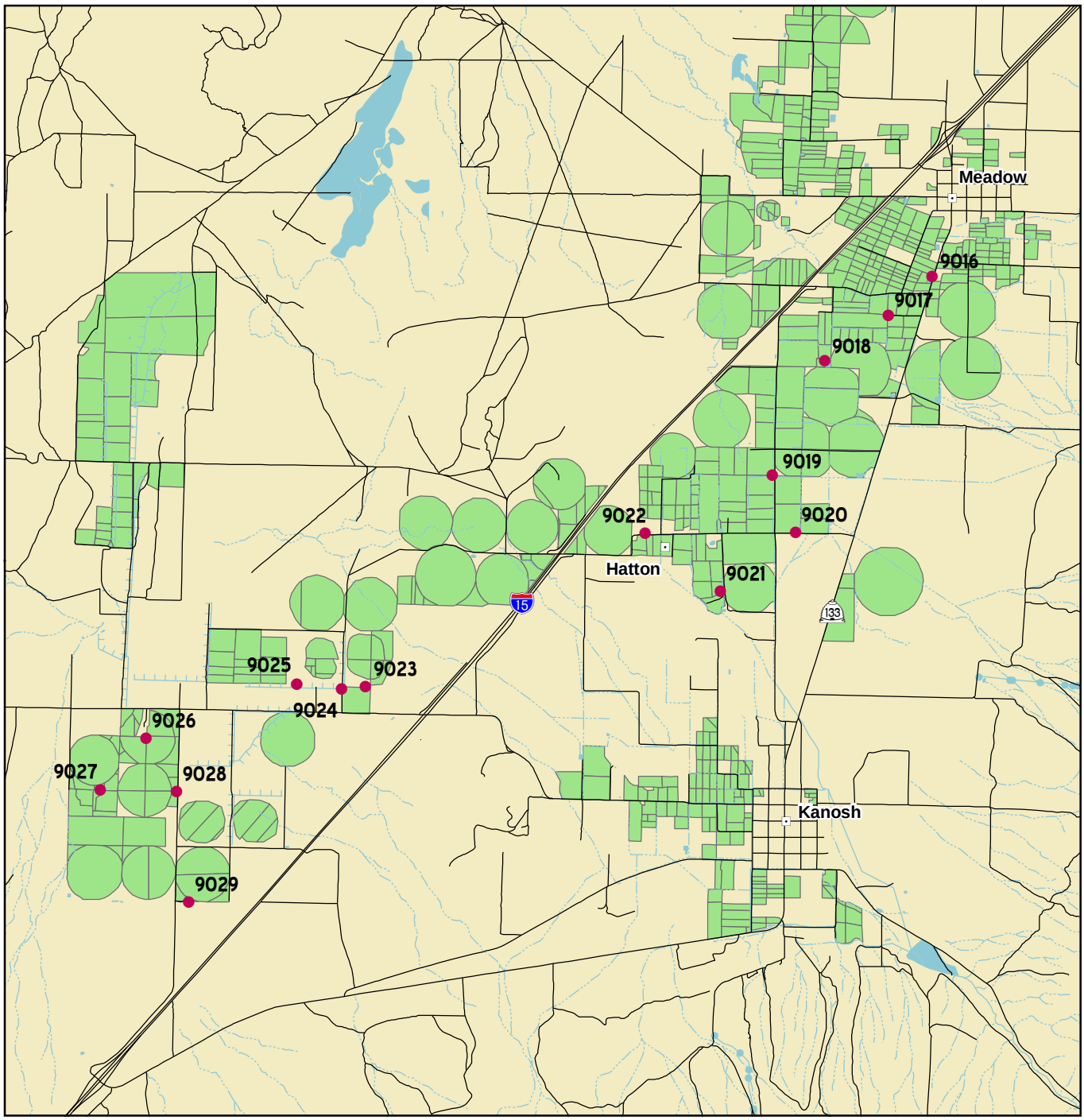
ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9001	7/16/2009	ND	ND	38.4690	0.0228	ND	ND	277.5000	0.0005	8.1200	9.6601	41.5485	459.0000	0.0211
2	9002	7/16/2009	ND	ND	88.5839	0.0186	ND	ND	381.9000	0.0004	7.7200	7.6762	72.8883	547.0000	0.0050
3	9003	7/16/2009	ND	ND	128.1816	0.0158	ND	ND	562.0000	0.0006	7.8100	7.9706	179.3345	746.0000	0.0044
4	9004	7/16/2009	ND	ND	201.8083	0.0176	ND	ND	744.4000	0.0005	7.6800	10.6637	282.3725	971.0000	0.0939
5	9005	7/16/2009	ND	ND	277.0772	0.0522	ND	ND	642.5000	0.0017	7.6400	10.3599	131.4521	834.0000	0.0460
6	9006	7/16/2009	ND	ND	51.0310	0.0101	ND	ND	223.6000	0.0004	7.8700	15.1025	ND	289.0000	0.0030
7	9007	7/16/2009	ND	ND	179.1766	0.0048	ND	ND	346.2000	0.0016	7.8400	12.1135	35.7628	481.0000	0.0419
8	9008	7/16/2009	ND	ND	164.4149	0.0193	ND	ND	371.2000	0.0004	7.8500	7.7782	56.6110	510.0000	0.0196
9	9009	7/16/2009	ND	ND	224.2698	0.0084	ND	ND	431.8000	0.0003	7.4100	8.2913	44.0051	530.0000	0.0063
10	9010	7/16/2009	0.0004	ND	129.4592	0.0086	ND	ND	310.0000	0.0003	7.8800	8.9357	ND	400.0000	0.0042
11	9011	7/16/2009	ND	ND	60.9605	0.0165	ND	ND	261.8000	ND	7.8600	10.4651	22.4793	334.0000	0.0111
12	9012	7/16/2009	ND	ND	140.2566	0.0320	ND	ND	340.3000	ND	7.7500	6.8408	55.1292	530.0000	0.0072
13	9013	7/16/2009	ND	ND	263.7148	0.0150	ND	ND	873.7000	0.0013	7.7200	15.0821	443.6059	1186.0000	0.0094
14	9014	7/16/2009	ND	ND	190.0656	0.0185	ND	ND	479.1000	0.0004	7.8900	18.9456	205.0425	775.0000	0.0037
15	9015	7/16/2009	ND	ND	6294.7150	0.0303	ND	ND	4617.7000	0.0081	7.5400	20.5598	2206.1380	11450.000	0.2166
16	9016	7/16/2009	ND	ND	131.5068	0.0141	ND	ND	296.0000	0.0003	7.9700	6.8165	61.5025	541.0000	0.0081
17	9017	7/16/2009	ND	ND	236.7113	0.0041	ND	ND	410.7000	0.0003	7.8300	6.4181	230.1639	875.0000	0.0027
18	9018	7/16/2009	ND	ND	189.5916	0.0179	ND	ND	434.4000	0.0011	7.8900	8.4547	161.9394	710.0000	0.0102
19	9019	7/16/2009	ND	ND	85.4703	0.0107	ND	ND	402.6000	0.0007	7.7900	9.9888	57.1561	517.0000	0.0048
20	9020	7/16/2009	ND	ND	60.6674	0.0098	ND	ND	309.5000	0.0003	7.9900	9.7425	44.7772	407.0000	0.0056
21	9021	7/16/2009	ND	ND	43.8501	0.0157	ND	ND	345.9000	0.0004	7.9600	9.4333	42.6654	413.0000	0.0070
22	9022	7/16/2009	ND	ND	231.4242	0.0140	ND	ND	457.8000	0.0007	7.7900	11.2129	83.4304	723.0000	0.1078
23	9023	7/16/2009	ND	ND	1055.3960	0.0087	ND	ND	1075.5000	0.0009	7.7200	16.7307	563.3408	2609.0000	0.0303
24	9024	7/16/2009	ND	ND	620.2313	0.0141	ND	ND	702.1000	0.0008	7.6700	13.9587	356.3628	1636.0000	0.0046
25	9025	7/16/2009	ND	ND	664.7141	0.0104	ND	ND	619.5000	0.0008	7.8200	13.0909	375.0338	1709.0000	0.0128
26	9026	7/16/2009	ND	ND	2939.5470	0.0241	ND	ND	1945.1000	0.0006	7.5000	15.7176	1976.8160	6536.0000	0.0231
27	9027	7/16/2009	ND	ND	4147.8340	0.0147	ND	ND	2756.6000	0.0005	7.5700	18.0394	2043.3340	8396.0000	0.0393
28	9028	7/16/2009	ND	ND	3202.2140	0.0234	ND	ND	2930.9000	0.0007	7.4100	18.2063	1989.5850	7084.0000	0.0156
29	9029	7/16/2009	ND	ND	2430.5740	0.0152	ND	0.1169	2554.9000	0.0003	7.5700	14.9341	1458.9100	5676.0000	0.0081
Test Count that Exceeded Standard:			0	0	10	0	0	0	29	0	0	0	10	29	0

