Montana Bureau of Mines and Geology
A Department of Montana Tech of The University of Montana

Ground-Water Assessment Atlas 5, Map 1
March 2004

Data for Water Wells Visited during the Upper Clark Fork River Area Ground-Water Characterization Study: Deer Lodge, Granite, Powell, and Silver Bow Counties

by
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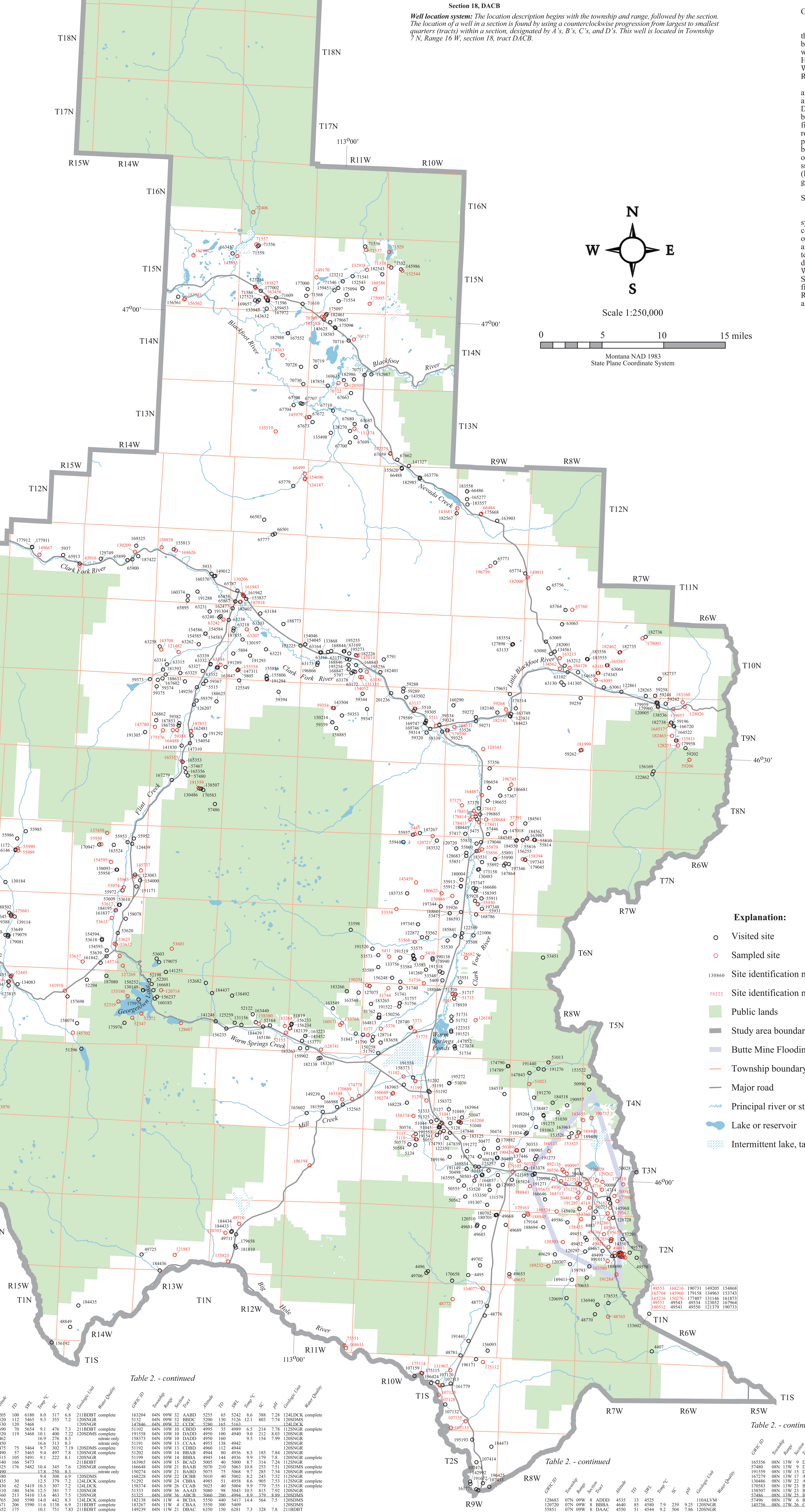
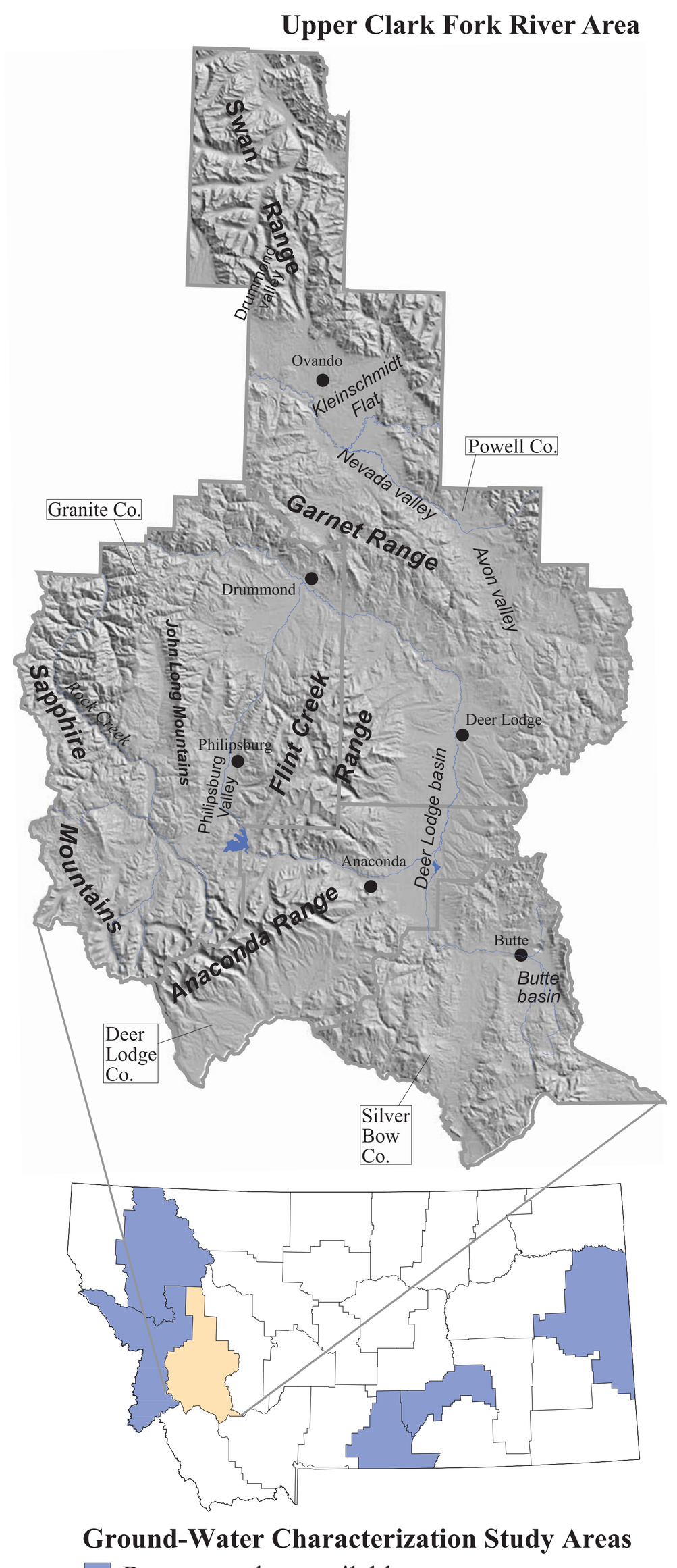
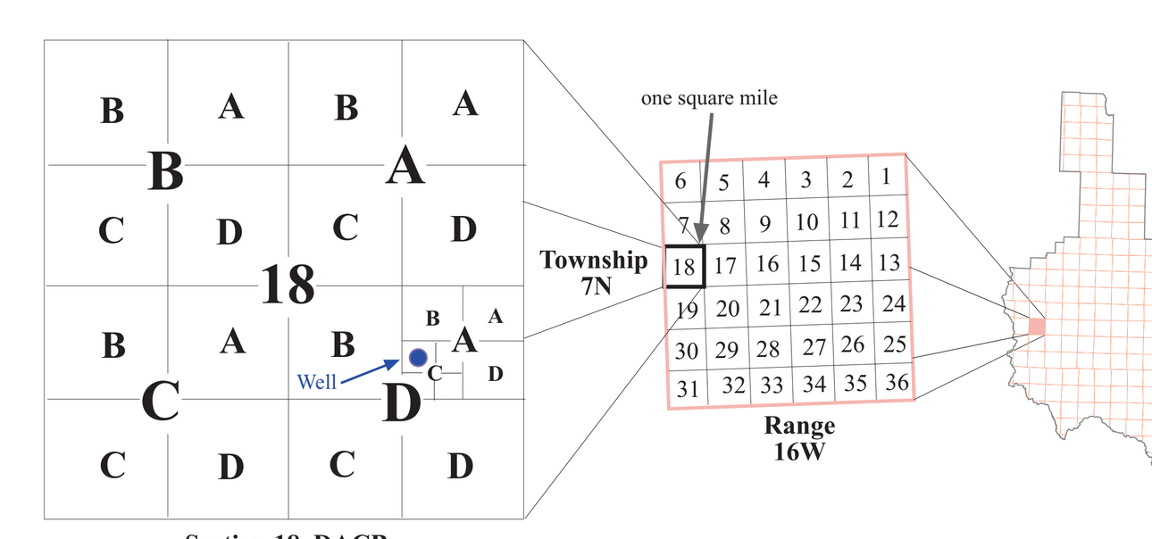




Ground-Water Characterization Study Areas
Reports or data available



Well location system: *The location description begins with the township and range, followed by the section. The location of a well in a section is found by using a counterclockwise progression from largest to smallest quarters (tracts) within a section, designated by A's, B's, C's, and D's. This well is located in Township 7 N, Range 16 W, section 18, tract DACB.*

Author's Note: This map is part of the Montana Bureau of Mines and Geology (MBMG) Ground-Water Assessment Atlas for the Upper Clark Fork River area ground-water characterization. It is intended to stand alone and describe a single hydrogeologic aspect of the study area, although many of the area's hydrogeologic features are interrelated. For an integrated view of the hydrogeology of the Upper Clark Fork River area the reader is referred to Part A (descriptive overview) and other Part B maps of the Montana Ground-Water Assessment Atlas No. 5.

INTRODUCTION

Visits to 904 water wells, 1 spring, and 11 stream sites were completed during the Upper Clark Fork River area study. The study area includes Deer Lodge, Granite, Powell, and Silver Bow Counties. Most wells were visited between February 2000 and November 2001. The wells were chosen from about 7,000 wells within the study area and were selected so that a useful distribution of new data could be obtained for significant aquifers. Most wells and visited wells are located in the developed areas in the intermontane valleys, outside of public lands. The study area contains several short, narrow valleys (Avon, Drummond, Nevada, Ovando, and Philipsburg) and long, narrow valleys along the Big Hole River, Divide Creek, and Rock Creek. Two large intermontane valleys (Butte and Deer Lodge basins) contain multiple aquifers and are where most wells are drilled.

GEOLOGIC UNITS

Geologic units (table 1, fig. 1) were assigned to visited-well records by comparing the driller's lithologic logs and reported completion depths to a geologic framework based on recent geologic mapping, interpretation of selected well logs, and previous work (Smedes 1962, 1967a, b, c, and d; Csejtey 1963; Witkind and Weber, 1982; Hanneman and Wideman, 1991; Derkey and others, 1993; Ruppel and others, 1993; Witkind, 1995; Voeller and Waren, 1997; Lewis, 1998; Kauffman, 1999; Waren and Roberts, 1999; Sears and others, 2001a, b).

The general sequence of geologic units from younger and shallower to older and deeper is portrayed in table 1 and figure 1. The rock units that frame the valleys and contact the basin-fill deposits change across the study area. In the Butte and Deer Lodge basins, thin sequences of recent alluvial and glacial deposits are underlain by semi-consolidated Tertiary-age sedimentary rocks that compose most of the basin-fill material. In the southern Deer Lodge basin along the Flint Creek Range these rocks are estimated to be 8,000 feet thick (Csejtey, 1963), and in the south-central part of the valley they are 5,000 feet thick (Konizeski and others, 1968). In the Butte basin, Botz (1969) estimated the thickness of basin-fill material to be in the range of 800–900 feet, based on gravity and seismic refraction surveys. In a few of the smaller valleys, alluvial and glacial deposits compose most of the basin-fill material (Kleinschmidt Flat and Nevada and Philipsburg Valleys). These areas accumulated glacial deposits during one or more glacial-advance and -retreat cycles.

SITE VISITS

Coordinates for visited wells were determined using hand-held global positioning system receivers and USGS 1:24,000 topographic maps. Where possible, data collected included the static water-level, temperature, pH, and specific conductance of the water. The final parameters reported represent stabilized readings attained after an average 30-minute pumping duration. Some wells could either not be pumped to measure water parameters, or not accessed to measure the water level. Selected data for the inventoried wells are included in table 2; well locations and their Ground-Water Information Center (GWIC) identification numbers are shown on the map. Selected wells were sampled as indicated in table 2. Samples were collected after field parameters stabilized and/or three well volumes of water were discharged. Results for full water-analyses (major ions and trace metals) and nitrate analyses are available from GWIC.

BUTTE MINE FLOODING STUDY AREA

Some sites visited in the Upper Clark Fork River area are within MBMG's Butte Mine Flooding project areas. Hydrogeologic investigations began in this area during the 1980s and are associated with Superfund assessments and monitoring projects. These studies are historical as well as ongoing and encompass the areas near the Berkeley Pit and Silver Bow Creek, as well as some outlying parts of the Butte basin. This large data set is housed in the GWIC database.

DATA SOURCES

All data are available from the GWIC database at the MBMG (http://mbmggwic.mtech.edu). Land ownership, hydrography, public land survey, and road data were obtained from the Natural Resources Information System, Helena (http://nris.state.mt.us/).

