U.S. Department of the Interior
U.S. Geological Survey

Hydrologic and Water-Quality Data for Ground Water along the Milk River Valley, North-Central to Northeastern Montana

By Sean M. Lawlor

Open-File Report 00-79

In cooperation with the
MONTANA BUREAU OF MINES AND GEOLOGY

U.S. Department of the Interior

BRUCE BABBITT, Secretary

U.S. Geological Survey

Charles G. Groat, Director

Helena, Montana
April 2000

For additional information write to:

District Chief
U.S. Geological Survey
3162 Bozeman Avenue
Helena, MT 59601

Copies of this report may be purchased from:

U.S. Geological Survey
Branch of Information Services
Box 25286
Denver, CO 80225-0286

CONTENTS

ILLUSTRATIONS

TABLES

CONVERSION FACTORS, VERTICAL DATUM, ABBREVIATED WATER-QUALITY UNITS, AND ACRONYMS

Multiply	By	To obtain
foot (ft)	0.3048	meter
inch (in.)	25,400	micrometer (micron)
mile (mi)	1.609	kilometer

Temperature can be converted to degrees Celsius (°C) or degrees Fahrenheit (°F) by the following equations:

$$°C = 5/9 (°F - 32)$$
$$°F = 9/5 (°C) + 32$$

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

Chemical concentration in water is reported in milligrams per liter (mg/L) or micrograms per liter (µg/L). Milligrams per liter is a unit expressing the solute mass (milligrams) per unit volume (liter) of water and is about the same as parts per million unless concentrations are more than 7,000 milligrams per liter (Hem, 1985, p. 55).

Abbreviated water-quality units used in this report:

µg/L	microgram per liter
µS/cm	microsiemen per centimeter at 25 degrees Celsius
mg/L	milligram per liter

Acronyms used in this report:

EPA	U.S. Environmental Protection Agency
MCL	Maximum Contaminant Level
MBMG	Montana Bureau of Mines and Geology
SMCL	Secondary Maximum Contaminant Level
USGS	U.S. Geological Survey

HYDROLOGIC AND WATER-QUALITY DATA FOR GROUND WATER ALONG THE MILK RIVER VALLEY, NORTH-CENTRAL TO NORTHEASTERN MONTANA

By Sean M. Lawlor

Abstract

The alluvial valley of the Milk River from near Havre to its mouth near Nashua, Montana, is about 180 miles long and has an average width of about 3 miles. Quaternary alluvium of flood plains and adjacent terraces of the Milk River is underlain by older Quaternary glacial deposits and alluvium, which are underlain by the Upper Cretaceous Bearpaw Shale, Judith River Formation, or Claggett Shale. Primary hydrogeologic units that contain water used for domestic and stock supplies are Quaternary alluvium and glacial deposits and the Upper Cretaceous Judith River Formation.

This report presents hydrologic and water-quality data for ground water along the Milk River Valley. Hydrologic data were collected at 130 wells as part of an inventory conducted from 1995 to 1997. Water-levels were measured periodically in most of the wells to document fluctuations over time. Ground-water samples were collected from 40 wells and analyzed for major ions and trace elements.

INTRODUCTION

The alluvial valley of the Milk River from near Havre to its mouth near Nashua (fig. 1) is about 180 mi long and has an average width of about 3 mi. The valley was formed and occupied by the ancestral Missouri River, which was diverted to its present course by Pleistocene glaciers (Alden, 1932).

The land surface in the study area consists of the alluvial flood plain of the Milk River and major tributaries. The surrounding area consists of gently rolling hills slightly eroded by intermittent and ephemeral