ND - Not Detected



Map 14. Millard County District - Kanosh Area



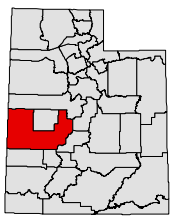
Map Scale 1:90,000 (1 inch = 1.4 miles)

N
W E
S

Sample location
Road
Strea
Ditch or canal
Aqueduct

Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



Sanpete County District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9035	9/7/2009	ND	ND	32.0 F (0.0 C)	670	378.0	5.100	101.9	Well	Vegetated	Well House	PVC	Sealed	☑	☐	☐	☐	☐	☐	☐
2	9070	8/11/2009	ND	ND	54.5 F (12.5 C)	762	371.0	0.300	374.1	Spring	Clean	Covered	PVC	Sealed	☑	☑	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			**0**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards

	Sample No	Tested Date	5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
1	9035	9/15/2009	ND	0.1272	ND	16.6950	ND	ND	ND	0.0011	0.0198	ND	ND	317.5920	1.2476	0.0208	14.5995
2	9070	8/18/2009	ND	0.0320	ND	74.0815	ND	ND	ND	0.0014	0.0119	ND	ND	392.5770	1.3950	0.0243	45.8558
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	2	0	0	0

ND - Not Detected

Irrigation Standards Continues

	Sample No	Tested Date	.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
1	9035	9/15/2009	0.0080	0.0140	117.1408	ND	ND	ND	5.1000	ND	378.0000	ND	0.1042
2	9070	8/18/2009	0.0002	0.0008	12.0922	ND	ND	ND	0.3000	ND	371.0000	ND	0.0040
Test Count that Exceeded Standard:			0	1	1	0	0	0	1	0	2	0	0

ND - Not Detected

Livestock:

Livestock Standards

	Sample No	Tested Date	5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
1	9035	9/15/2009	ND	0.0159	0.1272	ND	ND	ND	0.0011	0.0198	ND	ND	ND	ND	8.0000	ND	52.8824	378.0000	0.1042
2	9070	8/18/2009	ND	ND	0.0320	ND	ND	ND	0.0014	0.0119	ND	ND	ND	ND	7.5700	ND	23.1884	371.0000	0.0040
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Culinary:

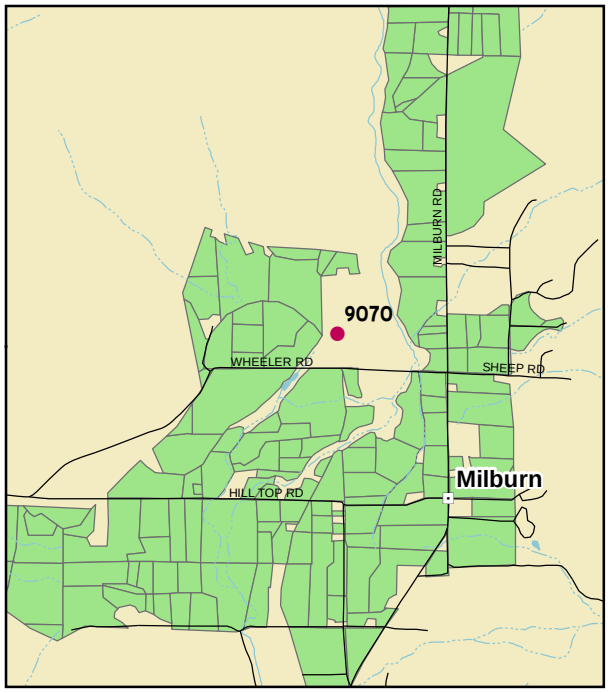
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9035	9/15/2009	0.0159	0.1252	ND	ND	ND	0.0011	0.0198	ND	ND	117.1408	ND	ND	ND	ND	52.8824	378.0000
2	9070	8/18/2009	ND	0.1458	ND	ND	ND	0.0014	0.0119	ND	ND	12.0922	ND	ND	ND	ND	23.1884	371.0000
Test Count that Exceeded Standard			1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

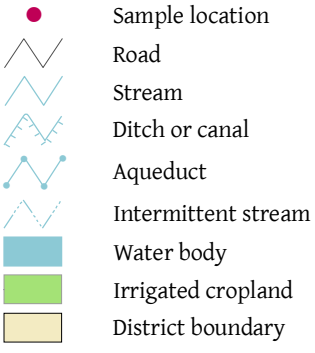
Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9035	9/15/2009	ND	ND	ND	0.0198	ND	ND	101.9000	0.0080	8.0000	8.6448	52.8824	378.0000	0.1042
2	9070	8/18/2009	ND	ND	ND	0.0119	ND	ND	374.1000	0.0002	7.5700	7.8868	23.1884	371.0000	0.0040
Test Count that Exceeded Standard:			0	0	0	0	0	0	2	0	0	0	0	2	0

ND - Not Detected

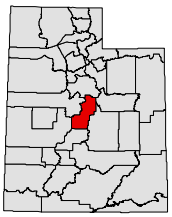
Map 15. Sanpete District

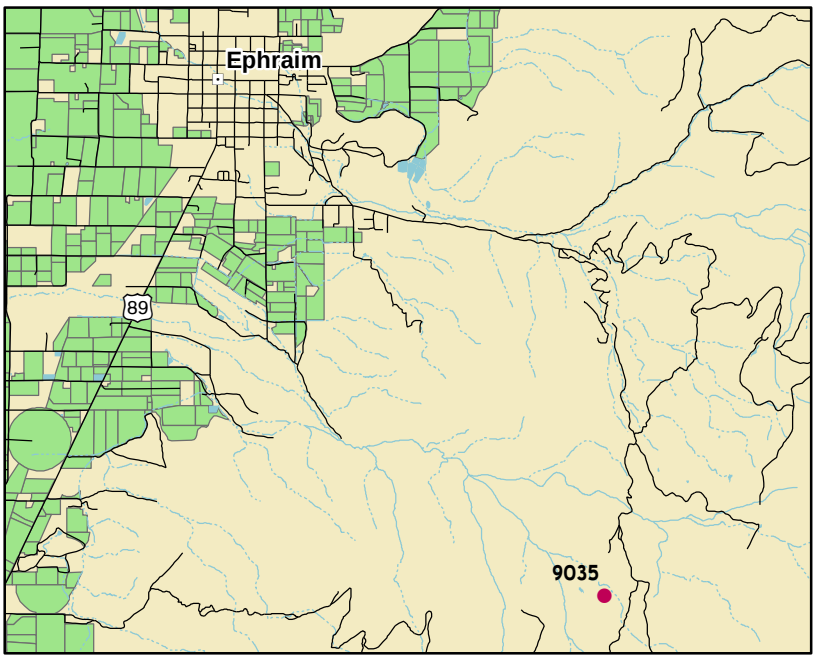


Map Scale 1:47,520 (1 inch = 0.75 miles)



District Location





Map Scale 1:105,000 (1 inch = 1.7 miles)

UACD Zone 5 **(Beaver, Iron, Kane, and Washington counties and most of Garfield County)**

One (1) site was sampled in Upper Sevier Conservation District in Zone 5 during 2009. The Statistical Report below shows a summary of the total number of chemical tests collected (Test Count) for each district in Zone 5. The next four columns summarize the number of tests which exceeded the standard for either Primary Drinking Water (DW Primary), Secondary Drinking Water (DW Secondary), Irrigation, or Livestock.