ACKNOWLEDGMENTS

We thank all property owners who gave permission to inventory their wells. Reviews of the map by Tom Patton and Wayne Van Voast are greatly appreciated.

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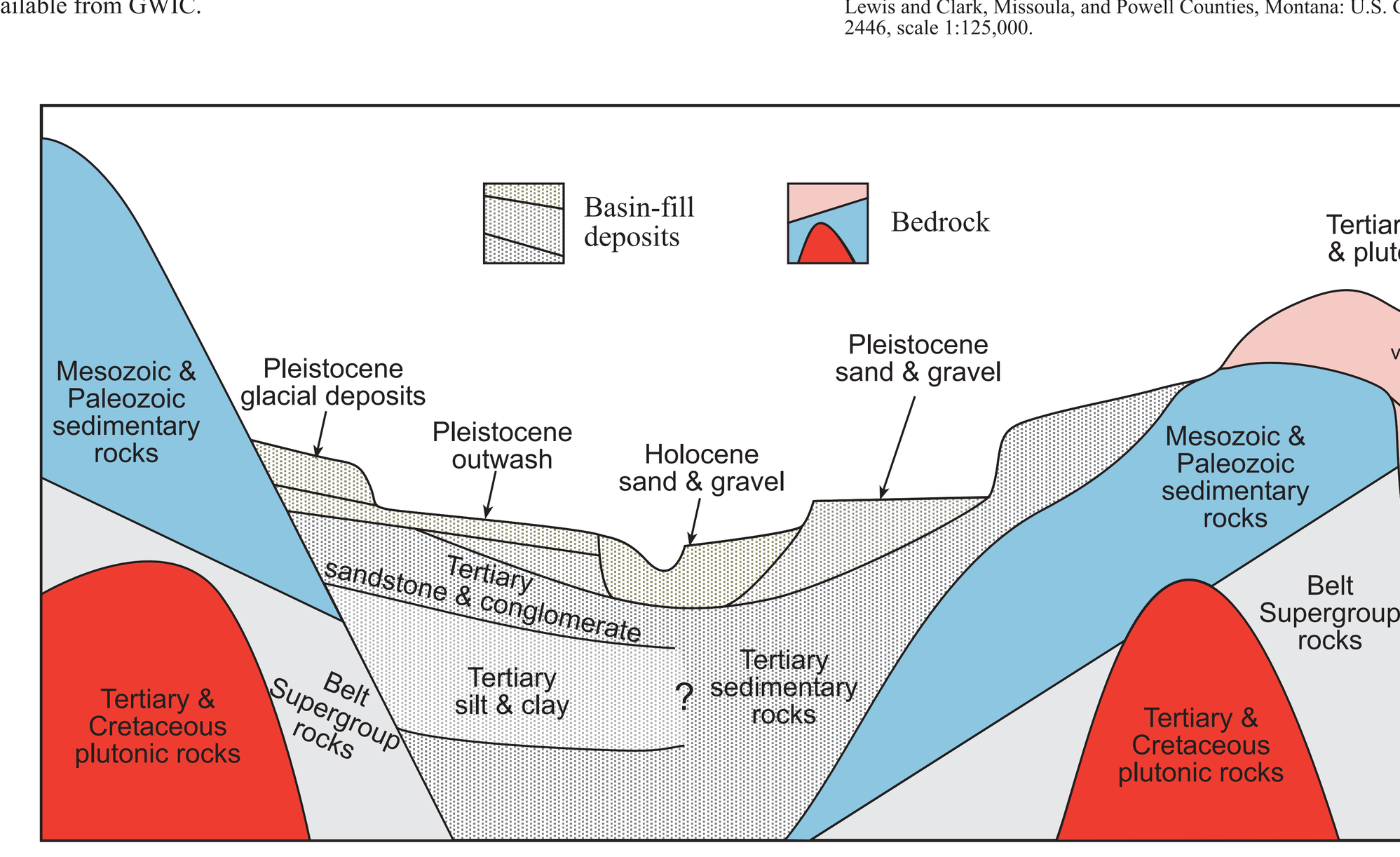

Figure 1. Diagrammatic cross section illustrating stratigraphic relationships between bedrock and basin fill.

Table 1. Descriptions of geologic units in which wells were completed.

Holocene sand and gravel (111SNGR) —
Sandy and gravelly alluvium in recent river valleys.

Pleistocene outwash (112OTSH) —
Mostly gravel and some sand at or near the land surface, deposited by glacial meltwater streams; deposits are most notable in the Ovando area and beneath Kleinschmidt Flat where they are estimated to be between 100-500 feet-thick (Witkind, 1995).

Pleistocene glacial-lake deposits and till (112SICL, 112TILL) —
Poorly sorted mixture of gravel, sand, silt, and clay deposited directly by glacial ice and in other ice-marginal environments (112TILL); some deposits of stratified drift are encased in till; till forms prominent moraines in locations along the western side of the Deer Lodge basin; in the Ovando area till overlies and underlies glaciofluvial and glacial-lake deposits near Kleinschmidt Flat (Witkind, 1995); local clay-rich deposits (with varied sand and silt content) are of probable glacial-lake origin (112SICL).

Pleistocene sand and gravel (112SNGR) —
Sand and gravel containing minor silt; includes fluvial, glaciofluvial, and glacial sand, gravel, and locally bouldery deposits; includes sand and gravel deposits on abandoned floodplains approximately 15 to 60 feet above the modern floodplain and alluvial fan deposits of moderately to poorly sorted mixture of boulders, cobbles, gravel, sand, and mud; mostly buried by either confining units of till and glacial lake silt and clay (as in the Ovando area) or lithologically similar Holocene sand and gravel (as along some major drainages).

Tertiary sedimentary rocks (120SDMS, 120SICL, 120SNGR) —
Poorly to well-consolidated; lithologies are sandstones and conglomerates (120SNGR), or claystones, coal beds, and shales (120SICL); some sedimentary lithologies are mixed or indeterminate (120SDMS); makes up much of the fill in the Deer Lodge basin and the Drummond valley.

Tertiary volcanic and plutonic rocks (120VLCC, 124LDCK) —
Volcaniclastic rocks, tuffs, welded tuffs, and some shallow intrusive rocks (common throughout the study area and largely unnamed, 120VLCC); andesitic and basaltic flows (mostly unnamed except for the Lowland Creek Volcanics, 124LDCK).

Cretaceous intrusive and volcanic rocks (211BDBT, 211ELKM, 211PLNC) —
Intrusive igneous rocks of compositions ranging from monzogranite to granodiorite, diorite and gabbro (Lewis, 1998); includes the Boulder Batholith (211BDBT), and the Anaconda and Flint Creek batholiths (211PLNC); the Elkhorn Mountain Volcanics composed of andesitic and basaltic tuffs, breccias, and flows (211ELKM); some of the intrusive rocks may be of Tertiary age.

Mesozoic sedimentary and metasedimentary rocks (211CLRD, 211GSPK, 217BCKF, 217CRCK, 217KOTN, 217SDMS) —
Structurally deformed Mesozoic sandstones, mudstones, shales, and minor limestones in mountain areas, around valleys, and underneath basin-fill deposits; metamorphosed where they contact the intrusive bodies, as in the western margin of the Deer Lodge basin; includes the Upper Cretaceous Colorado Group (211CLRD) and Golden Spike Formation (211GSPK); and the Lower Cretaceous Blackleaf Formation (217BCKF), Carter Creek Formation (217CRCK), the Kootenai Formation (217KOTN), and undifferentiated sedimentary rocks (217SDMS).

Paleozoic sedimentary and metasedimentary rocks (300SDMS, 310PSPR, 330MDSN, 341JFRS, 370CMBR, 370HMRK) —
Structurally deformed Paleozoic limestones, dolomites, sandstones, shales, and mudstones in mountain areas, around valleys, and underneath basin-fill deposits; includes the Permian Phosphoria Formation (310PSPR), Mississippian Madison Group (330MDSN), Devonian Jefferson Formation (341JFRS), and the Cambrian Hasmark Formation (370HMRK), and undifferentiated Paleozoic (300SDMS) and Cambrian (370CMBR) sedimentary rocks.

Belt Supergroup rocks (400BELT, 400MCRB, 400MSSL, 400SPRD) —
Metamorphosed limestone, dolomite, siltstone, and sandstone; rocks of the middle Belt carbonate (400MCRB), Missoula (400MSSL), and Shepard (400SPRD) units; and undifferentiated units of the supergroup (400BELT); these rocks have been folded, faulted, and fractured; prominent in the Sapphire Range, Flint Creek Range, Philipsburg Valley, Rock Creek area, and in the Big Hole River area, and underlying those valleys adjacent to these areas.

Table 2. Well inventory data. Data are arranged in ascending township, range, and section order. Blank lines separate townships and gray lines separate ranges within townships; GWIC Id = Ground-Water Information Center identification number (- spring; ** - stream); Twn = township; Rng = range; Sec = section; Tr = tract; Alt = land-surface altitude (ft); TD = total depth (ft); SWL alt = static water-level altitude (ft); Temp °C = water temperature (centigrade); SC = specific conductivity at 25°C (micro mhos); pH = acidity of water; Geologic Unit = geologic-unit code for well completion; Water Quality: complete = major ions and trace metals analysis, nitrate only, or blank = sample not collected).*