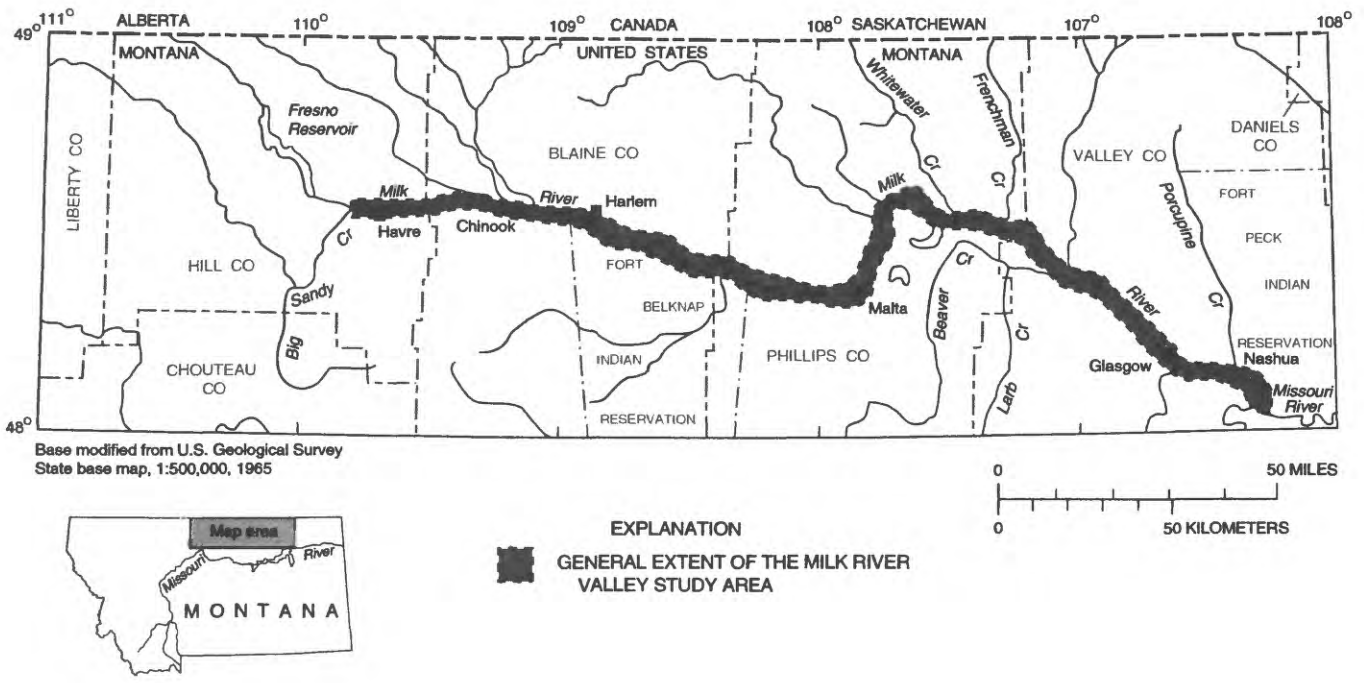

Figure 1. Location of Milk River Valley study area, north-central to northeastern Montana.

streams. Grass-covered rangeland is interspersed with nonirrigated farmland in the uplands and, where soil and water permit, by irrigated farmland in the valleys.

Irrigated agriculture is the largest use of water. Most irrigation-water supply is from the Milk River. Water for livestock is obtained from the Milk River and from Quaternary alluvium and glacial deposits and the Upper Cretaceous Judith River Formation. Water for domestic supplies is obtained from the Milk River, the alluvium and glacial deposits, and the Judith River Formation. Water for domestic supplies from these sources typically requires some form of treatment before use.

The climate of the area is typical of the semiarid Great Plains region. Average annual precipitation ranges from about 11.0 to 12.8 in. throughout the study area. The mean annual temperature is about 42 °F. The monthly mean temperatures during June, July, and August typically are 20 to 30 degrees higher than the mean annual average temperature (National Oceanic and Atmospheric Administration, 1992).

Prior to this study, very little information about the ground-water resources along the Milk River Valley from Havre to Nashua was available. Additional data were needed to address increasing concerns about ground-water quality and availability. Consequently, the U.S. Geological Survey (USGS) began a study in 1995 in cooperation with the Montana Bureau of Mines and Geology (MBMG) to collect additional information about the ground-water resources of the Milk River Valley.

Purpose and Scope

The purpose of this report is to present hydrologic and water-quality data for ground water along the Milk River Valley. Hydrologic data for 130 wells and water-quality data for 40 wells were collected from 1995 to 1997.

Hydrogeologic Setting

Primary hydrogeologic units that contain water used for domestic and stock supplies are Quaternary alluvium and glacial deposits and the Upper Cretaceous Judith River Formation. Quaternary alluvium or glacial deposits are exposed at the surface throughout the study area. In the western part of the study area, Quaternary alluvium and glacial deposits are underlain by the Judith River Formation. In the eastern part of the study area, Quaternary alluvium and glacial deposits are underlain by the Upper Cretaceous Bearpaw Shale, Judith River Formation, or Claggett Shale (Perry, 1934; Alverson, 1965).