Ground Water UACD Zone No 5 Statistical Report
For the Samples Collected Between: 4/1/2009 And 11/18/2009

District Name	Sample Count	Test Count	Test Count Which Result Exceeded Standards			
			DW Primary	DW Secondary	Irrigation	Livestock
Upper Sevier	1	40	0	1	1	0
Zone Totals:	**1**	**40**	**0**	**1**	**1**	**0**

Detailed tables follow, covering the above water quality categories - General, Irrigation, Livestock, and Culinary (which includes Primary Drinking Water Standards and Secondary Drinking Water Standards) for each district along with a map(s). For the Irrigation, Livestock, and Culinary tables the first row lists the explicit standard for each element or compound (column). The standards for irrigation and livestock originated from *Water Quality for Agriculture 29, Revision 1*, published by the Food and Agriculture Organization of the United Nations. The drinking water primary and secondary standards are from the State of Utah's water quality standards. Below the standards are the column headings (expressed as the chemical abbreviation) for each element or compound tested. Units used in measuring the concentrations of each element or compound are found below each abbreviation. Each row of the table is a single sample identified with a sample number. This sample number shows the sampling location on the map(s) located after the chemistry tables. Highlighted sample results show samples that exceed a standard for that element or compound. Totals at the bottom of each table show how many samples in each column exceeded the standard for that column. The value "ND" indicates that a particular element or compound was "Not Detected" for a given sample.

Upper Sevier District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9036	9/21/2009	ND	ND	32.0 F (0.0 C)	266	136.0	1.500	63.90	Flowing Well	Clean	Lawn	Steel	Sealed	☑	☑	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			**0**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards			5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
	Sample No	**Tested Date**															
1	9036	9/28/2009	ND	0.0339	ND	20.5830	ND	ND	ND	0.0019	0.0039	ND	0.0117	106.5730	1.3980	ND	3.0146
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	1	0	0	0

ND - Not Detected

Irrigation Standards Continues			.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
	Sample No	**Tested Date**											
1	9036	9/28/2009	0.0178	ND	26.8694	ND	ND	ND	1.5000	ND	136.0000	0.0115	0.0048
Test Count that Exceeded Standard:			0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Livestock:

Livestock Standards			5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
	Sample No	**Tested Date**																	
1	9036	9/28/2009	ND	ND	0.0339	ND	ND	ND	0.0019	0.0039	ND	ND	ND	ND	7.3100	ND	ND	136.0000	0.0048
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Culinary:

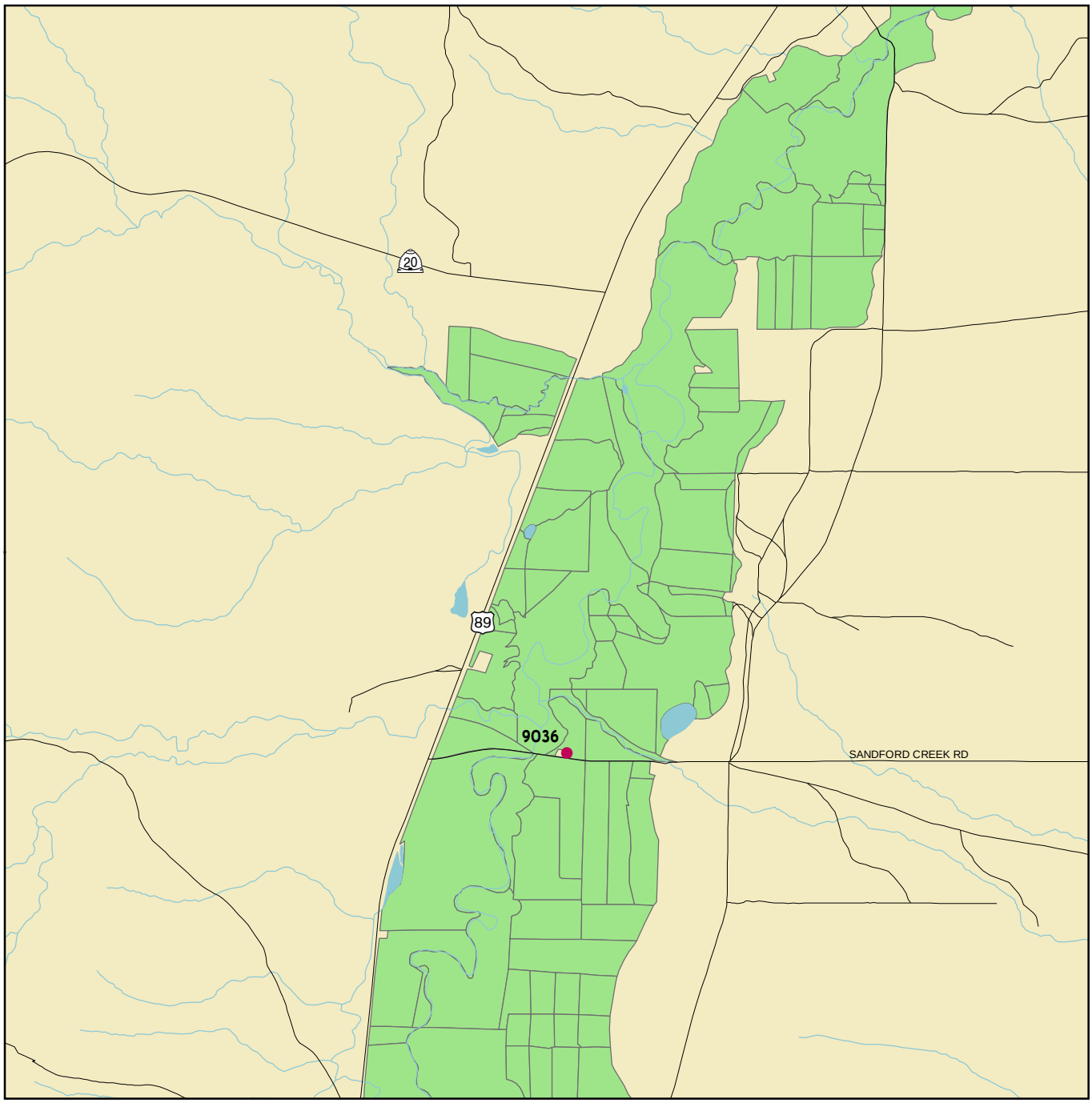
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9036	9/28/2009	ND	0.0015	ND	ND	ND	0.0019	0.0039	ND	ND	26.8694	ND	ND	ND	ND	ND	136.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9036	9/28/2009	ND	ND	ND	0.0039	ND	0.0117	63.9000	0.0178	7.3100	9.8716	ND	136.0000	0.0048
Test Count that Exceeded Standard:			0	0	0	0	0	0	1	0	0	0	0	0	0

ND - Not Detected

Map 16. Upper Sevier District

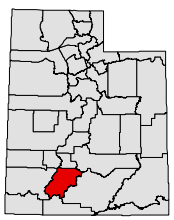


Map Scale 1:34,000 (1 inch = 0.54 miles)

N
W E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



UACD Zone 6 (Daggett and Uintah counties, most of Duchesne County, and northwest Grand, and east Summit counties)

Five (5) sites were sampled in Zone 6 during the spring, summer, and fall of 2009. Three (3) sites in Duchesne County District and two (2) sites in Uintah County District were sampled. No samples were collected in the Daggett and Uintah County districts.