GWIC ID	Township	Range	Section	Tract	Altitude	TD	SWL	Temp °C	SC	pH	Geologic Unit	Water Quality
175112	01S	09W	2	CAAB	6160	210	6020	7.7	317	8.1	211BDBT	complete
196171	01S	09W	3	AACD	5980	254	5780	9.5	289	7.9	120SDMS	
131967	01S	09W	8	ACAA	5470	55	5455	9.2	390	7.7	120SNGR	complete
161779	01S	09W	17	ADBA	5590		5426	7.6	400	7.7	120SDMS	
107113	01S	09W	17	BCDD	5390	33	5381	7.3	206	7.1	111ALVM	
107120	01S	09W	18	AACC	5425	120	5388	10.7	438	8.0	120SDMS	
196424	01S	09W	18	BDBB	5395		5378	8.0	252	7.5	111ALVM	
107125	01S	09W	18	DAAA	5399	44	5377	11.2	483	7.5	111SNGR	complete
107128	01S	09W	19	ADAB	5355	30	5353	11.1	332	7.3	111ALVM	complete
107132	01S	09W	29	BAAA	5370	29	5363	7.0	245	7.0	111ALVM	
107133	01S	09W	32	DDDA	5340	160	5311	10.0	327	7.5	330MDSN	complete
107135	01S	09W	34	BCAB	5420	65	5401	8.2	701	7.4	120SDMS	complete
107159	01S	10W	11	DADD	5440	60	5406	8.9	229	7.2	111ALVM	
175114	01S	10W	12	CABA	5440	48	5411	7.5	169	7.2	112ALVM	complete
175115	01S	10W	12	DBBC	5460	160	5428				310PSPR	
156192*	01S	15W	2	ADAC	6055	9		7.3	67	6.5	120SDMS	
184473	02S	09W	12	BBDD	5700	400	5671				120SDMS	
107414	02S	09W	14	CBAD	5225	43	5205	10.4	388	7.4	120SNGR	
107433	02S	09W	25	CABB	5260	60		11.4	461	7.6	120SDMS	
196425	02S	09W	26	ADBC	5180						120SDMS	
161775	02S	09W	26	CCAA	5180	32	5169	8.0	358	7.65	111ALVM	
191672	02S	09W	26	CDAD	5180	30	5175	7.0	281	7.7	111ALVM	
107474	02S	09W	27	AACC	5185	40	5181	9.3	279	7.6	111ALVM	
142992	02S	09W	27	ADBC	5185	41	5181	7.6	294	7.7	111ALVM	
195193	02S	09W	30	DDBB	5500	220	5460	11.6	476	6.5	120SDMS	
4407	01N	06W	30	CDDD	6070	30	6057	5.4	260	8.4	211BDBT	
136940	01N	07W	8	ACDB	6595	180	6516	6.2	386	6.4	211BDBT	
178535	01N	07W	9	ABCC	6420	71	6418				211BDBT	
133602	01N	07W	12	DDCD	6530	240	6491	7.1	634	7.2	211BDBT	
48765	01N	07W	16	ACBA	6650	127	6617	7.1	203	5.5	211BDBT	complete
48770	01N	07W	17	ACBC	6543	65	6534	7.5	190	6.9	211BDBT	
120699	01N	08W	1	CCDC	5770	300	5728	9.9	279	7.5	211BDBT	
134077	01N	09W	2	BDCD	5725	170	5710	7.3	263	6.9	120SNGR	complete
48772	01N	09W	8	ADDD	6110	120	6051	7.8	432	7.6	211BDBT	complete
48773	01N	09W	11	CACA	5660	45	5649				111ALVM	
48776	01N	09W	14	DBCA	5930	276	5767	9.4	245	7.7	120SNGR	
191441	01N	09W	27	CDAB	5645	140	5572	9.3	440	7.7	120SNGR	
48781	01N	09W	33	DDCC	5520	73	5491	8.3	407	7.6	120SNGR	
156093	01N	09W	35	ADDD	6120	120	6064	7.5	384	7.0	211BDBT	
75551	01N	11W	36	BCDD	5590	80	5580	11.6	276	7.5	310PSPR	complete
168611	01N	11W	36	CDAC	5575	41	5543	10.9	281	7.2	112ALVM	complete
184436	01N	13W	4	BBBD	5860	103	5857	10.9	284	7.1	120SDMS	
48849	01N	14W	15	DDDD	6030	41	6021				112ALVM	
184435*	01N	14W	20	ABCC	6080			8.7	180	6.8	120SDMS	
128728	02N	07W	4	ACAC	5540	115	5497	9.7	257	8.0	120SDMS	
49260	02N	07W	4	BDCA	5515	134		10.1	161	7.5	120SNGR	complete
4483	02N	07W	5	BCBDC	5540	72	5504	9.9	315	7.3	120SDMS	complete
158435	02N	07W	8	CBBA	5705	61	5669	8.7	360	7.2	211BDBT	complete
49336	02N	07W	8	DADAC	5565	80	5518	9.8	314	7.3	120SDMS	complete
137291	02N	07W	15	BAAA	5640	125	5530	10.6	320	7.8	120SNGR	
195675**	02N	07W	16	ABBA	5525			10.8	213	8.6		nitrate only
191285**	02N	07W	16	ABBB	5530			15.6	213	8.6		nitrate only
143507	02N	07W	16	ABCC	5530	88	5517	6.9	294	7.1	120SNGR	
49421	02N	07W	16	CACDD	5585	71		8.6	474	7.1	120SNGR	nitrate only
49452	02N	07W	18	ABCB	5620	120		9.5	360	7.5	120SDMS	
49453	02N	07W	18	BAAAB	5622	150	5538	9.4	171	7.5	120SNGR	
120297	02N	07W	19	BAADD	5588	54	5569	7.2	303	7.1	120SNGR	
49467	02N	07W	20	AABA	5635	58	5613	8.8	611	7.9	211BDBT	
49493	02N	07W	21	AACAA	5588	58	5546	7.2	368	7.4	211BDBT	
49499	02N	07W	21	ACDB	5690	90	5628	8.2	294	7.7	211BDBT	
188490	02N	07W	21	ADCB	5605	240	5563				211BDBT	
891015	02N	07W	21	ADDB	5605	190	5552	9.0	538	7.1	211BDBT	
163580	02N	07W	21	CDBC	5930	128	5866	7.6	342	7.4	211BDBT	complete
180512	02N	07W	22	AACB	5635	100	5607	8.8	198	7.5	211BDBT	complete
150276	02N	07W	22	ABBC	5605	160	5574	9.2	345	6.9	211BDBT	complete
134963	02N	07W	22	ABCC	5640	110	5585				211BDBT	
49553	02N	07W	22	ACBB	5660	85	5608	9.6	348	7.1	211BDBT	nitrate only
123052	02N	07W	22	ACBC	5680	375	5630				211BDBT	
165704	02N	07W	22	ACCA	5685	120	5657	10.0	469	7.4	211BDBT	nitrate only
49534	02N	07W	22	ACCB	5690	260	5592				211BDBT	
145960	02N	07W	22	ADCC	5740	100	5701	8.9	340	7.2	211BDBT	nitrate only
49541	02N	07W	22	BAACC	5600	54	5578				211BDBT	
190731	02N	07W	22	BABC	5590	320	5565				211BDBT	
49543	02N	07W	22	BABD	5605	76	5581				211BDBT	
168216	02N	07W	22	BACB	5620	95	5585	9.8	374	6.9	211BDBT	nitrate only
161873	02N	07W	22	BADA	5610	120	5581				211BDBT	
190733	02N	07W	22	BADA	5630	140	5577				211BDBT	
153743	02N	07W	22	BADB	5630	521	5584				211BDBT	
49550	02N	07W	22	BBDAC	5595	54	5569				211BDBT	
177407	02N	07W	22	BDAA	5670	160	5616				211BDBT	
131146	02N	07W	22	BDAB	5650	220	5590				211BDBT	
165216	02N	07W	22	BDAB	5650	180	5579	9.3	411	7.3	211BDBT	complete
179158	02N	07W	22	BDBA	5640	100	5606				211BDBT	
149205	02N	07W	22	BDBB	5620	128	5574				211BDBT	
121379	02N	07W	22	BDCA	5650	400	5551				211BDBT	
49551	02N	07W	22	BDCB	5640	340	5588	13.0	737	7.8	211BDBT	nitrate only
167964	02N	07W	22	BDDA	5650	360	5584				211BDBT	
154868	02N	07W	22	BDDDB	5670	390	5563				211BDBT	
49573	02N	07W	23	BBAB	5650	162	5626	10.5	306	7.7	211BDBT	
49570	02N	07W	23	DBAA	5820	340	5752	10.5	199	7.2	211BDBT	
191284**	02N	07W	27	CCBD	5720			14.4	194	7.5		nitrate only
179162	02N	07W	28	DDDC	5800	80	5785	8.6	271	6.9	211BDBT	complete
159793	02N	07W	29	ADAB	5940	120	5912	7.5	286	7.4	211BDBT	
170653	02N	07W	31	ABDD	5900	200	5879	7.9	365	7.2	211BDBT	
49586	02N	08W	2	DDADA	5900	120	5839	8.2	448	7.4	211BDBT	
179163	02N	08W	5	ADBB	5990	350	5983	10.8	210	8.5	120SDMS	complete
188845	02N	08W	5	ADBC	5950	150	5911	9.4	254	8.1	211BDBT	complete
179164	02N	08W	5	CAAB	5860	270		10.1	217	6.9	211BDBT	
188694*	02N	08W	10	BCBB	6040			11.5	237	7.8	211BDBT	complete
120303	02N	08W	14	ACDB	5845	120	5765	8.5	305	7.1	211BDBT	complete
49629	02N	08W	23	BCCC	5880	220	5837	8.1	1020	6.8	211BDBT	
120307	02N	08W	25	BBDA	5790	200	5733	9.6	344	7.4	211BDBT	
189232	02N	08W	27	ACCB	6080	80	6066	6.6	288	8.3	211BDBT	complete
49653	02N	08W	31	BACC	5910	96		7.5	163	7.1	211BDBT	
49652	02N	08W	31	BDCA	5950	327	5915	9.5	222	7.2	211BDBT	complete
189411	02N	08W	36	BBDA	5720	240	5609	8.0	225	7.6	211BDBT	
49668	02N	09W	1	BCDC	5490	88	5438				120SDMS	
180702	02N	09W	1	BCDD	5470	95	5434				120SDMS	
180701	02N	09W	1	CBAB	5490	100	5438				120SDMS	
120310	02N	09W	3	ABCD	5640	365	5590	10.6	328	8.9	211PLNC	
49681	02N	09W	10	ACBB	5660	225	5651				211PLNC	
49685	02N	09W	11	BCBD	5590	143	5452	9.5	388	7.4	120SNGR	complete
49689	02N	09W	12	AABD	5540	57	5500	8.5	250	7.3	120SNGR	
49702	02N	09W	27	ADDC	5685	90	5617	9.4	239	7.5	120SNGR	
170658	02N	09W	32	DCAD	5940	250	5921	7.1	467	7.5	211BDBT	
4495	02N	09W	34	BCBB	6010	440	5926	11.9	482	7.9	211BDBT	complete
49706	02N	10W	36	AACC	6445	53	6439				120SDMS	
4496	02N	10W	36	AACD	6450	75		5.8	175	7.5	211BDBT	
49710	02N	12W	16	BBAA	6130	375	5935	9.5	198	8.0	400BELT	complete
49711	02N	12W	16	CCCA	5870	50	5864	8.8	221	7.1	120SNGR	complete
120703	02N	12W	17	CCAB	6120	190	6089	7.3	93	6.2	120SICL	complete
184433	02N	12W	17	DBCD	5915	50	5895	9.1	134	6.6	120SDMS	
184434	02N	12W	17	DBDB	5905	51					120SDMS	
179658	02N	12W	20	DDAD	5895	150	5819				400BELT	
181810	02N	12W	20	DDDA	5910	105	5830	13.1	119	6.5	400BELT	complete
175823	02N	12W	32	BAAC	5775	25	5768	11.5	141	6.4	120SDMS	complete
121883	02N	13W	27	CCAB	6020	260	5941	9.4	288	8.9	120VLCC	complete
49725	02N	13W	30	CDAD	6020	73	5996	11.7	302	7.3	120SDMS	
50028	03N	07W	14	CAAC	7850	60	7838	3.6	50	6.4	211BDBT	
128027	03N	07W	19	CADAC	5459	38		10.1	510	6.83	110ALVM	complete
129262	03N	07W	20	ACDDB	5521	116		8.4	584	7.44	120SDMS	complete
128029	03N	07W	20	CBADB	5494	76		9.7	590	6.87	110ALVM	complete

Table 2. - continued

GWIC ID	Township	Range	Section	Tract	Altitude	TD	SWL	Temp °C	SC	pH	Geologic Unit	Water Quality
175710	03N	07W	22	CABD	6205	100	6180	8.0	317	6.8	211BDBT	complete
50080	03N	07W	28	CCAB	5520	112	5465	9.3	355	7.2	120SNGR	
4714	03N	07W	28	CCAB	5530	120	5468				120SNGR	
50092	03N	07W	28	DBAB	5690	70	5654	9.1	476	7.3	211BDBT	complete
4716	03N	07W	29	ABACD	5520	119	5468	10.1	400	7.22	120SDMS	complete
123162**	03N	07W	29	CBAD	5462			16.9	276	8.3		nitrate only
191287**	03N	07W	30	BABA	5450			16.6	313	8.3		nitrate only
4719	03N	07W	30	DCBAA	5475	75	5464	9.7	302	7.19	120SDMS	complete
153760	03N	07W	31	DBAA	5490	57	5465	9.4	497	7.8	120SNGR	complete
50275	03N	07W	32	CCAD	5515	105	5491	9.1	222	8.1	120SNGR	
145968	03N	07W	33	BACA	5540	166	5473				211BDBT	
129387	03N	07W	33	CABA	5525	176	5482	10.4	345	7.6	120SNGR	complete
191286**	03N	07W	33	CCDD	5490			17.8	250	8.3		nitrate only
190905*	03N	08W	4	CCDA	5580			9.4	308	6.9	120SDMS	
50349	03N	08W	7	ABCB	5435	30		12.5	379	7.2	124LDCK	complete
137446	03N	08W	7	ABDB	5430	62	5419	10.3	307	7.2	124LDCK	
50353	03N	08W	8	BBCA	5510	180	5436	12.5	381	7.7	120SNGR	
191273	03N	08W	9	CCAC	5560	213	5410	13.6	463	7.5	120SNGR	
160113	03N	08W	10	BABC	5765	260	5590	14.0	442	8.3	124LDCK	complete
892116	03N	08W	14	CACAA	5671	206	5590	11.6	1138	6.9	211BDBT	complete
50356	03N	08W	14	CADAD	5652	175		10.1	751	7.83	211BDBT	complete
890997	03N	08W	14	DCDAD	5560	125		10.8	569	7.5	211BDBT	complete
121185	03N	08W	16	CCDCA	5400	19	5385				120SDMS	
163378	03N	08W	17	CAAC	5405	161	5351	11.0	466	7.1	120SNGR	
50372	03N	08W	18	AABA	5420	188	5402	15.1	459	8.0	120SNGR	complete
190426*	03N	08W	18	AACA	5435			34.7	808	8.0	124LDCK	complete
179105	03N	08W	18	CDAC	5365	200	5333	9.7	633	7.8	211BDBT	complete
185824	03N	08W	19	CABD	5435	118	5345	10.3	288	7.3	120SNGR	
191271	03N	08W	20	AADA	5400	80	5370	9.0	361	7.5	120SNGR	
120998	03N	08W	21	BBBA	5380	160	5367	10.6	740	7.1	211BDBT	
195673**	03N	08W	22	ACAC	5415			19.3	494	8.3		nitrate only
4930**	03N	08W	23	CABAD	5467			14.7	518	7.6		nitrate only
164317**	03N	08W	23	DBDD	5440			19.5	439	8.8		nitrate only
50448	03N	08W	24	DACAD	5460	40	5452	10.7	1988	6.2	120SNGR	
127593**	03N	08W	24	DBDBAC	5444			18.5	353	8.4		nitrate only
171279	03N	08W	25	ADCB	5480	100	5452	9.1	1844	6.7	120SDMS	nitrate only
50461	03N	08W	25	DCAC	5530	295	5498	9.4	900	7.7	211BDBT	complete
188843	03N	08W	28	BBBB	5580	220		10.1	380	7.6	211BDBT	complete
166646	03N	08W	34	BBBA	5920	300	5866	8.8	327	7.9	211BDBT	
188524	03N	08W	35	CCCD	5990	160	5925	8.7	398	7.6	211BDBT	complete
145970	03N	08W	36	DADC	5720	220	5551	10.0	299	7.1	211BDBT	
50474	03N	09W	1	BCCB	5680	300	5577	14.2	209	7.8	124LDCK	
183125	03N	09W	4	BDBC	5460	200	5350	11.4	253	7.5	120SNGR	
147839	03N	09W	6	ADDB	5400	365		12.3	300	7.9	124LDCK	
174793	03N	09W	6	BABA	5165	80	5144				124LDCK	
5055	03N	09W	6	BCBA	5190	44	5155	15.1	374	7.9	124LDCK	
189196	03N	09W	8	CDCC	5355	240	5304	13.4	259	7.7	124LDCK	
191272	03N	09W	9	ACCD	5525	300	5351	10.9	300	7.1	124LDCK	
50477	03N	09W	10	AADD	5520	139	5492				124LDCK	
191274	03N	09W	10	DCAC	5470	360	5421	8.6	467	8.1	124LDCK	
170882	03N	09W	12	BBBB	5460	195	5400	11.1	260	6.6	124LDCK	
50479	03N	09W	12	CCBC	5355	58	5329	8.3	560	7.2	120SNGR	
191147	03N	09W	12	CCBD	5355	200	5328				120SNGR	
50480	03N	09W	13	ACBD	5390	310	5348				120SNGR	
50485	03N	09W	14	CDCD	5370	113	5340	10.6	658	6.8	120SDMS	
168854	03N	09W	15	CADB	5315	50	5296	9.1	492	7.7	120SNGR	
125257	03N	09W	15	DBCA	5320	49	5301				120SNGR	
191149	03N	09W	16	DCDB	5338	120	5279				124LDCK	
50498	03N	09W	16	DCDB	5340	124	5280	9.1	800	7.6	124LDCK	
163595	03N	09W	21	CCCB	5430	60	5397	9.3	295	7.2	124LDCK	
164857	03N	09W	22	ADAC	5325	59	5293	8.5	744	6.6	120SNGR	
50503	03N	09W	22	BDDC	5390	155	5294	8.7	544	8.0	124LDCK	
153520	03N	09W	22	CDBC	5430	140	5377	9.5	480	8.2	211BDBT	
129085	03N	09W	24	BBDC	5345	119		13.0	291	7.2	120SDMS	
131579	03N	09W	25	BBAC	5391	445	5335	8.4	243	8.1	120SDMS	
153350	03N	09W	26	DBBB	5365	218	5356				120SNGR	
50555	03N	09W	28	ABBC	5440	50	5423	7.6	980	7.5	124LDCK	
50562	03N	09W	33	ABBD	5660	266	5635	10.2	309	7.4	211BDBT	
191148	03N	09W	34	ABDC	5355	49	5328	9.1	418	7.1	120SNGR	
191307	03N	09W	35	CAAD	5420	96	5372		393	7.6	120SNGR	
50574	03N	10W	2	BACD	5140	318					120SDMS	
5115	03N	10W	2	BCCB	5155	305		16.5	280	7.2	120SDMS	complete
50575	03N	10W	2	CACD	5165	400	5000				120SDMS	
5118	03N	10W	2	CADB	5165	600		75.3	924	8.0	120SDMS	complete
50584	03N	10W	10	AAAC	5225	125	5197	7.6	249	7.24	211PLNC	
5124	03N	10W	11	BACA	5225	300	5118	25.1	223	8.43	124LDCK	
196194	03N	11W	17	DDCD	6585	140	6551	5.8	52	6.3	124LDCK	complete
153522	04N	07W	7	BABD	6525	400	6300	9.4	554	7.6	211BDBT	
50990	04N	07W	18	BABA	7040	175	7031	6.4	170	6.3	211BDBT	
190732	04N	07W	30	ACBD	6605	142		6.0	220	7.7	211BDBT	complete
51013*	04N	08W	4	AAAC	5980	6		5.9	228	6.7	124LDCK	
191276*	04N	08W	4	CAAC	5980			5.1	126	6.9	124LDCK	
191440*	04N	08W	4	CBAC	5850			6.0	141	6.7	124LDCK	
147843	04N	08W	5	CDAC	5790	500	5709	14.1	257	9.5	124LDCK	
51023	04N	08W	8	CDAB	5710	70	5671	9.4	214	6.6	124LDCK	complete
191270	04N	08W	17	DDBD	5640	75	5623	9.4	401	7.3	124LDCK	
184518	04N	08W	21	BABD	5790	80	5759	8.6	201	6.8	124LDCK	
51030	04N	08W	22	DDCD	5760	70	5726	8.0	189	7.0	124LDCK	
190957	04N	08W	23	ACCB	5895	84	5855		187	7.4	124LDCK	
183655	04N	08W	25	DADB	6490	60	6450	6.7	186	7.9	211BDBT	complete
138487	04N	08W	28	ABDC	5595	48	5578	9.0	266	7.1	124LDCK	
191275*	04N	08W	28	ABDD	5590			11.5	254	5.8	124LDCK	
189204	04N	08W	29	DABB	5560	180	5527	9.5	206	7.2	124LDCK	
191089	04N	08W	32	CDAB	5510	203	5469	9.0	506	7.0	124LDCK	
51034	04N	08W	32	CDBB	5510	225	5483				124LDCK	
191063	04N	08W	33	BBCD	5550	300	5539	9.5	272	7.0	124LDCK	
153526	04N	08W	35	DDCD	6290	220	6221	7.7	238	7.4	211BDBT	
163963	04N	08W	36	CBCB	6205	300	6112	9.6	292	8.4	211BDBT	
153525	04N	08W	36	CDAD	6210	180	6191	7.4	463	8.2	211BDBT	complete
189408	04N	08W	36	DBBD	6340	200	6328	9.2	340	7.6	211BDBT	complete
189409	04N	08W	36	DBBD	6370	600	6330				211BDBT	
174789	04N	09W	1	ACCD	6105	400	6103				124LDCK	
174790	04N	09W	1	ACCD	6115	180	6105	7.5	415	8.4	124LDCK	
184519	04N	09W	13	DDBA	5880	200	5821	8.5	518	7.5	124LDCK	
51036	04N	09W	18	AAAB	5265	80	5256	9.3	522	7.64	211PLNC	
195272	04N	09W	18	AAAB	5280	73	5269	9.8	352	7.5	211PLNC	
163964	04N	09W	28	CBCB	5380	55	5342	10.6	1393	7.5	124LDCK	
158372	04N	09W	30	AAAD	5210	300		17.1	779	9.21	210PLNC	
5127	04N	09W	31	BADC	5150	180		11.6			124LDCK	
51041	04N	09W	31	BDAA	5140	440	5092	16.3	778	8.68	124LDCK	complete
51044	04N	09W	31	BDCB	5115	71	5083	9.9	901	7.49	120SDMS	
51045	04N	09W	31	CABD	5120	56	5101				120SDMS	
191541	04N	09W	31	CABD	5120	68	5100				120SDMS	
5128	04N	09W	31	CABD	5150	67	5124	9.1	994	7.13	120SNGR	
191553	04N	09W	31	CBAD	5100	100					120SDMS	
122351	04N	09W	31	DCAC	5200	77	5143	11.8	360	8.16	124LDCK	
51047	04N	09W	32	AAAB	5270	18	5264	11.6	888	7.22	120SDMS	
51048	04N	09W	32	AAAD	5280	40		7.5			120SDMS	
51049	04N	09W	32	AABB	5240	20	5234				111ALVM	