Quaternary alluvium typically consists of unconsolidated, discontinuous lenses of fine-grained sand, silt, sandy clay, and clay. In most areas, flood plains and adjacent terraces of the Milk River are composed of alluvium. Older alluvium in the subsurface typically consists of deposits of the ancestral Missouri River. The Quaternary alluvium generally is less than about 60 ft thick (Alverson, 1965).

Quaternary glacial deposits consist predominantly of unconsolidated gravel, sand, silt, and clay deposited by glaciers during Pleistocene time. These deposits range in thickness from 20 to 100 ft (Alverson, 1965) and are composed mostly of till. However, in places, glacial meltwater has sorted out and carried away most of the fine-grained material, leaving behind relatively well-sorted and permeable glaciofluvial sand and gravel deposits. In many areas, the glacial deposits are overlain by alluvium of flood plains and adjacent terraces of the Milk River and underlain by older alluvium of the ancestral Missouri River (Alverson, 1965).

The Bearpaw Shale consists of as much as 1,000 ft of dark-gray marine shale interbedded with bentonite. The Bearpaw Shale is relatively impermeable. Any water withdrawn from this hydrogeologic unit probably would be too mineralized for domestic, stock, and irrigation purposes (Alverson, 1965).

The Judith River Formation consists of between 380 and 500 ft of light-tan to gray, fine- to medium-grained sandstone interbedded with siltstone, shale, claystone, and thin coal beds. The sandstone beds are lenticular and discontinuous (Perry, 1934; Alverson, 1965).

The Claggett Shale consists of as much as 700 ft of dark-gray marine shale interbedded with sandstone. The proportion of sandstone beds increases near the top. The Claggett Shale is relatively impermeable, but might yield a small quantity of water to wells. Any water withdrawal from this hydrogeologic unit would probably be too mineralized for domestic, stock, and irrigation purposes (Alverson, 1965).

Well-Numbering System

In this report, wells are assigned a well number from W1 to W130 for identification. In addition, well locations are numbered according to geographic position within the rectangular grid system used for the subdivision of public lands (fig. 2). The location number consists of as many as 14 characters. The first three characters specify the township and its position north (N) of the Montana Base Line. The next three characters specify the range and its position east (E) of the Montana Principal Meridian. The next two characters are the section number. The next four characters designate the quarter section (160-acre tract), quarter-quarter section (40-acre tract) quarter-quarter-quarter section (10-acre tract), and quarter-quarter-quarter-quarter section (2 1/2-acre tract), respectively, in which the well is located. These four subdivisions of the section are designated A, B, C, and D in a counterclockwise direction, beginning in the northeast quadrant of the section. The last two numeric characters specify a sequence number, based on the order of inventory, to distinguish between multiple wells at a single location. For example, as shown in figure 2, well 33N15E31CBDC01 is the first well inventoried in the SW1/4SE1/4NW1/4SW1/4 of sec. 31, T. 33 N., R. 15 E.

DATA-COLLECTION METHODS

Hydrologic and water-quality data from privately and publicly owned wells were collected by inventorying 130 wells (table 1, plate 1), measuring water levels (table 2), and sampling ground water for laboratory analysis (table 3). Tables 1, 2, and 3 are at the back of the report; plate 1 is in the pocket.

During the well inventory, the well location, hydrogeologic unit, land-surface altitude, well depth, static-water level, and field water-quality properties