The Statistical Report below shows a summary of the total number of chemical tests collected (Test Count) for each district in Zone 6. The next four columns summarize the number of tests which exceeded the standard for either Primary Drinking Water (DW Primary), Secondary Drinking Water (DW Secondary), Irrigation, or Livestock.

Ground Water UACD Zone No 6 Statistical Report
For the Samples Collected Between: 4/1/2009 And 11/18/2009

District Name	Sample Count	Test Count	Test Count Which Result Exceeded Standards			
			DW Primary	DW Secondary	Irrigation	Livestock
Duchesne Co.	3	120	2	10	13	3
Uintah Co.	2	80	0	4	4	0
Zone Totals:	**5**	**200**	**2**	**14**	**17**	**3**

Detailed tables follow, covering the above water quality categories - General, Irrigation, Livestock, and Culinary (which includes Primary Drinking Water Standards and Secondary Drinking Water Standards) for each district along with a map(s). For the Irrigation, Livestock, and Culinary tables the first row lists the explicit standard for each element or compound (column). The standards for irrigation and livestock originated from *Water Quality for Agriculture 29, Revision 1*, published by the Food and Agriculture Organization of the United Nations. The drinking water primary and secondary standards are from the State of Utah's water quality standards. Below the standards are the column headings (expressed as the chemical abbreviation) for each element or compound tested. Units used in measuring the concentrations of each element or compound are found below each abbreviation. Each row of the table is a single sample identified with a sample number. This sample number shows the sampling location on the map(s) located after the chemistry tables. Highlighted sample results show samples that exceed a standard for that element or compound. Totals at the bottom of each table show how many samples in each column exceeded the standard for that column. The value "ND" indicates that a particular element or compound was "Not Detected" for a given sample.

Duchesne County District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9078	9/16/2009	ND	ND	32.0 F (0.0 C)	1357	797.0	3.600	413.8	Well	Clean	Covered	PVC	Sealed	✓	✓					
2	9079	9/21/2009	ND	ND	32.0 F (0.0 C)	691	390.0	1.500	283.3	Well	Clay Soil	Soil	PVC	Sealed	✓	✓					
3	9080	9/21/2009	ND	ND	32.0 F (0.0 C)	2850	2194.	6.500	905.9	Well	Clay Soil	Soil	PVC	Sealed	✓	✓					
Bacteria Positive Sample Count			**0**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards			5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
	Sample No	Tested Date															
1	9078	9/28/2009	ND	1.0040	ND	71.2573	23.2467	ND	ND	0.0005	0.0166	ND	ND	316.9480	2.2684	0.0424	57.2011
2	9079	9/28/2009	ND	0.1028	ND	62.4021	ND	ND	ND	ND	0.0123	ND	ND	313.4190	1.2962	0.0055	30.8903
3	9080	9/28/2009	ND	0.8321	ND	144.2651	253.0938	0.0007	ND	ND	0.0271	ND	ND	311.1210	5.6170	0.0862	132.3392
Test Count that Exceeded Standard			0	2	0	0	1	0	0	0	0	0	0	3	0	0	0

ND - Not Detected

Irrigation Standards Continues			.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
	Sample No	Tested Date											
1	9078	9/28/2009	0.0099	0.0027	169.0806	0.0010	ND	ND	3.6000	ND	797.0000	ND	0.0551
2	9079	9/28/2009	0.0844	0.0023	57.8153	ND	ND	ND	1.5000	ND	390.0000	0.0032	0.0082
3	9080	9/28/2009	0.0047	0.0041	446.6041	0.0044	ND	ND	6.5000	0.0061	2194.0000	ND	0.0208
Test Count that Exceeded Standard:			0	0	2	0	0	0	2	0	3	0	0

ND - Not Detected

Livestock:

Livestock Standards			5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
	Sample No	Tested Date																	
1	9078	9/28/2009	ND	ND	1.0040	ND	ND	ND	0.0005	0.0166	ND	ND	ND	ND	7.7100	ND	300.6123	797.0000	0.0551
2	9079	9/28/2009	ND	0.0023	0.1028	ND	ND	ND	ND	0.0123	ND	ND	ND	ND	7.7300	ND	56.7797	390.0000	0.0082
3	9080	9/28/2009	ND	0.0053	0.8321	ND	ND	0.0007	ND	0.0271	ND	ND	ND	ND	7.6000	0.0061	1046.5360	2194.0000	0.0208
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0

ND - Not Detected

Culinary:

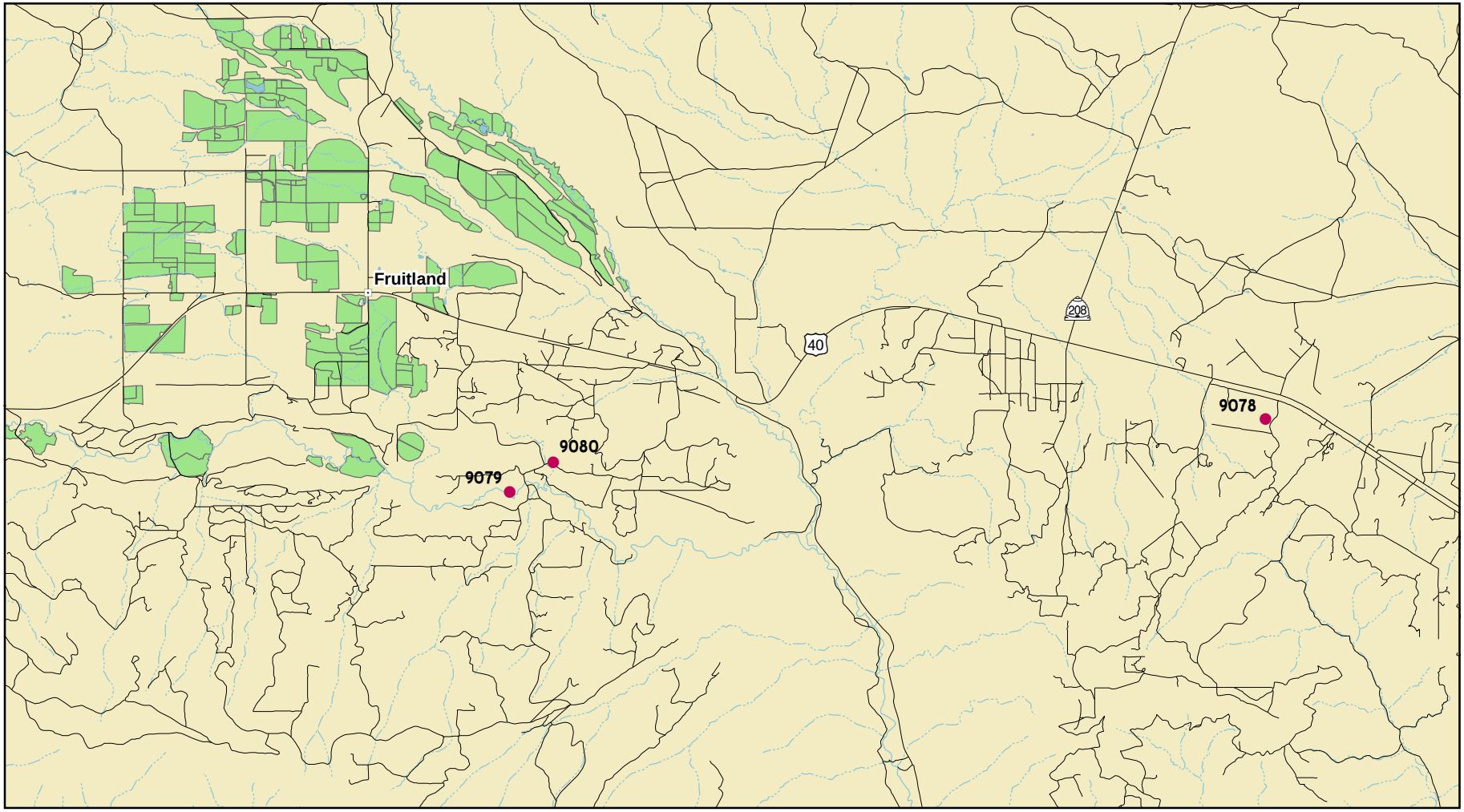
Drinking Water Primary Standards			0.01 As mg/L	2 Ba mg/L	0.004 Be mg/L	0.005 Cd mg/L	25 ClO4 ug/L	0.1 Cr mg/L	1.3 Cu mg/L	4 F mg/L	2 Hg ug/L	10000 Na mg/L	1000 Ni mg/L	44.3 NO3 mg/L	.015 Pb mg/L	.05 Se mg/L	500 SO4 mg/L	2000 TDS mg/L
	Sample No	Tested Date																
1	9078	9/28/2009	ND	0.0123	ND	ND	ND	0.0005	0.0166	ND	ND	169.0806	0.0010	ND	ND	ND	300.6123	797.0000
2	9079	9/28/2009	0.0023	0.1024	ND	ND	ND	ND	0.0123	ND	ND	57.8153	ND	ND	ND	ND	56.7797	390.0000
3	9080	9/28/2009	0.0053	0.0128	ND	ND	ND	ND	0.0271	ND	ND	446.6041	0.0044	ND	ND	0.0061	1046.5360	2194.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