Table 2. - continued

GWIC ID	Township	Range	Section	Tract	Altitude	TD	SWL	Temp °C	SC	pH	Geologic Unit	Water Quality
163204	04N	09W	32	AABD	5255	65	5242	8.6	388	7.28	124LDCK	complete
5132	04N	09W	32	BBDC	5200	130	5126	12.1	803	7.74	120SDMS	
147846	04N	09W	32	CCDC	5280	165	5163				124LDCK	
51102	04N	10W	10	CBDD	4995	35	4989	6.5	214	7.78	112SNGR	complete
191558	04N	10W	10	DADD	4950	100	4940	9.0	212	8.03	120SDMS	
158373	04N	10W	10	DADD	4950	160		9.5	154	7.99	120SNGR	
51191	04N	10W	13	CCAA	4955	138	4942				120SNGR	
51192	04N	10W	13	CDBD	4960	112	4944				120SNGR	
51202	04N	10W	14	BBAB	4944	80	4936	8.5	185	7.84	120SNGR	
51199	04N	10W	14	BBBA	4945	144	4936	9.9	179	7.8	120SNGR	complete
163965	04N	10W	15	BCAD	5005	40	5000	8.7	314	7.24	112SNGR	
166648	04N	10W	21	BAAB	5070	210	5063	10.8	253	7.51	120SDMS	complete
150274	04N	10W	21	BABD	5075	75	5068	9.7	285	7.54	120SNGR	complete
168228	04N	10W	22	DCBB	5010	40	5002	8.2	243	7.52	112SNGR	
51292	04N	10W	24	CBBA	4985	51	4958	8.6	905	7.53	112SNGR	complete
158374	04N	10W	26	CCAB	5025	40	5004	9.9	779	7.55	112SNGR	complete
51333	04N	10W	36	AAAD	5080	98	5043	10.5	815	7.92	120SNGR	
51325	04N	10W	36	ABCB	5060	200	4994	8.9	379	8.89	120SDMS	
182138	04N	11W	4	BCDA	5550	440	5417	14.4	564	7.5	120SDMS	
183267	04N	11W	4	CBAA	5550	300	5409				120SDMS	
149239	04N	11W	21	DBAC	6350	150	6281	7.3	328	7.8	211BDBT	
163148	04N	11W	23	CCAB	5660	245	5643	9.1	432	7.8	211PLNC	complete
174778	04N	11W	24	ACAC	5365	140	5348	8.5	171	7.2	211PLNC	complete
170889	04N	11W	24	CBDB	5440	60	5430	8.1	375	7.3	211PLNC	complete
152565	04N	11W	26	BACB	5540	80	5520				211PLNC	
166988	04N	11W	27	ADBC	5650	40	5631	10.9	54	6.4	112SNGR	
181599	04N	11W	28	DDBC	5805	160	5785	8.9	160	8.2	211PLNC	
163602	04N	11W	29	CDDB	6140	41	6132	6.6	165	7.9	111ALVM	
51396	04N	14W	6	DABC	6070	96		6.0	302	8.09	112SNGR	
51399	04N	16W	25	AACA	5885	10	5880				112SNGR	
51398	04N	16W	25	AACA	5885	32		5.2	131	7.56	112SNGR	
51400	04N	16W	25	CCBB	5945	12					112SNGR	
51401	04N	16W	25	CCBB	5945	36		4.5	66	7.22	112SNGR	
51402	04N	16W	36	DCCA	6030	75	6015	4.9	213	8.47	112SNGR	
163970	04N	16W	36	DDBC	6050	100	6018	5.3	200	8.63	112SNGR	complete
51720	05N	09W	5	CDBB	4790	31	4775	9.4	648	7.53	112SNGR	
5345	05N	09W	5	CDBC	4790	35	4772	9.5	642	7.5	112SNGR	complete
51713	05N	09W	5	CDDA	4845	105	4769	10.2	324	7.54	120SNGR	complete
51717	05N	09W	5	DCBB	4840	102	4758	9.5	330	7.68	120SNGR	
178939	05N	09W	8	BADB	4830	108	4761	8.3	302	7.57	120SNGR	
126181	05N	09W	15	CCAD	5310	80	5294	5.6	319	7.42	211BDBT	complete
51731	05N	09W	17	CACB	4875	115	4787	10.7	417	7.49	120SDMS	
51732	05N	09W	20	BABB	4880	128		11.4	648	7.89	120SDMS	
122353	05N	09W	20	CDBB	4855	80	4815				120SNGR	
191521	05N	09W	20	CDCB	4860	88		9.6	696	7.67	120SDMS	
147852	05N	09W	32	ABBA	5045	138	5024	13.5	313	7.88	120SNGR	
127074	05N	09W	32	ABBD	5040	250	5035				120SDMS	
51734	05N	09W	32	ABDC	5085	210		8.1	448	7.35	120SDMS	
51738	05N	10W	2	AAAB	4875	75	4851	10.8	456	7.65	120SNGR	complete
51740	05N	10W	3	BBBB	5033	149	4929	11.2	554	7.88	120SNGR	
51741	05N	10W	3	CBBB	5025	152	4951	11.1	312	7.86	120SNGR	
51744	05N	10W	4	CBCB	5160	127	5059	12.2	321	7.82	120SNGR	complete
127075	05N	10W	6	ACCC	5480	219	5306	10.3	518	7.58	120SNGR	
150254	05N	10W	6	BDCA	5530	300	5460	8.3	518	7.14	124LDCK	complete
183265	05N	10W	7	DDCB	5480	320	5309	11.5	468	7.9	124LDCK	
51756	05N	10W	10	CCBB	4965	115	4900				120SNGR	
51757	05N	10W	10	CCBB	4965	175	4892				120SDMS	
191522	05N	10W	15	BBBB	4970	120	4900				120SDMS	
51762	05N	10W	17	CADD	5015	94		10.4	329	8.34	120SNGR	
164813	05N	10W	17	CDDC	4995	213	4978	12.0	427	8.14	120SNGR	
150256	05N	10W	17	CDDD	4994	207					120SNGR	
5376	05N	10W	20	DCCA	5003	50	4978	9.3	438	7.91	110ALVM	complete
128740	05N	10W	23	CBCBC	4900	16	4900				110ALVM	
5373	05N	10W	23	CBCC	4920	142		6.5	1324	7.58	120SDMS	complete
51775	05N	10W	23	CDCD	4890	100	4858	9.1	818	7.53	120SNGR	complete
128714	05N	10W	29	CBBCB	5083	55					112OTSH	
183658	05N	10W	29	DCDC	5020	50	4992				112SNGR	
5377	05N	10W	30	ACCA	5095	120		10.4	325	7.66	120SNGR	complete
51790	05N	10W	30	BCDB	5135	70	5120	9.4	295	7.71	124LDCK	
150258	05N	10W	30	DDAD	5080	120			385	7.86	120SNGR	
51792	05N	10W	32	DCBC	5070	60	5018				112SNGR	
183266*	05N	11W	2	DDCC	5791			7.8	571	7.85	124LDCK	
163548	05N	11W	12	ABAB	5548	120	5511	9.4	454	7.61	124LDCK	
163549	05N	11W	15	ACDB	5660	160	5655	9.8	221	8.2	217BCKF	
51819	05N	11W	19	CDBA	5810	295	5669	10.0	701	6.9	124LDCK	
156233	05N	11W	19	CDBC	5840	400	5791				124LDCK	
156234	05N	11W	19	CDBC	5850	640	5779	10.2	970	8.3	124LDCK	
153768	05N	11W	23	CAAD	5405	65	5383	9.3	268	7.8	112SNGR	complete
160171	05N	11W	23	CACC	5520	200	5415	9.3	455	7.6	124LDCK	complete
51843	05N	11W	25	ACBD	5205	40	5201	7.0	266	7.7	111SNGR	
143452	05N	11W	29	CADD	5485	40	5465	8.5	339	7.9	112SNGR	
163223	05N	11W	29	CADD	5485	41					112SNGR	
182139	05N	11W	30	BBDD	5740	270	5554	8.9	732	7.4	120SNGR	
183263	05N	11W	31	DDAD	5720	260	5538				124LDCK	
153771	05N	11W	32	BACB	5460	50	5453	8.7	263	7.9	112SNGR	
159902	05N	11W	32	DBDC	5465	120	5457	7.2	227	6.7	124LDCK	
128741	05N	11W	33	DDBB	5360	60	5339	6.9	334	7.73	112SNGR	complete
138492	05N	12W	8	CADC	6275	40	6259	6.5	100	8.2	111SNGR	
141248	05N	12W	19	CCAC	6060	45	6039	5.5	275	7.8	112SNGR	
125259	05N	12W	20	DCDA	5930	100	5876	6.4	291	8.1	112SNGR	
52122	05N	12W	22	BBDD	6000	46	5946	12.1	413	7.3	112TILL	
163440	05N	12W	22	CDAB	5840	400	5723	8.3	370	7.8	330MDSN	
158380	05N	12W	22	DCDB	5795	140	5717	8.8	262	7.9	330MDSN	complete
183264	05N	12W	25	ABAA	5680	240	5557	9.8	568	7.7	120SNGR	complete
52155	05N	12W	25	DAAB	5565	33	5549	7.3	243	8.1	112SNGR	complete
52164	05N	12W	26	ABBB	5680	33	5661	7.1	249	7.5	112SNGR	
165186	05N	12W	26	BBCB	5720	100	5674	7.1	248	8.0	330MDSN	
184439	05N	12W	26	BBCB	5710	40		8.3	250	8.0	111SNGR	
131156	05N	12W	28	BABC	5875	120	5785	6.9	236	8.0	112SNGR	
156235	05N	12W	29	BCCB	6000	223	5813	5.6	281	8.1	370HMRK	
152682	05N	13W	1	CCAB	6370	130	6311	4.7	190	8.1	330MDSN	
141251	05N	13W	5	AABA	6620	43	6614	3.2	388	7.66	112TILL	
52198	05N	13W	6	DCBB	6390	31	6372	5.2	330	7.6	111SNGR	
52201	05N	13W	7	ABDA	6510	260	6340	7.3	318	7.6	400BELT	
130148	05N	13W	7	CBBC	6455	480	6390	6.8	424	7.83	400MCRB	
150252	05N	13W	7	CBCA	6440	220	6380	8.8	490	7.7	400MCRB	
166681	05N	13W	7	DACA	6410	157	6380	5.2	128	7.4	330MDSN	
120714	05N	13W	8	DBBC	6460	100	6378	6.3	394	7.3	330MDSN	complete
184437	05N	13W	12	DBAC	6270	20	6266	5.8	266	7.9	111SNGR	
156237	05N	13W	17	BABC	6460	190	6327	5.0	424	7.6	330MDSN	
160183	05N	13W	17	BCBB	6480	260	6380				330MDSN	
128607	05N	13W	27	BACA	6437	60	6424	6.6	154	8.6	112SNGR	complete
187080	05N	14W	3	CBCB	5840	300	5681				120SDMS	
52294	05N	14W	8	BAAA	5540	60	5520	8.8	163	7.9	120SDMS	
175979	05N	14W	13	ADDB	6390	60	6372	5.6	488	7.6	400MCRB	
153180	05N	14W	14	AACA	6395	60	6378	5.5	283	8.0	112SNGR	complete
52319	05N	14W	14	CBDB	6395	220	6240	6.5	258	7.9	400MCRB	complete
52272	05N	14W	24	ADDA	6380	46	6378	6.5	335	7.6	111SNGR	complete
52347	05N	14W	24	CCDA	6520	240	6344	5.4	311	7.7	400MCRB	complete