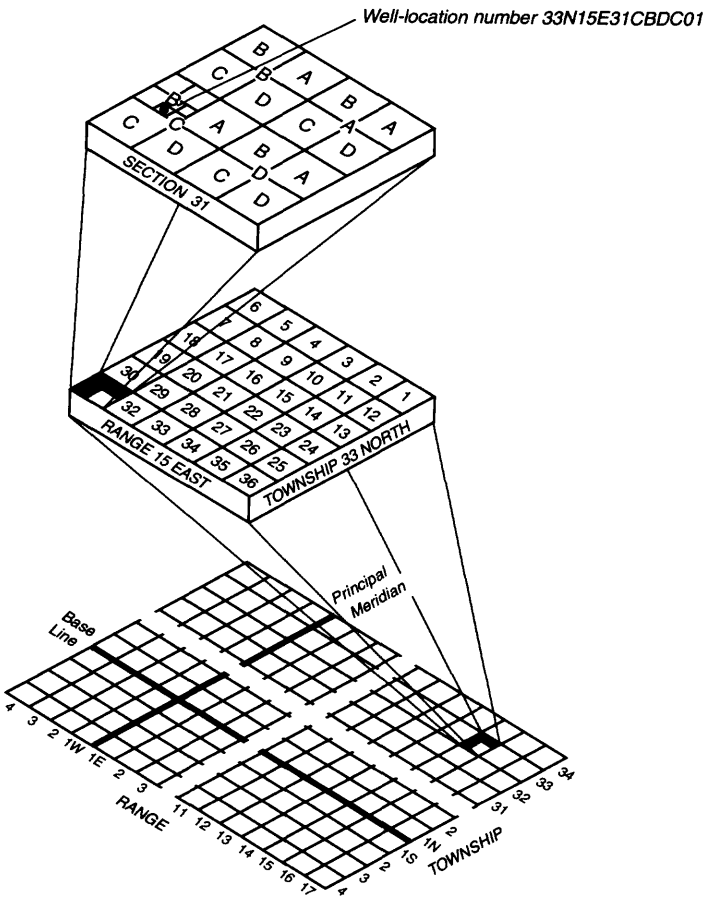

Figure 2. Well-numbering system.

were determined. At some sites, one or more of these site characteristics could not be determined. Land-surface locations and altitudes were determined from 7.5-minute topographic quadrangle maps. Where possible, hydrogeologic units were interpreted from drillers' lithologic logs and geologic maps for the area. Well depths were either determined from drillers' logs or measured with a graduated steel tape. Static-water levels were measured with a graduated steel tape or calibrated electric tape. Selected wells were measured periodically from 1995 to 1997 to document water-level changes. Field water-quality measurements were made at most sites and included specific conductance, pH, water temperature, and nitrate concentrations. Nitrate concentrations were determined using a spectrophotometer.

Water-quality and quality-assurance samples for laboratory analysis of selected constituents were collected from 40 wells (table 3). A ground-water sample was obtained using the existing pump at a discharge point as close to the well as possible. All wells were purged until at least three well volumes of water were removed and field properties (specific conductance, pH, and water temperature) had stabilized. These properties were measured in a flow-through chamber to minimize effects of atmospheric contact and pressure changes. Field values for alkalinity were determined by incremental titration of the sample with sulfuric acid. Ground-water samples for chemical analysis were collected from the flow-through chamber. A peristaltic pump was used to pass sample water through a 0.45-micron pore-diameter filter for analysis of dissolved constituents. Sample processing, filtration, and preservation were performed in the field according to established procedures described by Knapton (1985). Samples were analyzed for major ions, nitrite, and trace elements by the MBMG, Analytical Division, Butte, Montana.

Data-collection procedures used during this investigation incorporated practices designed to control, verify, and assess the quality of the sample data. Methods and associated quality control for collection and processing of water samples are described by Knapton (1985), and Knapton and Nimick (1991). Quality-control data to document the reproducibility of analytical results and any sample contamination were provided by test samples that consisted of either a replicate or field-blank sample incorporated in the sampling set. Replicate samples are two or more samples considered to be essentially identical in composition and are analyzed to provide an assessment of analytical precision (reproducibility). Replicate samples were obtained by sequentially repeating the collection process in the field to obtain two samples which were analyzed separately. A field-blank sample is a volume of deionized water that is passed through all of the sampling equipment and analyzed for the same constituents as ground-water samples in order to test the adequacy of cleaning procedures to prevent cross-contamination between sites. Quality-control samples (table 3) comprised about 11 percent of the total number of ground-water samples submitted by the USGS for analysis.

DATA SUMMARY

Most of the wells inventoried were completed in either the alluvium and glacial deposits or the Judith River Formation. Depths of the wells inventoried ranged from 10.5 to 750 ft below land surface, with a median of 64 ft. Static-water levels in inventoried wells ranged from 0.53 ft above land surface to 55.74 ft below land surface. Observed fluctuations of water levels during 1995-97 within individual wells ranged from 0.00 to 24.29 ft, although most fluctuations were less than 5 ft.