ND - Not Detected

Drinking Water Secondary Standards:			0.1 Ag mg/L	0.5 Al mg/L	250 Cl mg/L	1 Cu mg/L	2 F mg/L	0.3 Fe mg/L	60;120;180 Hardness	.05 Mn mg/L	6.5-8.5 pH -	1000 Si mg/L	250 SO4 mg/L	200 TDS mg/L	5 Zn mg/L
	Sample No	Tested Date													
1	9078	9/28/2009	ND	ND	23.2467	0.0166	ND	ND	413.8000	0.0099	7.7100	16.6810	300.6123	797.0000	0.0551
2	9079	9/28/2009	ND	ND	ND	0.0123	ND	ND	283.3000	0.0844	7.7300	8.7999	56.7797	390.0000	0.0082
3	9080	9/28/2009	ND	ND	253.0938	0.0271	ND	ND	905.9000	0.0047	7.6000	7.1286	1046.5360	2194.0000	0.0208
Test Count that Exceeded Standard:			0	0	1	0	0	0	3	1	0	0	2	3	0

ND - Not Detected

Map 17. Duchesne County District

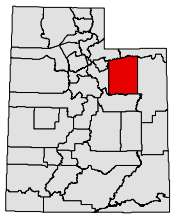


Map Scale 1:80,000 (1 inch = 1.3 miles)

N
W E
S

- Sample location
- Road
- Stream
- Ditch or canal
- Aqueduct
- Intermittent stream
- Water body
- Irrigated cropland
- District boundary

District Location



Uintah County District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9065	8/10/2009	ND	ND	39.2 F (4.0 C)	422	231.0	0.100	233.1	Well	Clay Soil	Soil	Steel	Sealed	✔	✔					
2	9066	8/10/2009	POS	ND	39.2 F (4.0 C)	452	235.0	0.100	243.5	Well	Clean	Covered	Steel	Sealed	✔	✔					

Bacteria Positive Sample Count 1 0 ND - Not Detected

Irrigation:

Irrigation Standards

	Sample No	Tested Date	Al mg/L	B mg/L	Be mg/L	Ca mg/L	Cl mg/L	Co mg/L	CO3 mg/L	Cr mg/L	Cu mg/L	F mg/L	Fe mg/L	HCO3 mg/L	K mg/L	Li mg/L	Mg mg/L
			5	0.5;1.0;2.0;	.1	100000	71;355	1	1000	1	0.2	2	5	73.2;152.5	10000	2.5	100000
1	9065	8/18/2009	ND	0.0157	ND	61.0183	ND	ND	ND	0.0014	0.0187	ND	ND	239.8910	0.6806	0.0042	19.5411
2	9066	8/18/2009	ND	0.0148	ND	65.6415	ND	ND	ND	0.0013	0.0137	ND	ND	245.4190	0.6500	ND	19.2742
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	2	0	0	0

ND - Not Detected

Irrigation Standards Continues

	Sample No	Tested Date	Mn mg/L	Mo mg/L	Na mg/L	Ni mg/L	Pb mg/L	PO4 mg/L	SAR meq/L	Se mg/L	TDS mg/L	V mg/L	Zn mg/L
			.2	.01	70;230	.2	5	10000	3;9	.02	151;451;13	.1	2
1	9065	8/18/2009	0.0003	0.0009	2.5706	ND	ND	ND	0.1000	ND	231.0000	ND	0.0062
2	9066	8/18/2009	0.0006	0.0009	2.1992	ND	ND	ND	0.1000	ND	235.0000	ND	0.0091
Test Count that Exceeded Standard:			0	0	0	0	0	0	0	0	2	0	0

ND - Not Detected

Livestock:

Livestock Standards

	Sample No	Tested Date	Al mg/L	As mg/L	B mg/L	Be mg/L	Cd mg/L	Co mg/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	NO3 mg/L	Pb mg/L	pH -	Se mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
			5	0.2	5	.1	0.05	1	1	.5	2	10	440	.1	5.5-8.3	.05	167;333	1000;3000;	25
1	9065	8/18/2009	ND	ND	0.0157	ND	ND	ND	0.0014	0.0187	ND	ND	ND	ND	7.6200	ND	ND	231.0000	0.0062
2	9066	8/18/2009	ND	ND	0.0148	ND	ND	ND	0.0013	0.0137	ND	ND	ND	ND	7.6600	ND	ND	235.0000	0.0091
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Culinary:

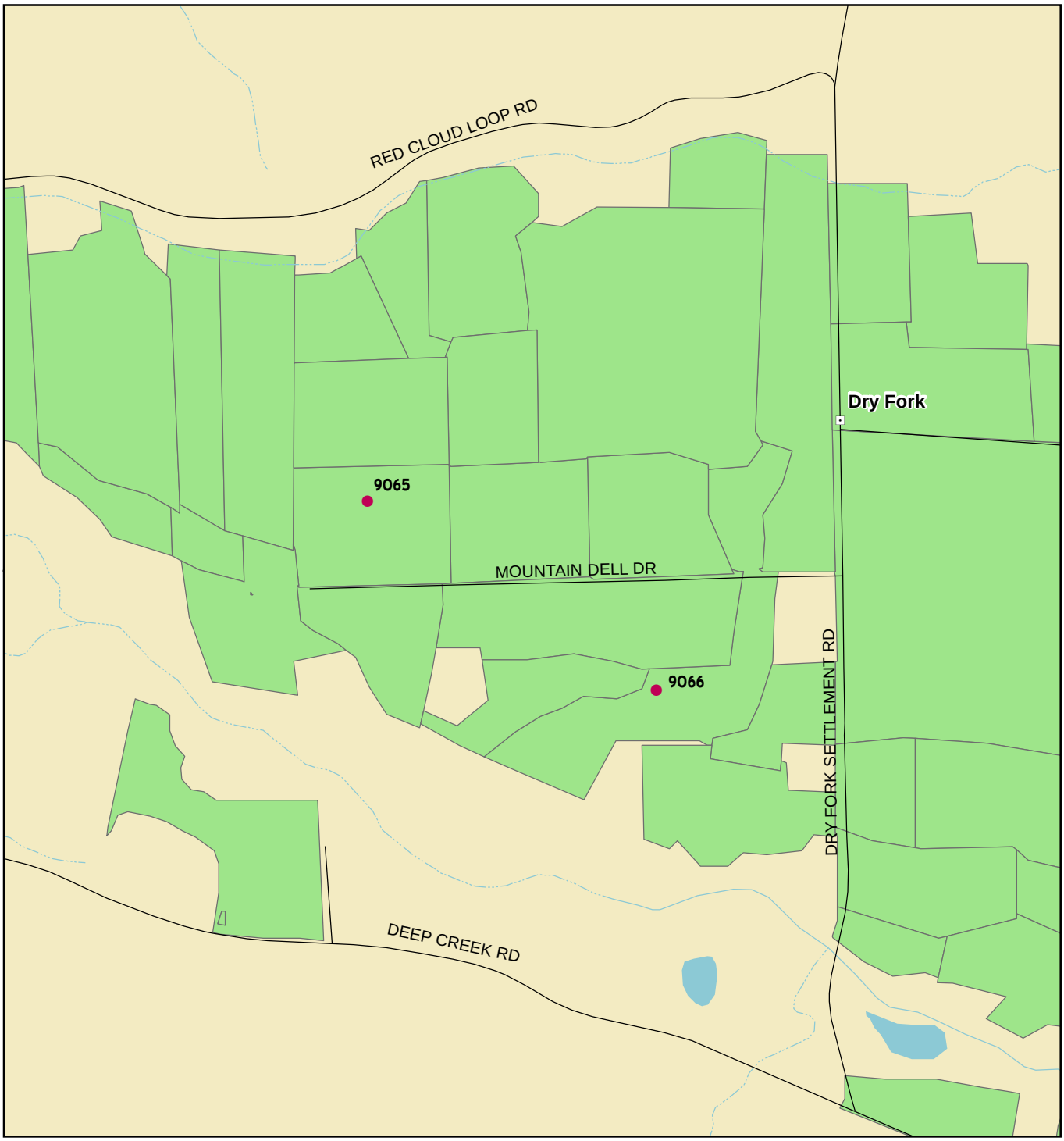
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9065	8/18/2009	ND	0.0968	ND	ND	ND	0.0014	0.0187	ND	ND	2.5706	ND	ND	ND	ND	ND	231.0000
2	9066	8/18/2009	ND	0.1062	ND	ND	ND	0.0013	0.0137	ND	ND	2.1992	ND	ND	ND	ND	ND	235.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9065	8/18/2009	ND	ND	ND	0.0187	ND	ND	233.1000	0.0003	7.6200	3.4704	ND	231.0000	0.0062
2	9066	8/18/2009	ND	ND	ND	0.0137	ND	ND	243.5000	0.0006	7.6600	3.1894	ND	235.0000	0.0091
Test Count that Exceeded Standard:			0	0	0	0	0	0	2	0	0	0	0	2	0

ND - Not Detected

Map 18. Uintah County District

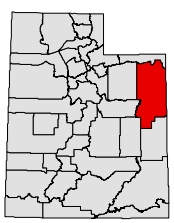


Map Scale 1:7,040 (1 inch = 0.11 miles)

N
W E
S

- Sample location
- Road
- Stream
- Ditch or canal
- Aqueduct
- Intermittent stream
- Water body
- Irrigated cropland
- District boundary

District Location



UACD Zone 7 **(Carbon, Emery, Grand, and San Juan counties, and parts of Duchesne, Sanpete, Sevier, and Utah counties)**

Four (4) sites were sampled in two (2) of the five (5) Conservation Districts in Zone 7 during the spring, summer and fall of 2009. These include the number of samples in the following districts: two (2) in Grand and two (2) in San Rafael districts.

The Statistical Report below shows a summary of the total number of chemical tests performed (Test Count) for each district in Zone 7. The next four columns summarize the number of tests which exceeded the standard for either Primary Drinking Water (DW Primary), Secondary Drinking Water (DW Secondary), Irrigation, or Livestock.

Ground Water UACD Zone No 7 Statistical Report
For the Samples Collected Between: 4/1/2009 And 11/18/2009

District Name	Sample Count	Test Count	Test Count Which Result Exceeded Standards			
			DW Primary	DW Secondary	Irrigation	Livestock
Grand	2	80	0	4	4	1
San Rafael	2	80	4	10	14	5
Zone Totals:	**4**	**160**	**4**	**14**	**18**	**6**

Detailed tables follow, covering the above water quality categories - General, Irrigation, Livestock, and Culinary (which includes Primary Drinking Water Standards and Secondary Drinking Water Standards) for each district along with a map(s). For the Irrigation, Livestock, and Culinary tables the first row lists the explicit standard for each element or compound (column). The standards for irrigation and livestock originated from *Water Quality for Agriculture 29, Revision 1*, published by the Food and Agriculture Organization of the United Nations. The drinking water primary and secondary standards are from the State of Utah's water quality standards. Below the standards are the column headings (expressed as the chemical abbreviation) for each element or compound tested. Units used in measuring the concentrations of each element or compound are found below each abbreviation. Each row of the table is a single sample identified with a sample number. This sample number shows the sampling location on the map(s) located after the chemistry tables. Highlighted sample results show samples that exceed a standard for that element or compound. Totals at the bottom of each table show how many samples in each column exceeded the standard for that column. The value "ND" indicates that a particular element or compound was "Not Detected" for a given sample.

Grand County District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9033	9/21/2009	ND	ND	32.0 F (0.0 C)	831	487.0	1.200	360.1	Well	Clean	Covered	Steel	Sealed	☑	☑	☐	☐	☐	☐	☐
2	9034	9/8/2009	ND	ND	32.0 F (0.0 C)	283	255.0	0.200	130.2	Well	Vegetated	Covered			☑	☑	☐	☐	☐	☐	☐
Bacteria Positive Sample Count			**0**	**0**	ND - Not Detected																

Irrigation:

Irrigation Standards

	Sample No	Tested Date	5 Al mg/L	0.5;1.0;2.0; B mg/L	.1 Be mg/L	100000 Ca mg/L	71;355 Cl mg/L	1 Co mg/L	1000 CO3 mg/L	1 Cr mg/L	0.2 Cu mg/L	2 F mg/L	5 Fe mg/L	73.2;152.5 HCO3 mg/L	10000 K mg/L	2.5 Li mg/L	100000 Mg mg/L
1	9033	9/28/2009	ND	0.0794	ND	93.1725	32.0207	ND	ND	0.0009	0.0151	ND	ND	176.3250	2.1412	0.0085	30.8729
2	9034	9/15/2009	ND	0.0240	ND	30.8768	ND	ND	106.5480	0.0008	0.0112	ND	ND	107.5230	0.8189	ND	12.8678
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	2	0	0	0

ND - Not Detected

Irrigation Standards Continues

	Sample No	Tested Date	.2 Mn mg/L	.01 Mo mg/L	70;230 Na mg/L	.2 Ni mg/L	5 Pb mg/L	10000 PO4 mg/L	3;9 SAR meq/L	.02 Se mg/L	151;451;13 TDS mg/L	.1 V mg/L	2 Zn mg/L
1	9033	9/28/2009	0.0047	0.0008	51.6321	0.0021	ND	ND	1.2000	0.0062	487.0000	ND	0.0369
2	9034	9/15/2009	0.0009	0.0020	6.4338	ND	ND	ND	0.2000	ND	255.0000	ND	0.0119
Test Count that Exceeded Standard:			0	0	0	0	0	0	0	0	2	0	0