Table 2. - continued

GWIC ID	Township	Range	Section	Tract	Altitude	TD	SWL	Temp °C	SC	pH	Geologic Unit	Water Quality
175976	05N	14W	26	ACAC	6475	162	6398	4.8	317	7.7	400MCRB	
158074	05N	14W	30	DABA	6080	180	6047	7.2	91	6.8	400BELT	
145702	05N	14W	31	ACBB	5905	260	5892	8.2	302	7.8	400MSSL	complete
52445	05N	15W	5	CDCA	5350	40	5330	6.7	310	7.72	112SNGR	complete
52435	05N	15W	8	BABB	5350	45	5332	6.6	295	7.94	112SNGR	
123814	05N	15W	8	BCDA	5435	150	5385	9.5	402	8.05	120SDMS	complete
52434	05N	15W	8	BCDC	5385	78	5383				120SDMS	
123815	05N	15W	8	CCAA	5580	230	5433	8.5	1618	6.5	120SNGR	
134083	05N	15W	8	DADB	5430	43	5406	6.3	360	7.75	112SNGR	
141910	05N	15W	12	DCDD	5795	160	5726	9.3	223	6.83	120SDMS	complete
157698	05N	15W	13	ADDA	5760	138		9.0			120SDMS	
53451	06N	08W	21	CAAA	6460	75		5.3	565	7.97	211PLNC	
168786	06N	09W	4	ADAD	4650	88	4628	10.6	307	7.19	120SNGR	
186593	06N	09W	5	ABDD	4665	69	4659	8.4	327	7.9	120SNGR	
168601	06N	09W	6	ADBB	4705	63	4675	8.3	608	7.44	120SNGR	
53475	06N	09W	6	ADBB	4707	52					120SNGR	
122589	06N	09W	8	DDBD	4681	58	4672	8.2	244	8.02	112SNGR	
121006	06N	09W	9	DDCC	4670	93	4640	11.2	284	7.57	120SNGR	
53508	06N	09W	17	AACD	4690	58	4677	10.8	311	7.3	120SDMS	
185841	06N	09W	17	BABC	4700	40	4694	5.9	154	7.43	112SNGR	
53530	06N	09W	18	DBAA	4738	81	4704	8.9	546	7.49	120SNGR	
128682	06N	09W	21	CDBC	4785	150	4693	9.4	288	7.27	120SDMS	complete
5409	06N	09W	31	BADB	4770	208		13.9	512	7.81	120SNGR	
191518	06N	09W	31	BBAB	4780	12	4775				111ALVM	
53548	06N	09W	31	BBAB	4780	240		12.3	525	7.9	120SNGR	
188846	06N	09W	31	CDAB	4790	75	4770	13.7	735	7.53	120SDMS	
53551	06N	09W	32	DDBA	4820	97	4744	11.2	351	7.52	120SNGR	
53558	06N	10W	4	BADB	5070	69	5056	10.5	326	8.32	120SNGR	complete
197345	06N	10W	11	BCAA	4875	28		11.1	427	7.9	120SDMS	
53562	06N	10W	13	BCBC	4825	127	4719	9.9	450	7.55	120SNGR	
122872	06N	10W	14	ACBD	4840	60		10.8	228	7.77	112SNGR	
53568	06N	10W	14	CBCC	4895	50	4877	9.2	316	7.76	120SNGR	complete
191520	06N	10W	19	ACDB	5425	62					112TILL	
53573	06N	10W	20	CCDC	5240	110	5226				124LDCK	
191519	06N	10W	22	DDAD	4924	23	4911	9.5	316	7.66	112SNGR	
53575	06N	10W	22	DDAD	4925	57	4912				120SNGR	
5410	06N	10W	23	DCDD	4900	112	4811	9.5	416	7.73	120SDMS	complete
190138	06N	10W	24	DCCB	4870	155	4747	10.2	492	7.61	120SDMS	
178940	06N	10W	25	ABBC	4810	100	4753	9.2	486	7.44	120SNGR	
141260	06N	10W	25	CCCC	4900	136	4793	10.0	486	7.84	120SNGR	
53584	06N	10W	26	BBBC	4930	65		9.5	349	7.82	120SDMS	
53583	06N	10W	26	BBCA	4915	40	4903	9.3	164	8.15	120SDMS	
133756	06N	10W	28	AAAC	5018	95	4949	10.2	314	7.43	112SNGR	
5411	06N	10W	28	BBBC	5105	80	5056	4.0	355	7.37	112SNGR	complete
53589	06N	10W	29	CCDB	5325	250					120SDMS	
156248	06N	10W	33	CACD	5125	239		11.4	310	8.07	120SNGR	
53598	06N	11W	1	DDCC	5380	70	5350	6.8	183	8.07	112SNGR	
53601	06N	13W	28	BBDC	6840	110		5.5	280	7.47	400MSSL	complete
53603	06N	13W	32	BBBB	6705	140	6660	5.0	294	7.6	400MCRB	
179075	06N	13W	32	BDBB	6680	420					400MCRB	
53609	06N	14W	3	DDAB	5240	44	5223				400MCRB	
53610	06N	14W	3	DDBA	5230	44	5217	7.4	323	7.8	111SNGR	
53612	06N	14W	10	ACBB	5225	65	5220	7.4	397	7.4	111SNGR	complete
161837	06N	14W	10	ACBB	5240	60	5231	8.2	368	7.4	120SNGR	
184195**	06N	14W	10	ACBB	5225			6.8	276	8.8		
53613	06N	14W	10	CCDD	5280	82	5260	9.8	243	8.1	120SICL	complete
158078	06N	14W	11	CDCD	5420	190	5279	8.9	225	8.01	330MDSN	
154594	06N	14W	21	DBBC	5330	150	5306				120SDMS	
53618	06N	14W	21	DBCC	5335	22	5313	8.8	443	7.06	120SNGR	
53620	06N	14W	22	AABD	5340	96	5321	8.3	372	7.74	330MDSN	
53625	06N	14W	22	DCCC	5390	31	5385	7.1	250	7.09	120SDMS	complete
145716	06N	14W	26	CCCC	5570	260	5459	8.4	197	7.4	400BELT	complete
53632	06N	14W	27	ABAA	5400	146	5334	9.5	337	7.55	330MDSN	complete
154593	06N	14W	27	CBBB	5390	138	5343				300SDMS	
53637	06N	14W	32	CBBB	5510	95	5493	8.3	436	7.8	400MCRB	complete
53639	06N	14W	33	AAAA	5395	40	5376				120SNGR	
161842	06N	14W	33	DBBC	5395	50	5370				120SDMS	
127269	06N	14W	35	CDBB	5760	390	5690	9.9	111	6.5	400MSSL	complete
188502	06N	15W	7	DDDB	5077	40	5075	7.7	344	8.06	111SNGR	
139114	06N	15W	17	BADB	5090	32	5086	9.0	352	7.76	111SNGR	
53645	06N	15W	17	BBBA	5082	40	5078	6.1	246	8.18	111SNGR	
175681	06N	15W	17	BBBA	5085	30	5080	4.7	188	7.65	111SNGR	complete
129388	06N	15W	17	BBCA	5085	31	5079	5.4	194	7.64	111SNGR	
53649	06N	15W	19	DADB	5160	38	5153				111SNGR	
179079	06N	15W	19	DADC	5170	90	5158				112SNGR	
179080	06N	15W	19	DBDD	5170	80	5164	9.5	195	8.22	112SNGR	
179081	06N	15W	19	DDAB	5170	90	5161	9.5	232	7.99	112SNGR	
179082	06N	15W	31	CCAC	5300	100	5274	7.5	305	6.97	400MCRB	
55814	07N	08W	5	BAAC	5012	22	5006				112OTSH	
55810	07N	08W	5	BAAC	5010	60	4997	6.7	285	7.69	112OTSH	
156255	07N	08W	6	BADA	4845	124	4847				120SDMS	
55816	07N	08W	6	BADA	4845	10		9.7	213	7.09	111ALVM	
158394	07N	08W	7	DBCB	5270	111	5252	8.2	907	7.18	120SNGR	complete
197343	07N	08W	7	DBDD	5300	40	5289	8.4	732	7.59	120SDMS	
179045	07N	08W	7	DBDD	5300	109	5289	8.1	488	7.16	120SNGR	
184550	07N	09W	1	AADA	4810	68					120SDMS	
184549	07N	09W	1	AADB	4805	49	4789	9.0	265	6.97	120SNGR	
179046	07N	09W	3	BCCC	4580	143	4527	12.1	676	7.37	120SDMS	
55835	07N	09W	4	DBAD	4560	65	4526	9.8	528	6.8	120SNGR	

Table 2. - continued

GWIC ID	Township	Range	Section	Tract	Altitude	TD	SWL	Temp °C	SC	pH	Geologic Unit	Water Quality
128683	07N	09W	8	ADDD	4535	13	4525				110ALVM	
120720	07N	09W	8	BBBA	4640	85	4580	7.9	239	9.25	120SNGR	
55851	07N	09W	8	DAAC	4550	51	4544	9.2	504	7.86	120SNGR	
55856	07N	09W	9	AADB	4570	106	4544	11.3	240	7.13	120SNGR	complete
55860	07N	09W	9	ABDA	4530	38	4522	10.2	692	7.81	120SNGR	
55879	07N	09W	10	BBAB	4740	460		14.9	519	6.02	120SDMS	complete
55890	07N	09W	11	CDBB	4730	30	4717	6.3	660	7.28	111SNGR	
55891	07N	09W	11	CDBB	4735	26	4722	7.2	495	7.39	111SNGR	
197346	07N	09W	13	BADB	5130	266	4900				120SDMS	
55892	07N	09W	13	BBAC	4950	350					120SDMS	
147864	07N	09W	13	BBCC	4930	190	4795	12.1	332	7.94	120SICL	
183531	07N	09W	15	BBAA	4620	170	4547	10.9	217	7.11	120SNGR	
173158	07N	09W	16	DADA	4600	96		10.7	270	7.45	120SNGR	
130483	07N	09W	16	DADB	4585	121	4557	11.6	281	7.65	120SNGR	
180004	07N	09W	20	DBBD	4610	109	4581	10.8	677	7.65	120SNGR	
55911	07N	09W	27	CDCC	4790	246		14.2	225	7.57	120SNGR	
166686	07N	09W	28	AACD	4650	140	4580	12.4	351	7.25	120SDMS	
197347	07N	09W	28	ABDC	4605			12.5	317	7.33	120SDMS	
158395	07N	09W	28	ADCA	4700	144	4587	12.6	652	7.38	120SNGR	
55912	07N	09W	29	ABBA	4595	30	4581	12.1	508	7.55	120SNGR	
55913	07N	09W	29	ABBD	4600	70	4582	10.6	494	7.6	120SNGR	
186622	07N	09W	30	CBCD	4785	242	4614	12.7	293	7.86	120SNGR	complete
170946	07N	09W	30	DDDA	4705	140	4607	10.0	363	7.58	120SNGR	complete
197344	07N	09W	31	CCBD	4755	220	4635	12.4	223	7.85	120SDMS	
55926	07N	09W	32	BDCB	4665	115	4604	9.2	478		120SNGR	
55928	07N	09W	33	AACD	4680	140	4601	12.7	358	7.29	120SDMS	
55930	07N	09W	34	BCCC	4695	70	4648	9.5	551	6.99	120SNGR	complete
197348	07N	09W	34	BCCC	4695	170		11.3	266	7.12	120SDMS	
55931	07N	09W	34	CDAC	4800	135	4686				120SNGR	
120721	07N	10W	1	BBAC	4860	40	4836	9.5	555	7.57	120SDMS	complete
183532	07N	10W	1	BDDD	4805	79	4789	7.2	416	7.54	120SDMS	
55937	07N	10W	3	ABBB	5025	258	4941	9.3	308	7.93	120SDMS	
55941	07N	10W	4	DACB	5265	60	5243	7.0	156	8.64	112SNGR	
145459	07N	10W	22	DDDB	5042	2536	5045	28.1	940	7.63	120VLCC	complete
183735	07N	10W	27	CCAA	5250	203	5094				120SNGR	
170947	07N	14W	8	DDDD	5260	120	5216	8.4	132	6.47	400MSSL	
137458	07N	14W	9	ABBB	5400	260	5385	10.5	160	8.0	400MSSL	complete
55950	07N	14W	9	CCCC	5250	125	5198	8.7	142	6.71	400MSSL	complete
163524	07N	14W	10	CCCD	5285	300	5128	9.6	251	7.04	120SDMS	
55952	07N	14W	11	ADCB	5080	120		7.9	262	7.72	400MCRB	
55953	07N	14W	11	CBDA	5035	30	5017	8.7	533	7.01	120SNGR	
124439	07N	14W	11	DCBD	5040	97	5001	7.9	349	6.97	400MCRB	
154595	07N	14W	21	ADAD	5215	135	5146	8.3			120SDMS	complete
55958	07N	14W	22	CDDD	5150	40	5147	3.5	552	7.13	111SNGR	
158093	07N	14W	22	CDDD	5151	180	5106	7.3	206	7.0	120SDMS	
145737	07N	14W	24	CDDC	5290	180	5179	7.6	259	8.1	341JFRS	complete
154000	07N	14W	25	CADC	5260	110	5206	7.1	789	7.79	120SDMS	
123083	07N	14W	26	ADAA	5155	80	5148	7.6	549	6.77	120SNGR	
55965	07N	14W	26	ABDD	5170	82	5161	7.0	630	6.93	120SNGR	complete
55974	07N	14W	35	BCAC	5165	53	5140	5.9	284	6.87	112SNGR	complete
55972	07N	14W	35	CBBC	5180	60	5146	6.3	276	6.98	112SNGR	
151171	07N	14W	36	BBCD	5205	80	5191	7.2	394	7.28	112SNGR	
55985	07N	15W	8	AADA	5130	60		7.5	180	6.82	120SNGR	
55986	07N	15W	8	CDBB	5220	70	5219	10.0	182	7.38	211PLNC	
55990	07N	15W	17	CABD	5040	100	5020	6.7	122	6.94	120VLCC	complete
151172	07N	15W	17	CBDD	5030	40	5022	6.7	265	6.77	112SNGR	
136146	07N	15W	17	CCAA	5025	33	5021	5.8	222	7.69	112SNGR	
55989	07N	15W	17	CDAB	5190	200		9.9	371	8.19	120VLCC	complete
130184	07N	15W	31	BDDA	4970	30		10.2	252	7.85	112SNGR	
191290	07N	16W	7	BAAA	4720	140	4644	7.8	260	7.43	400MSSL	
56002	07N	16W	21	ABAC	4790	31	4768	6.7	113	7.59	112SNGR	complete
56004	07N	16W	21	ACBB	4805	35	4791	5.8	144	7.08	112SNGR	
188451	07N	16W	21	DABB	4795	26	4790	5.5	465	6.58	112SNGR	
56005	07N	16W	21	DABB	4795	20	4791	6.2	536	6.49	112SNGR	
188450*	07N	16W	21	DABB	4800			8.5	241	6.91	400SPRD	
163525	07N	16W	25	DBAB	4900	36	4897	7.1	291	7.46	112SNGR	
56010	07N	16W	26	CDDD	4865	26	4863	7.7	267	7.19	112SNGR	
191291	07N	17W	1	ACAD	4610	30	4608	7.0	200	7.42	112SNGR	
156169	08N	07W	2	AAAC	5440	60	5410	5.4	210	7.6	111ALVM	
122862	08N	07W	2	ADBA	5500	240	5434	6.7	213	7.8	211ELKM	
184561	08N	08W	30	DCBA	4860	59	4855	7.5	392	8.4	120SDMS	
163985	08N	08W	31	DDCC	4980	270	4895	12.0	786	7.85	120SDMS	
184562	08N	08W	31	DDCC	4980	700					211ELKM	
57356	08N	09W	3	BDDD	4500	175	4444	11.1	490	7.1	211CLRD	
196745	08N	09W	12	CBCD	4740	60	4715	11.4	357	7.7	120VLCC	complete
57367	08N	09W	14	DAAD	4610	74	4573	9.2	337	7.6	120SDMS	
196654	08N	09W	15	ABBA	4465	58	4457	8.7	525	7.5	120SNGR	
164487	08N	09W	16	DADA	4460	86	4452	8.8	534	7.1	120SDMS	complete
57375	08N	09W	20	CAAB	4562	117	4512	8.6	718	7.5	120SDMS	complete
178415	08N	09W	21	CDDA	4486	16	4477				111SNGR	nitrate only
57378	08N	09W	21	DAC	4491	40					112SNGR	
196655	08N	09W	22	BAAA	4525	82	4503	11.3	668	7.8	120SDMS	
57391	08N	09W	25	DCBCC	4740	29	4732	6.3	400	7.3	110ALVM	complete
128684	08N	09W	27	CAAAC	4565	95	4538	9.4	415	7.6	120SDMS	complete
196865	08N	09W	28	AADC	4525	78	4491	10.2	470	7.5	120SNGR	
178412	08N	09W	28	ABDB	4495	18	4482				111SNGR	nitrate only
180445	08N	09W	28	ACCB	4512	97	4485	14.1	455	7.34	120SNGR	
178414	08N	09W	28	BDDB	4495	18	4484				111SNGR	nitrate only
178413	08N	09W	28	CBAD	4495	18	4489	6.8	400	7.4	111SNGR	complete
5475	08N	09W	28	DBAC	4520	58	4498	10.3	590	7.63	120SNGR	
178411	08N	09W	28	DDBB	4530	29	4507	7.8	705	7.8	112SICL	complete
186681	08N	09W	30	BBAC	4660	69	4639	7.6	266		120VLCC	
57417	08N	09W	32	DDBC	4560	117	4502	10.4	670	7.52	120SNGR	
201238	08N	09W	33	BADB	4523	42	4502	8.1	415	8.04	112SNGR	
57446	08N	09W	34	DCBA	4600	30	4593	7.7	298	7.2	120SNGR	
147018	08N	09W	35	DAAC	4710	35	4699	7.8	251	7.8	120SDMS	
5445	08N	10W	34	DCDC	4990	220	4953	7.5	322	7.94	120SDMS	complete
147267	08N	10W	35	CCCA	4940	110	4932	9.1	286	7.83	120SDMS	
165355	08N	13W	4	CDAC	4805	60	4788	11.1	329	7.76	112SNGR	complete
165353	08N	13W	4	CDAD	4810	60	4781	7.5	272	7.44	112SNGR	
57467	08N	13W	9	ACAC	4860	40	4847	5.2	168	7.32	112SNGR	

Table 2. - continued

GWIC ID	Township	Range	Section	Tract	Altitude	TD	SWL	Temp °C	SC	pH	Geologic Unit	Water Quality
165356	08N	13W	9	DBDD	4920	125	4873	11.1	317	7.47	330MDSN	
57480	08N	13W	9	DDDC	4935	75	4902	5.1	163	7.27	330MDSN	
191559	08N	13W	15	DDCC	5110	60	5104	6.5	248	7.95	112SNGR	complete
167279	08N	13W	17	ACDB	4930	101	4880	13.1	396	7.75	112SNGR	
130486	08N	13W	22	AAAB	5115	40	5104				112SNGR	
170583	08N	13W	23	BBAC	5155	80	5138				370HMRK	
138507	08N	13W	23	BBBB	5140	60	5136	5.9	226	7.96	370HMRK	
57486	08N	13W	25	BBDD	5280	100	5267	9.1	254	7.72	330MDSN	
57496	08N	17W	6	BBDC	4300	39		7.3	212	8.12	112SNGR	
145756	08N	17W	26	CC	4540	65	4532	9.0	214	8.21	400BELT	
183160	09N	06W	5	BCCB	5250	140	5140	8.4	396	7.6	330MDSN	complete
128026	09N	06W	5	CBDA	5190	45	5156	7.8	318	7.8	112SNGR	nitrate only
179957	09N	06W	6	CDCB	5100	57	5088	7.7	226	7.5	112ALVM	complete
59196	09N	06W	18	BBAA	5180	63	5137				112SNGR	
182738	09N	06W	18	BBAA	5200	80	5148	7.8	403	7.5	112SNGR	
164517	09N	06W	18	BBCD	5260	100	5234	5.9	379	7.5	120VLCC	complete
166720	09N	06W	18	BDAB	5180	79	5148	6.8	136	6.9	120VLCC	
164522	09N	06W	18	BDAC	5174	78	5141	5.8	124	7.8	120VLCC	
182463	09N	06W	19	BABC	5300	138	5284	7.5	247	8.0	217SDMS	complete
179958	09N	06W	19	DBBA	5310	100	5307				211ELKM	
135811	09N	06W	19	DBBA	5310	500	5280	8.5	143	8.6	211ELKM	complete
128255	09N	06W	19	DDCB	5280	47	5243	7.1	88	8.0	112ALVM	complete
59202	09N	06W	29	BAAC	5300	48	5286	7.9	244	6.7	111ALVM	
59206	09N	06W	32	AABB	5435	105	5415	6.6	315	6.8	211BDBT	complete
179960	09N	07W	1	BCCC	5045	50	5018	9.9	307	7.1	111ALVM	
120005	09N	07W	1	CBCC	5140	300	5070	10.6	371	7.6	217SDMS	
138536	09N	07W	1	CCBB	5115	120	5102	7.6	358	7.9	330MDSN	
59242	09N	07W	1	DBAA	5100	80	5069	12.1	1103	7.7	217SDMS	
179959	09N	07W	2	ADDC	5060	84	5036	12.1	380	7.7	112ALVM	
59248	09N	07W	2	DAAA	5060	50					112ALVM	
59259	09N	08W	2	ACAD	4940	54	4920	8.8	171	6.6	111ALVM	
59262	09N	08W	26	DAAC	5245	118	5242				120SDMS	
181999	09N	08W	26	DAAD	5275	55	5263	7.7	240	8.7	120SDMS	complete
179651	09N	09W	2	AADD	4620	600	4622	11.4	521	8.5	211CLRD	
160290	09N	09W	7	BDDB	4885	100	4862				211CLRD	
182140	09N	09W	11	CCCB	4500	102	4468	9.4	520	7.6	120VLCC	
59268	09N	09W	11	DBAA	4590	270	4607	10.1	416	10.0	211CLRD	complete
182141	09N	09W	11	DDAD	4510	36	4503	8.0	288	7.3	111ALVM	complete
170314	09N	09W	12	ACCC	4700	261	4639	10.5	445	7.7	211ELKM	
163749	09N	09W	12	CCBD	4620	300	4442	9.7	388	8.1	120VLCC	
123831	09N	09W	13	BBBC	4550	203	4500	9.4	389	7.9	211CLRD	
184423	09N	09W	13	BBBC	4565	300	4511				211CLRD	
59272	09N	09W	16	BDBB	4510	210	4471	9.1	276	9.6	211CLRD	
59271	09N	09W	16	BDCB	4435	280	4415	12.7	373	8.4	211CLRD	
184131	09N	09W	19	ABCB	4375	40	4370	8.3	364	7.2	211CLRD	complete
53526	09N	09W	19	ABCB	4375	37					111ALVM	
129343	09N	09W	28	DDDA	4675	162	4593	9.8	756	8.0	211CLRD	complete
59288	09N	10W	4	BACC	4350	50	4331	10.3	524	7.5	211GSPK	
59289	09N	10W	4	BCDD	4350	120	4300	9.1	623	7.4	211GSPK	
143502	09N	10W	4	DCCB	4285	160	4264				211GSPK	
201236	09N	10W	5	CACB	4230	45	4226	7.8	589	7.56	112SNGR	
179589	09N	10W	10	CCDC	4260	55	4244	9.6	820	7.4	211GSPK	
63137	09N	10W	10	CDBC	4290	35	4282	11.0	976	7.3	111ALVM	complete
5510	09N	10W	10	CDBD	4290	118	4268	8.9	930	8.4	211GSPK	
59305	09N	10W	14	CCAA	4305	35	4296	12.3	573	7.7	211CRCK	
169747	09N	10W	14	CCDA	4315	70	4291	9.5	844	7.4	211CRCK	
169746	09N	10W	14	CCDC	4310	190	4292				211CRCK	
59314	09N	10W	23	ACCA	4333	172	4322	9.5	436	8.7	211GSPK	
179590	09N	10W	23	ACDC	4340	35	4317	8.7	245	7.6	111ALVM	complete
59320	09N	10W	23	CACC	4350	58	4309	7.8	204	7.3	112ALVM	
59324	09N	10W	24	BABA	4445	85	4360				211CLRD	
59334	09N	10W	24	BABA	4460	270	4361	11.3	1173	8.4	211CLRD	
5511	09N	10W	24	BBCB	4365	85	4333	9.7	548	7.3	211CRCK	complete
59325	09N	10W	24	DABA	4410	140	4335	8.7	552	7.8	211CLRD	
59339	09N	10W	24	DBBD	4350	33		10.8	350	7.2	111ALVM	
59344	09N	11W	2	DDAA	4380	80		8.8	369	7.52	120SNGR	
59347	09N	11W	13	BAAB	4445	78	4437	7.1	937	7.02	120SNGR	
59353	09N	11W	15	CAAC	4675	38	4652	8.1	207	7.14	112SNGR	
143504	09N	11W	16	ABAA	4725	60	4702				217SDMS	
59354	09N	11W	16	ABBA	4700	60	4683	8.0	1756	6.68	217SDMS	complete
59359	09N	11W	21	ABDC	4820	256	4815	8.8	370	8.6	217SDMS	
150214	09N	11W	21	ABDC	4822	80	4787	7.8	268	7.2	112SNGR	
158885	09N	11W	21	DADA	4990	389		8.7	2100	7.13	120SICL	
59394	09N	12W	2	CCDC	4550	220	4524	8.0	395	7.54	211PLNC	
191294	09N	12W	3	BBBA	4555			8.2	613	7.13	217SDMS	
125549	09N	12W	6	AADC	4315	120	4287	8.1	621	7.77	120SNGR	
59367	09N	13W	2	BCAD	4250	45	4232				112SNGR	
5515	09N	13W	2	CBBC	4255	35	4243	7.8	391	7.48	112SNGR	
149256	09N	13W	3	CDDA	4290	32	4288	10.4	445	7.6	112SNGR	
188631	09N	13W	4	ACCC	4405	60	4375				120SDMS	
181593	09N	13W	6	AAAB	4480	120	4469				400BELT	
167602	09N	13W	6	ADBC	4520	118		9.7	631	7.45	400BELT	
59374	09N	13W	6	BDCD	4565	170	4552	8.8	797	7.4	120SDMS	
59375	09N	13W	6	CDCC	4670	143	4578	9.5	392	7.31	400BELT	
59379	09N	13W	10	DCCC	4330	23	4325	10.4	425	7.47	112SNGR	
188625	09N	13W	12	CCDC	4730	16	4721	10.3	217	7.82	120SNGR	
126207	09N	13W	15	BDBA	4355	55	4349	9.3	412	7.29	400SPRD	
59382	09N	13W	21	CCAD	4520	60	4491	10.0	958	7.41	120SNGR	
191292	09N	13W	26	CDBA	5120	250					120SICL	
162481	09N	13W	27	BCDD	4524	40	4519	8.1	386	7.57	112SNGR	
187852	09N	13W	27	BCDD	4520	40	4515	8.4	388	7.61	112SNGR	complete
154054	09N	13W	27	CDBB	4580	80		9.2	340	7.8	120SNGR	
187853	09N	13W	28	BBAC	4525	31	4506				112SNGR	
186750	09N	13W	28	BBAD	4525	310	4511				120SICL	
59388	09N	13W	28	BCCC	4550	25	4529	8.8	520	7.62	112SNGR	complete
164488	09N	13W	29	ACDD	4565	70	4556	8.3	430	7.27	120SNGR	complete
126862	09N	13W	30	BACA	4810	120	4730	9.7	387	7.1	400SPRD	
145780	09N	13W	30	BDBB	4830	138	4756	9.9	445	6.88	400BELT	complete
175576	09N	13W	30	DAAA	4770	226	4687	10.5	315	7.2	120SNGR	complete
141830	09N	13W	33	DBCB	4660	140	4629	9.7	331	7.62	400BELT	
147310	09N	13W	34	BCDB	4630	190	4602	9.9	315	7.54	120SNGR	
59373	09N	14W	1	ACDA	4580	24		7.5	195	7.3	112SNGR	
191305	09N	14W	25	DBCC	5030			9.7	297	7.52	400BELT	
59396	09N	17W	2	CCC	4040	58		8.4	180	7.5	112SNGR	
59397	09N	17W	17	DAA	4130	40		11.3	66	7.4	112SNGR	
182736	10N	07W	10	AADB	5310	45	5282	6.3	327	7.4	120SDMS	
178001	10N	07W	10	ACAB	5250	197	5234	8.5	344	7.4	120SDMS	complete
182462	10N	07W	17	ADCD	4950	18	4951	7.9	404	7.2	120SDMS	complete