ND - Not Detected

Livestock:

Livestock Standards

	Sample No	Tested Date	5 Al mg/L	0.2 As mg/L	5 B mg/L	.1 Be mg/L	0.05 Cd mg/L	1 Co mg/L	1 Cr mg/L	.5 Cu mg/L	2 F mg/L	10 Hg ug/L	440 NO3 mg/L	.1 Pb mg/L	5.5-8.3 pH -	.05 Se mg/L	167;333 SO4 mg/L	1000;3000; TDS mg/L	25 Zn mg/L
1	9033	9/28/2009	ND	ND	0.0794	ND	ND	ND	0.0009	0.0151	ND	ND	6.5642	ND	7.9700	0.0062	178.7981	487.0000	0.0369
2	9034	9/15/2009	ND	ND	0.0240	ND	ND	ND	0.0008	0.0112	ND	ND	ND	ND	8.0400	ND	35.0779	255.0000	0.0119
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0

ND - Not Detected

Culinary:

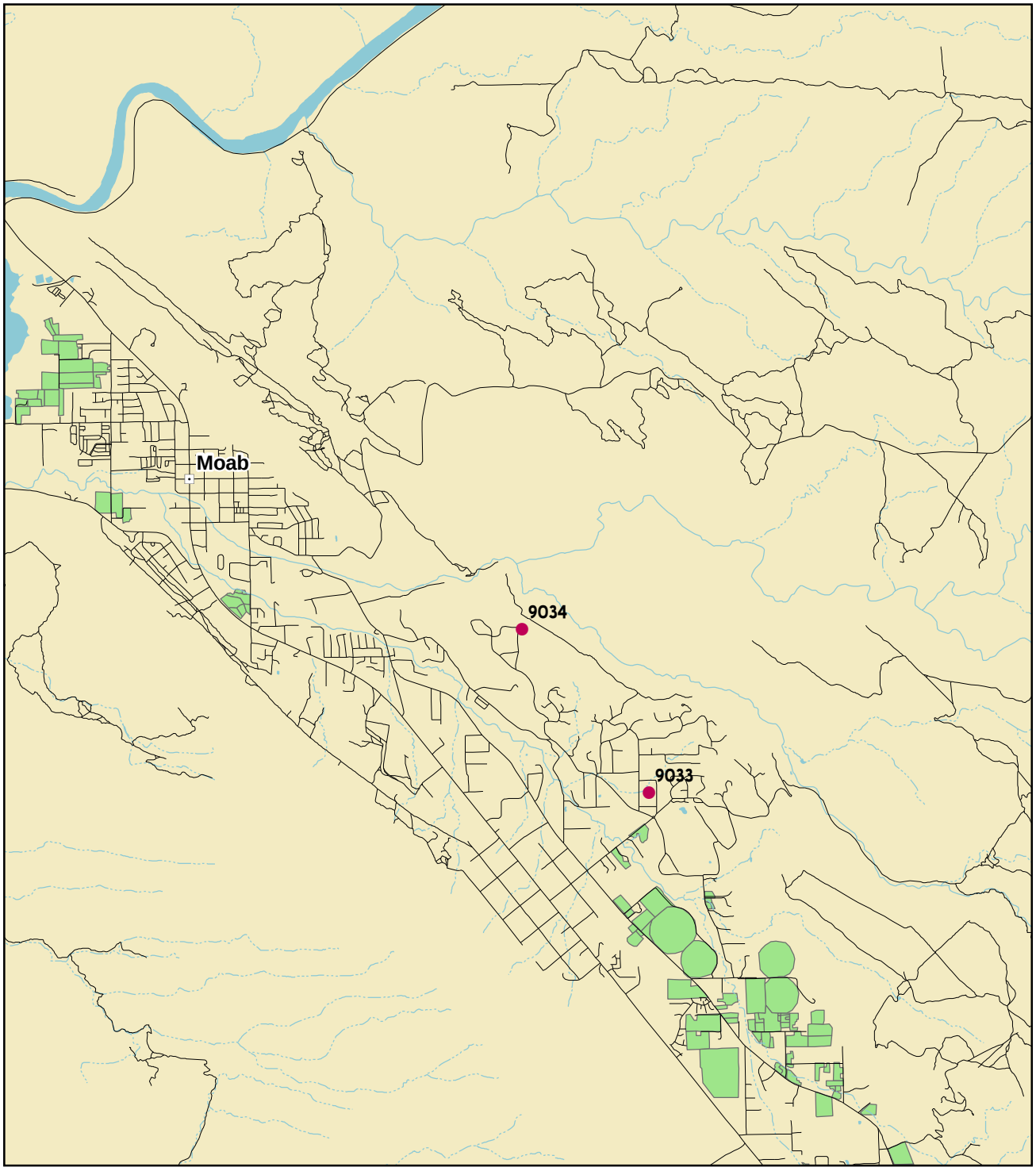
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9033	9/28/2009	ND	0.0220	ND	ND	ND	0.0009	0.0151	ND	ND	51.6321	0.0021	6.5642	ND	0.0062	178.7981	487.0000
2	9034	9/15/2009	ND	0.0590	ND	ND	ND	0.0008	0.0112	ND	ND	6.4338	ND	ND	ND	ND	35.0779	255.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9033	9/28/2009	ND	ND	32.0207	0.0151	ND	ND	360.1000	0.0047	7.9700	4.8230	178.7981	487.0000	0.0369
2	9034	9/15/2009	ND	ND	ND	0.0112	ND	ND	130.2000	0.0009	8.0400	4.0704	35.0779	255.0000	0.0119
Test Count that Exceeded Standard:			0	0	0	0	0	0	2	0	0	0	0	2	0

ND - Not Detected

Map 19. Grand District

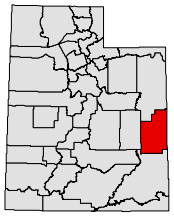


Map Scale 1:70,000 (1 inch = 1.1 miles)

N
W E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location



San Rafael District

General:

General Sample Information

	Sample No	Collected Date	Coliform	Ecoli	Temperature	EC	TDS mg/L	SAR meq/L	Hardness mg/L	Sample Site	Site Condition	Well Head	Material	Casing Condition	Culli-nary	Irriga-tion	Indust-rial	Lands-cape	Natural	Drai-nage	Other
1	9038	7/26/2009	ND	ND	39.2 F (4.0 C)	7910	5082.	17.60	1193.	Well	Clean	Soil	Steel	Open	☐	☐	☐	☐	☐	☐	☐
2	9039	7/26/2009	POS	ND	39.2 F (4.0 C)	1054	7436.	16.70	2396.	Seep	Surface Water	Soil	Earth	Open	☐	☐	☐	☐	☑	☐	☐

Bacteria Positive Sample Count 1 0 ND - Not Detected

Irrigation:

Irrigation Standards			5	0.5;1.0;2.0;	.1	100000	71;355	1	1000	1	0.2	2	5	73.2;152.5	10000	2.5	100000
	Sample No	Tested Date	Al mg/L	B mg/L	Be mg/L	Ca mg/L	Cl mg/L	Co mg/L	CO3 mg/L	Cr mg/L	Cu mg/L	F mg/L	Fe mg/L	HCO3 mg/L	K mg/L	Li mg/L	Mg mg/L
1	9038	7/30/2009	ND	0.5520	ND	165.6946	1202.3520	ND	8.4670	ND	0.0120	ND	ND	104.3140	25.7989	0.1437	189.1795
2	9039	7/30/2009	ND	1.1260	ND	688.6597	2085.6130	0.0013	ND	ND	0.0130	ND	ND	147.4190	26.5589	0.0993	163.7622
Test Count that Exceeded Standard			0	2	0	0	2	0	0	0	0	0	0	2	0	0	0