Table 2. - continued

GWIC ID	Township	Range	Section	Tract	Altitude	TD	SWL	Temp °C	SC	pH	Geologic Unit	Water Quality
182735	10N	07W	17	DABB	4945	45	4939				120SDMS	
165267	10N	07W	19	DABC	4890	80	4851	8.3	385	7.5	120SDMS	complete
182737	10N	07W	25	CBBA	5260		5205	8.0	328	7.9	120SDMS	
174343	10N	07W	30	BBCC	4830	70	4794				120SDMS	
63061	10N	07W	31	DBBA	4855	67	4841	9.4	190	7.1	112ALVM	
122861	10N	07W	33	CBCC	4940	80	4914	7.6	181	7.4	112ALVM	
63064	10N	07W	35	CCCC	4990	43	4976	7.1	150	7.3	111ALVM	
128265	10N	07W	35	CCCC	4990	60	4976	9.0	185	7.1	111ALVM	
59258	10N	07W	35	DDCB	5125	149	5049	13.1	528	7.6	120VLCC	
63065	10N	08W	4	ADDA	5020	52	5007	7.6	349	7.2	112SNGR	
63069	10N	08W	8	DCDA	4820	83	4779	9.3	1126	7.5	112SNGR	
134561	10N	08W	16	CADD	4765	180	4757	11.6	537	7.8	120SDMS	
182001	10N	08W	16	CADD	4765		4754				120SDMS	
63080	10N	08W	16	CBDD	4755	80	4744	9.3	460	7.9	120SDMS	
163215	10N	08W	21	AADC	4810	140	4775	10	271	7.6	120VLCC	complete
163212	10N	08W	22	CDBA	4765	180	4748	12.4	296	8.1	120VLCC	
183555*	10N	08W	24	BBCA	4915			29.2	422	7.2	120VLCC	
183556*	10N	08W	24	BBDDA	4925			15.9	299	7.6	120VLCC	
63095	10N	08W	25	DDBD	4820	28	4815	8.8	203	7.2	111ALVM	complete
154659	10N	08W	26	BADD	4745	40	4742				111ALVM	
184126	10N	08W	27	ABDD	4715	30	4696	13.2	188	6.7	111ALVM	complete
63102	10N	08W	27	ACBD	4715	30	4707	8.4	192	7.0	112ALVM	
63111	10N	08W	27	BBA	4700	35	4695	8.4	188	7.3	112ALVM	complete
134562	10N	08W	28	AAAB	4700	180	4693	8.3	245	9.1	120SDMS	complete
63130	10N	08W	34	BBAC	4740	25	4729				120SDMS	
141305	10N	08W	34	BDBA	4780	405		8.7	233	8.5	120VLCC	
127898	10N	09W	13	BBCD	5200	400	5163	10.6	327	8.0	120VLCC	
63133	10N	09W	13	BBCD	5205	200		10.9	300	8.1	120VLCC	
183554*	10N	09W	14	AADD	5240			14.7	411	7.3	120VLCC	
5791	10N	10W	19	DCCC	4370	40	4345	9.4	691	6.94	217SDMS	
182401	10N	10W	30	CDCD	4219	240	4201	9.3	475	7.72	217SDMS	
154045	10N	11W	19	BBBD	4090	80	4073				217SDMS	
154046	10N	11W	19	BBBD	4090	38	4072				112SNGR	
63164	10N	11W	20	CACA	4130	102	4122				120SNGR	
133868	10N	11W	20	CADA	4130	200	4123	9.3	383	8.41	217SDMS	
63166	10N	11W	20	DAAD	4130	28	4108	12.7	597	7.31	111ALVM	
168844	10N	11W	21	BDCB	4160	60	4131	9.6	596	7.41	217SDMS	
63169	10N	11W	22	BDCB	4180	55	4140	7.5	535	7.37	120VLCC	
195255*	10N	11W	22	BDCD	4180			8.4	522	7.67	120VLCC	
195273	10N	11W	22	DBAD	4190	43	4166	8.7	616	7.34	120VLCC	
182226	10N	11W	23	CAAC	4232	90	4195	9.1	726	7.24	120SNGR	
147014	10N	11W	23	CDAB	4209	90	4175	8.4	688	7.31	120SNGR	complete
168843	10N	11W	26	CABA	4165	40	4162	5.5	861	7.32	111ALVM	
195256	10N	11W	26	DCDC	4175	20	4172	4.5	741	7.32	111ALVM	
168846	10N	11W	27	AABC	4155	40	4149				111ALVM	
63171	10N	11W	27	ABBD	4340	300	4136	9.0	1235	7.05	217SDMS	
195254	10N	11W	27	DBAA	4290						217SDMS	
168847	10N	11W	27	DDCB	4200	58	4194	7.1	5260	7.45	120SDMS	
63173	10N	11W	29	BCDD	4120	42		10.6	508	7.54	112SNGR	
196866	10N	11W	29	CBAC	4140	240	4127				211PLNC	
5797	10N	11W	34	AADA	4220	60	4205	7.7	1991	7.73	120SDMS	
154052	10N	11W	35	ADCB	4321	165		9.6	623	7.55	120SICL	complete
63172	10N	11W	35	BABB	4180	90	4165	8.4	903	7.88	120SNGR	
63178	10N	11W	35	BBAB	4190	247	4163				217SDMS	
131335	10N	11W	35	DABA	4347	272		9.7	655	8.91	217SDMS	complete
63181	10N	11W	36	BBAD	4190	24	4185	8.6	752	8.51	112SNGR	complete
63184	10N	12W	4	CACD	4020	25		5.2	474	7.47	111ALVM	
162477	10N	12W	6	BCCA	4040	85		11.1	886	7.5	120SNGR	
63203	10N	12W	9	CCDC	4020	157	3988				217SDMS	
63207	10N	12W	17	BABA	4125	227	4017	8.6	1939	7.03	120SICL	complete
63218	10N	12W	18	BABB	4030	52	4022				112SNGR	
187855	10N	12W	18	BACC	4035	50	4022	8.7	586	7.48	112SNGR	
130197	10N	12W	20	BBCB	4090	100	4055	9.7	599	7.35	120SNGR	
63221	10N	12W	21	DAAD	4140	115	4065	9.0	568	7.9	217SDMS	
153225	10N	12W	24	ABDA	4061	60	4051				112SNGR	
191293	10N	12W	29	ABDA	4500	400					120SICL	
5804	10N	12W	30	BABA	4115	36	4099	9.4	810	7.35	112SNGR	
5805	10N	12W	31	ACDA	4215	120		8.5	598	7.69	120SNGR	
155554	10N	12W	31	ADBB	4220	95		7.8	658	7.6	120SNGR	complete
147311	10N	12W	31	ADBD	4230	78	4219	7.8	973	7.6	120SNGR	
155816	10N	12W	34	CCBA	4450	120	4445	8.5	596	7.4	217SDMS	
155806	10N	12W	34	CCDC	4530	120	4522				217SDMS	
63231	10N	13W	2	CCAA	4110	60	4094	10.2	1115	7.5	217SDMS	
63238	10N	13W	12	ADBD	4045	60	4031	8.9	1471	7.24	120SDMS	
191304	10N	13W	12	BBAC	4155	100	4151	8.0	1080	7.74	120SDMS	
63240	10N	13W	12	BBCD	4160	40	4160	7.5	1393	7.55	120SDMS	
63242	10N	13W	12	BDAC	4150	137	4094	8.5	1751	7.5	120SNGR	complete
154585	10N	13W	14	CBBB	4245	58	4220				120SNGR	
154584	10N	13W	14	CBBB	4245	60	4220	8.1	531	7.5	120SNGR	
154586	10N	13W	14	CBBB	4245	160	4207				120SNGR	
154583	10N	13W	14	CBBB	4245	160	4207	9.1	366	7.6	120SNGR	
63258	10N	13W	19	CDAB	4470	120	4453	8.6	802	8.04	120SNGR	
63262	10N	13W	22	BDDA	4290	85	4243	9.7	1057	6.79	120SNGR	
63339	10N	13W	26	DCCD	4200	70	4176				120SNGR	
121482	10N	13W	29	AACA	4360	83	4353	10.0	436	7.15	120SNGR	complete
143708	10N	13W	30	BAAA	4460	50		8.6	904	7.58	400BELT	complete
63314	10N	13W	31	DABC	4480	32	4470				112SNGR	
63315	10N	13W	32	BBCB	4445	50	4440	8.2	315	7.12	112SNGR	
63325	10N	13W	33	CCAC	4400	70	4380	9.1	730	7.31	120SNGR	
63327	10N	13W	34	DAAC	4240	88		9.2	581	7.41	120SDMS	
63332	10N	13W	35	ABBB	4200	85	4183	8.7	696	7.51	120SNGR	
191289*	10N	13W	36	AACB	4250			10.6	1682	7.75	120SDMS	
63344	10N	13W	36	BABA	4162	20	4152	9.7	499	7.44	111SNGR	complete
63352	10N	13W	36	BBCC	4170	30		10.5	519	7.5	111SNGR	
163847	10N	13W	36	BCBA	4170	117	4161	9.1	438	7.78	120SDMS	
188773	10N	14W	11	BCDA	4280	304	4111				400BELT	
63356	10N	16W	6	ABDD	3710	60	3700	7.7	192	7.43	111ALVM	
144540	10N	16W	18	DDDA	3825	60	3788	6.6	186	7.4	112SNGR	complete
187348	10N	16W	19	DCBC	3835	60	3824	5.0	142	7.37	111ALVM	
63408	10N	16W	30	CCBC	3910	56		7.5	73	7.44	112SNGR	
63412	10N	16W	31	CDDA	4060	60		6.8	65	7.38	112SNGR	
149011	11N	08W	18	CCBB	4980	440	4908	25.0	1443	7.7	120VLCC	complete
65756	11N	08W	20	ACAD	5330	80	5262	8.0	292	7.9	120SDMS	
65760	11N	08W	34	AACC	5190	82	5162	9.3	412	7.5	120SDMS	complete
65764	11N	08W	34	BBAB	5220	58	5211	8.0	292	7.8	112SNGR	
182000	11N	09W	1	BCDA	4845	80	4834	7.7	1123	7.0	120SDMS	complete
196739*	11N	09W	9	DDDD	5060			11.9	540	7.4	120SDMS	complete
65771	11N	09W	10	CACD	4970	131	4972	11.4	905	8.8	120SDMS	
65774	11N	09W	13	ADCD	5010	135	4998				120SDMS	
66501	11N	12W	3	BACC	4860	85	4807				120SDMS	
65777	11N	12W	3	BBCD	4890	240		9.3	541	7.55	120VLCC	
65787	11N	12W	30	DCCC	3980	45		9.4	716	7.4	120SICL	
161943	11N	12W	31	ADAC	3980	200	3960	9.4	741	7.36	217KOTN	complete
161942	11N	12W	31	ADAD	3970	40	3952				112SNGR	
130206	11N	12W	31	ADBA	3980	55	3947	9.5	802	7.24	112SNGR	complete
65858	11N	12W	31	CDBC	4015	160	3962	9.9	2440	7.38	217SDMS	

Table 2. - continued

GWIC ID	Township	Range	Section	Tract	Altitude	TD	SWL	Temp °C	SC	pH	Geologic Unit	Water Quality
65867	11N	12W	31	CDBC	4015	78	3959	9.8	1049	8.05	120SICL	
187018	11N	12W	31	DCAD	3950	25	3944	8.8	946	7.17	112SNGR	complete
182402	11N	12W	31	DCDA	3950	520	3947				217KOTN	
153837	11N	12W	32	CBAD	3970	38	3949	9.2	687	7.47	111SNGR	
130938	11N	13W	7	CCBA	3815	38	3808	6.3	445	7.81	111SNGR	complete
155813	11N	13W	8	CCCA	3860	100	3822	9.9	606	7.61	112SNGR	
168626	11N	13W	8	CDCC	3840	80	3825	10.2	545	7.57	217SDMS	complete
5933	11N	13W	23	CACC	3900	25	3891				111SNGR	
149012	11N	13W	23	DCCA	3910	150	3902	10.4	528	7.66	217KOTN	
160370	11N	13W	23	DCCB	3900	60	3895	9.3	528	7.67	111SNGR	
160374	11N	13W	33	CAAC	4645	106	4582	8.7	538	7.92	370CMBR	
65895	11N	13W	33	CDDD	4590	110	4585	9.5	76	8.66	120VLCC	
191288	11N	13W	34	BBDD	4435	30	4410	8.1	145	6.62	120VLCC	
169325	11N	14W	11	CBDC	3860	140	3809				120VLCC	
130209	11N	14W	14	BBCD	3850	80	3782	10.7	424	7.83	120VLCC	complete
187422	11N	14W	14	CADA	3950	360	3790	13.4	301	8.3	120VLCC	
65899	11N	14W	15	CDDD	3790	55	3780	10.3	538	6.97	112SNGR	
65900	11N	14W	15	DDDB	3795	47	3787	13.7	818	7.02	112SNGR	
129749	11N	14W	17	CDCC	3770	42		8.7	547	7.01	112SNGR	
5937*	11N	15W	14	CBDD	3790			20.5	931	8.1	370CMBR	
149667	11N	15W	16	CDBD	3720	341		11.2	601	8.01	120VLCC	complete
177912	11N	15W	17	ABDD	3665	60	3659	9.2	735	7.42	112SNGR	complete
177911	11N	15W	17	ABDD	3680	60	3658				400BELT	
65913	11N	15W	24	ACBD	3723	12	3718	9.6	423	7.64	110ALVM	
65916	11N	15W	24	DBAC	3728	56			477	7.48	112SNGR	complete
183558	12N	09W	18	AAAB	4740	53	4720	9.8	187	7.4	120VLCC	
165277	12N	09W	18	ADBD	4715	95	4672	7.8	309	7.1	120VLCC	
183557	12N	09W	19	AAAD	4870	65	4858	8.5	316	7.8	120VLCC	
182567	12N	09W	19	DDAD	4660	78	4648	7.3	936	7.8	120SDMS	
143681	12N	09W	20	BCCB	4700	90	4658	10.2	337	8.0	120VLCC	complete
66484	12N	09W	21	CCBC	4720	35	4694	10.3	516	7.1	120SDMS	complete
175668	12N	09W	21	CCBC	4720	40	4693				120SDMS	
163903	12N	09W	27	BDAC	4790	80	4780				120SDMS	
66486	12N	09W	34	AAAA	4800	30	4795				111SNGR	
141327	12N	10W	4	BBCC	4445	65	4410				112SNGR	
155620	12N	10W	5	BDDB	4445	76	4403	9.3	270	7.54	120SNGR	
66488	12N	10W	5	BDDD	4465	80	4437				120SNGR	
163776	12N	10W	9	AAAD	4480	50		10.6	211	6.94	120SDMS	
182985	12N	10W	9	AADA	4490	50	4471	7.1	220	6.77	120SDMS	
66499	12N	12W	12	ABCD	4530	30	4507	8.4	500	7.71	112SNGR	complete
154696	12N	12W	12	DBAC	4610	100	4547	9.0	491	7.87	120VLCC	complete
134187	12N	12W	12	DBCA	4595	160	4570	8.8	1079	7.99	120SICL	complete
65779	12N	12W	14	ACAA	4590	255	4559	10.7	630	8.5	120VLCC	
66503	12N	12W	33	BAAD	4830	265		8.2	468	7.89	300SDMS	
147279	13N	10W	31	AACD	4380	70	4363	10.8	635	7.5	120SNGR	complete
67659	13N	10W	31	ADBA	4379	35	4371	10.0	536	7.62	112SNGR	
67662	13N	10W	32	CDAB	4415	45	4402	8.3	528	7.58	120SDMS	
67663	13N	11W	3	CAAA	4305	90	4291	7.9	378	8.09	112SNGR	
67672	13N	11W	18	CBCB	4380	100	4347				120SDMS	
67673	13N	11W	18	CDDD	4320	75		7.9	677	7.75	112SNGR	
135498	13N	11W	20	DDAA	4315	280	4300				120SNGR	
67680	13N	11W	22	AABA	4285	16	4281	12.4	501	7.28	112SNGR	
131374	13N	11W	22	ABDD	4290	71	4286	9.1	581	7.81	112SNGR	complete
128270	13N	11W	22	DBBC	4310	50	4304	7.8	640	7.38	112SNGR	
67685	13N	11W	23	AACB	4290	86	4302	6.9	366	7.74	120SNGR	
67699	13N	11W	27	AAAD	4360	125	4297	9.4	473	7.85	120SDMS	
67700	13N	11W	27	ACCD	4385	80	4365	8.2	807	7.87	120SNGR	
67704	13N	12W	11	DACD	4270	220	4251	9.6	772	8.19	120SICL	
67708	13N	12W	12	CAAA	4260	100	4233	9.7	836	7.39	120SDMS	
67707	13N	12W	12	DBBD	4285	65	4235	8.4	840	7.77	120SDMS	
67710	13N	12W	12	DCDD	4328	80	4318	8.6	936	7.5	120SDMS	
145979	13N	12W	13	DADA	4381	120	4360	9.0	640	7.77	120SDMS	complete
135519	13N	12W	22	DCCB	5015	175		8.9	300	8.05	120VLCC	complete
175097	14N	11W	5	BBCD	4170	12	4167	9.5	347	8.0	112SNGR	
182461*	14N	11W	5	BCAB	4170			8.5	273	8.2	112SNGR	
179667	14N	11W	5	CDAD	4185	28		10.8	253	7.7	112SNGR	
70709	14N	11W	6	ACDA	4160	42	4143	9.5	347	8.0	112ALVM	complete
183582	14N	11W	6	ADCD	4180	110		8.4	616	7.8	112TILL	complete
143625	14N	11W	6	DADA	4180	218		10.2	691	8.6	120SNGR	
175096	14N	11W	8	ADAB	4205	65	4205	8.1	509	7.5	112SNGR	
138585	14N	11W	8	ADAC	4200	26	4194	9.0	525	7.48	112SNGR	
70717	14N	11W	15	BADA	4405	292	4306	9.8	382	7.9	120SDMS	complete
70716	14N	11W	15	BCBB	4350	295		9.0	389	8.0	120SNGR	
182987	14N	11W	25	CCCC	4320	80	4298	8.0	215	8.35	112SNGR	
70719	14N	11W	30	CAAA	4345	194	4328	7.9	635	7.75	120SDMS	
187854	14N	11W	32	DCCC	4280	120	4280	8.9	477	7.89	120SDMS	
169635	14N	11W	33	ADCD	4285	73	4280				120SNGR	
70722	14N	11W	33	CDAB	4280	173	4269	9.4	377	7.61	120SNGR	complete
182986	14N	11W	34	ACCA	4295	125		9.0	507	8.01	120SDMS	
120505	14N	11W	34	CCBC	4288	41	4289	8.0	454	7.85	112SNGR	complete
70711	14N	11W	35	BAAA	4315	86	4302	7.6	201	8.42	120SNGR	
167552	14N	12W	10	ACCB	4090	147	4150	10.5	490	7.9	112SNGR	
182988	14N	12W	11	CCBD	4085	130		13.1	407	7.79	112SNGR	
174763	14N	12W	22	DBDA	4365	600	4229	20.1	895	7.8	120SNGR	complete
70728	14N	12W	25	CABB	4365	355	4306	10.0	327	7.9	120SDMS	
70730	14N	12W	36	DCCC	4320	190	4290	9.9	285	7.97	112SNGR	
71529	15N	10W	6	CCCD	4520	80	4521	9.7	381	7.8	400BELT	complete
145986	15N	10W	17	BCBC	4390	125	4357	7.3	118	7.3	120SDMS	
152544	15N	10W	17	BCDD	4440	173	4396	7.6	375	9.1	120SNGR	complete
71532	15N	10W	18	BACC	4395	100	4349	10.4	291	8.1	112SNGR	
71536	15N	11W	2	CBBC	4515	75	4460	8.2	264	8.1	112SNGR	
71537	15N	11W	2	CCDB	4525	99	4445	7.3	229	8.2	112SNGR	complete
182543	15N	11W	13	DDB	4420	168	4313				112SNGR	
132918	15N	11W	14	BDCD	4440	244	4286	6.2	241	8.5	112SNGR	complete
71538	15N	11W	18	BBBC	4395	111	4338	7.7	210	8.2	112SNGR	complete
149170	15N	11W	19	BCAA	4435	55	4421	7.4	834	7.3	112SNGR	complete
123212	15N	11W	21	BDDC	4280	120	4222	9.7	252	7.9	112SNGR	
71541	15N	11W	22	BBAB	4360	100	4264	6.9	234	8.2	112SNGR	
152543	15N	11W	22	DDDD	4350	115	4258				112SNGR	
160386	15N	11W	25	BBBB	4370	140	4276	14.4	256	8.4	112SNGR	complete
71546	15N	11W	28	BBBB	4260	71	4217	8.0	233	8.4	112SNGR	
175094	15N	11W	28	DBAC	4260	58	4222	7.1	260	8.1	112SNGR	
159451	15N	11W	29	ABDD	4250	61		6.7	238	8.2	112SNGR	
71554	15N	11W	33	BBAC	4220	44	4198	8.0	263	8.21	112SNGR	
175095	15N	11W	35	ABDC	4300	75	4254	9.0	244	8.4	112SNGR	complete
71557	15N	12W	5	CACD	4105	70		5.4	280	8.1	112SNGR	complete
71556	15N	12W	5	CDAC	4145	70		7.2	280	8.0	112SNGR	
71559	15N	12W	5	CDCB	4115	107	4077	7.6	285	8.0	112SNGR	
177000	15N	12W	25	BDAA	4340	70	4319	7.7	426	7.3	112SNGR	
71568	15N	12W	25	CDAA	4355	160	4270	10.3	964	7.1	120SICL	
123214	15N	12W	29	BDBB	4070	140	4059				112SNGR	
183827	15N	12W	29	BDBC	4070	160		8.9	722	8.4	120SDMS	complete
177002	15N	12W	29	DABB	4110	65	4067				112SNGR	
127525	15N	12W	32	ACAC	4085	400	4020	10.6	1884	8.42	120SICL	
133943	15N	12W	32	ACCB	4075	60	4067	7.0	469	7.72	112OTSH	
169657	15N	12W	32	BDBD	4090	68	4072	8.0	914	7.31	112SNGR	
71596	15N	12W	33	BACD	4110	31		7.6	484	7.82	112OTSH	
163456	15N	12W	33	BBAA	4110	50	4085	8.7	501	7.8	112SNGR	complete
71586	15N	12W	33	BBAC	4105	31	4086	7.8	545	7.77	112SNGR	
167972	15N	12W	33	BBBC	4110	51	4096	8.2	464	7.67	112SNGR	
159453	15N	12W	33	BDBD	4115	170	4098				120SICL	
143632	15N	12W	33	CDCD	4125	95	4107	9.7	837	8.62	112SNGR	
71609	15N	12W	34	BBBB	4200	95	4161				112SNGR	
71610	15N	12W	36	BCDD	4268	208	4162				120SNGR	
161987	15N	13W	9	CCDB	4080	200	4117	9.6	446	7.5	112SNGR	complete
163457	15N	13W	12	CACB	4098	290	4074				120SNGR	
143633	15N	13W	12	DCAA	4052	130	4025	7.5	402	7.6	120SNGR	complete
183581	15N	13W	32	ACCA	3920	37	3902	9.4	152	6.9	111ALVM	complete
156561	15N	13W	32	BCBD	3900	272	3860	10.9	671	7.9	112SNGR	
156562	15N	13W	32	DBBB	3940	141	3918	8.3	360	7.8	400BELT	complete
72406	16N	12W	30	AACC	4130	832	4018	9.6	442	9.3	400BELT	complete

49553	168216	190731	149205	154868
165704	145960	179158	134963	153743
165216	150276	177407	131146	161873
49551	49543	49534	123052	167964
180512	49541	49550	121379	190733