ND - Not Detected

Irrigation Standards Continues			.2	.01	70;230	.2	5	10000	3;9	.02	151;451;13	.1	2
	Sample No	Tested Date	Mn mg/L	Mo mg/L	Na mg/L	Ni mg/L	Pb mg/L	PO4 mg/L	SAR meq/L	Se mg/L	TDS mg/L	V mg/L	Zn mg/L
1	9038	7/30/2009	1.2280	ND	1397.6130	ND	ND	ND	17.6000	ND	5082.0000	ND	0.0048
2	9039	7/30/2009	0.5142	0.0094	1877.1130	0.0023	ND	ND	16.7000	0.0071	7436.0000	0.0019	0.0062
Test Count that Exceeded Standard:			2	0	2	0	0	0	2	0	2	0	0

ND - Not Detected

Livestock:

Livestock Standards			5	0.2	5	.1	0.05	1	1	.5	2	10	440	.1	5.5-8.3	.05	167;333	1000;3000;	25
	Sample No	Tested Date	Al mg/L	As mg/L	B mg/L	Be mg/L	Cd mg/L	Co mg/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	NO3 mg/L	Pb mg/L	pH -	Se mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9038	7/30/2009	ND	ND	0.5520	ND	ND	ND	ND	0.0120	ND	ND	ND	ND	8.4200	ND	2041.9650	5082.0000	0.0048
2	9039	7/30/2009	ND	0.0039	1.1260	ND	ND	0.0013	ND	0.0130	ND	ND	ND	ND	7.6900	0.0071	2516.2700	7436.0000	0.0062
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	2	0

ND - Not Detected

Culinary:

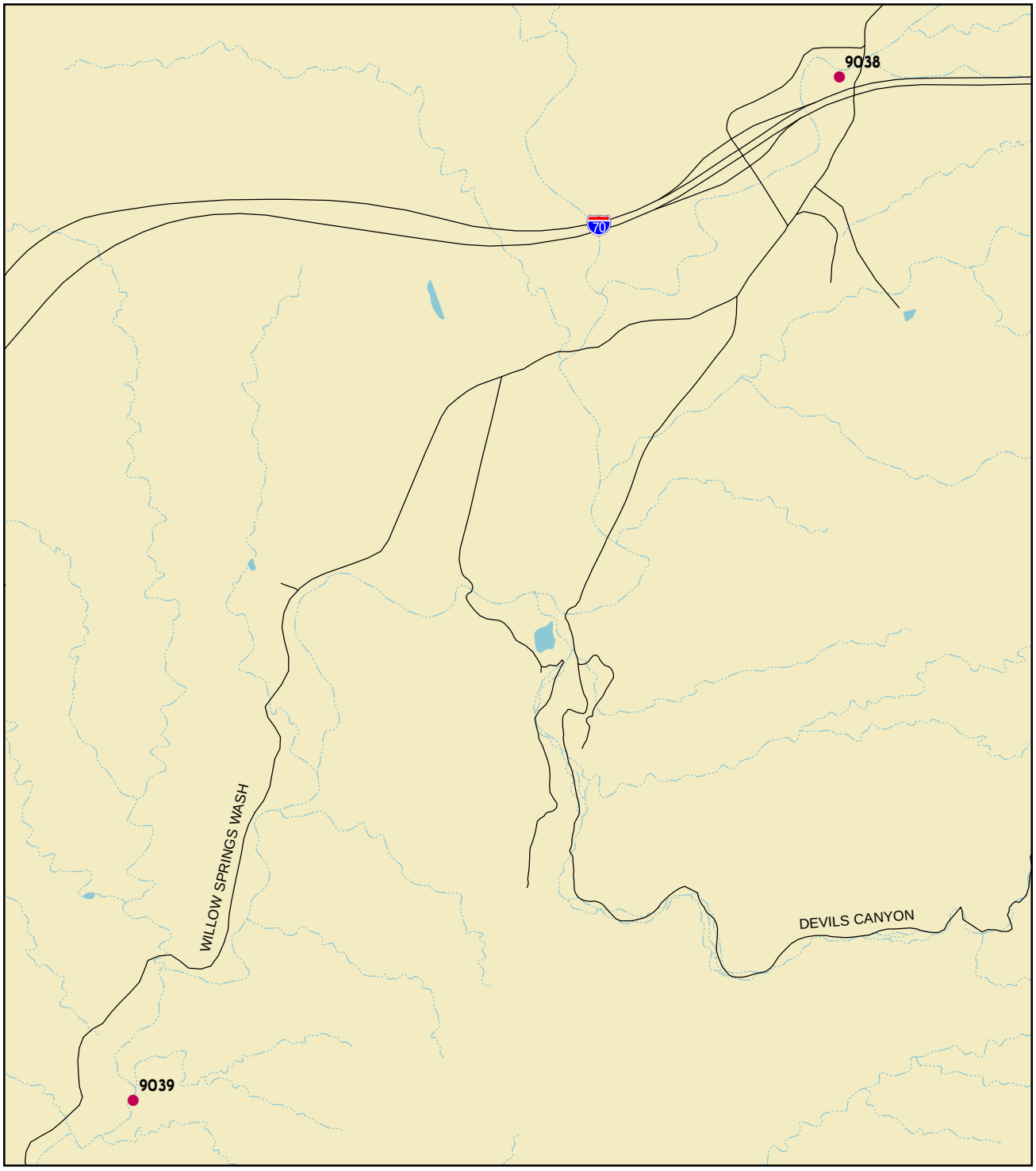
Drinking Water Primary Standards			0.01	2	0.004	0.005	25	0.1	1.3	4	2	10000	1000	44.3	.015	.05	500	2000
	Sample No	Tested Date	As mg/L	Ba mg/L	Be mg/L	Cd mg/L	ClO4 ug/L	Cr mg/L	Cu mg/L	F mg/L	Hg ug/L	Na mg/L	Ni mg/L	NO3 mg/L	Pb mg/L	Se mg/L	SO4 mg/L	TDS mg/L
1	9038	7/30/2009	ND	0.0099	ND	ND	ND	ND	0.0120	ND	ND	1397.6130	ND	ND	ND	ND	2041.9650	5082.0000
2	9039	7/30/2009	0.0039	0.0592	ND	ND	ND	ND	0.0130	ND	ND	1877.1130	0.0023	ND	ND	0.0071	2516.2700	7436.0000
Test Count that Exceeded Standard			0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2

ND - Not Detected

Drinking Water Secondary Standards:			0.1	0.5	250	1	2	0.3	60;120;180	.05	6.5-8.5	1000	250	200	5
	Sample No	Tested Date	Ag mg/L	Al mg/L	Cl mg/L	Cu mg/L	F mg/L	Fe mg/L	Hardness	Mn mg/L	pH -	Si mg/L	SO4 mg/L	TDS mg/L	Zn mg/L
1	9038	7/30/2009	ND	ND	1202.3520	0.0120	ND	ND	1193.7000	1.2280	8.4200	ND	2041.9650	5082.0000	0.0048
2	9039	7/30/2009	ND	ND	2085.6130	0.0130	ND	ND	2396.3000	0.5142	7.6900	5.9170	2516.2700	7436.0000	0.0062
Test Count that Exceeded Standard:			0	0	2	0	0	0	2	2	0	0	2	2	0

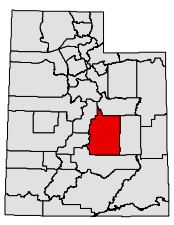
ND - Not Detected

Map 20. San Rafael District



Map Scale 1:28,000 (1 inch = 0.44 miles)

N
W E
S

Sample location
Road
Stream
Ditch or canal
Aqueduct
Intermittent stream
Water body
Irrigated cropland
District boundary

District Location