Most of the water sampled had concentrations of one or more constituents (table 3) that exceeded the Maximum Contaminant Level (MCL) or Secondary Maximum Contaminant Level (SMCL) as defined by the U.S. Environmental Protection Agency (EPA) (U.S. Environmental Protection Agency, 1996, accessed September 20, 1999). Water from 24 wells had concentrations of sulfate exceeding the MCL of 500 mg/L. Water from 34 wells had concentrations of sulfate exceeding the SMCL of 250 mg/L. Water from all but one well had concentrations of dissolved solids exceeding the SMCL of 500 mg/L. Water from 25 wells had concentrations of iron exceeding the SMCL of 0.3 mg/L (300 µg/L). In addition, water from 34 wells had concentrations of manganese that exceeded the SMCL of 0.05 mg/L (50 µg/L).

Dissolved-solids concentrations in water ranged from 432 mg/L to 3,550 mg/L, with a median of 1,655 mg/L. Water from sampled wells generally was suitable for stock watering based on dissolved-solids concentrations less than the recommended standard of 3,500 mg/L (McKee and Wolf, 1971). Water from sampled wells generally did not meet criteria for irriga-

tion. The maximum dissolved-solids concentration suitable for all types of plants, including salt-susceptible plants, is reported to be about 1,000 mg/L (McKee and Wolf, 1971). A maximum dissolved-solids concentration of about 2,150 mg/L generally is considered safe for all types of plants except salt-susceptible ones, provided that drainage is excellent and each watering is of sufficient volume to reach the root zone (McKee and Wolf, 1971).

SELECTED REFERENCES

Alden, W.C., 1932, Physiography and glacial geology of eastern Montana and adjacent areas: U.S. Geological Survey Professional Paper 174, 133 p.

Alverson, D.C., 1965, Geology and hydrology of the Fort Belknap Indian Reservation: U.S. Geological Survey Water-Supply Paper 1576-F, 59 p.

Collier, A.J., 1918, Geology of northeastern Montana: U.S. Geological Survey Professional Paper 120, p. 17-40.

Colton, R.B., Lemke, R.W., and Lindvall, R.M., 1961, Glacial map of Montana east of the Rocky Mountains: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-327, scale 1:500,000.

Hem, J.D., 1985, Study and interpretation of chemical characteristics of natural water (3d ed.): U.S. Geological Survey Water-Supply Paper 2254, 263 p.

Knapton, J.R., 1985, Field guidelines for collection, treatment, and analysis of water samples, Montana District: U.S. Geological Survey Open-File Report 85-409, 86 p.

Knapton, J.R., and Nimick, D.A., 1991, Quality assurance for water-quality activities of the U.S. Geological Survey in Montana: U.S. Geological Survey Open-File Report 91-216, 41 p.

McKee, J.E., and Wolf, H.W., 1971, Water quality criteria (2d ed.): California Water Resources Control Board Publication 3-A, 548 p.

National Oceanic and Atmospheric Administration, 1992, Monthly station normals of temperature, precipitation, and heating and cooling degree days, 1961-90, Montana: Asheville, N.C. Climatography of the United States no. 81, unpaged.

Perry, E.S., 1934, Geology and artesian water resources along Missouri and Milk Rivers in northeastern Montana: Montana Bureau of Mines and Geology Memoir 11, 34 p.

U.S. Environmental Protection Agency, 1996, Drinking water regulations and health advisories: Office of Water, EPA 822-B-96-002, accessed September 20, 1999, at URL http://www.epa.gov/OST/Tools/dwstds.html

DATA

Table 1. Records of physical setting and water-quality field measurements for wells inventoried in the Milk River Valley, north-central to northeastern Montana

[Well and location number described in text. Hydrogeologic unit: Qal, Quaternary alluvium; Qg, Quaternary glacial deposits; Kjr, Upper Cretaceous Judith River Formation. Primary use of water: C, commercial; H, domestic; I, irrigation; P, public supply; S, stock; U, unused. Depth of well: in feet below land surface. Nitrate concentration was determined on unfiltered samples by spectrophotometer. Abbreviations: µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius. Symbols: <, less than; --, no data]

Well number (pl. 1)	Location number	Hydrogeologic unit	Altitude of land surface (feet)	Primary use of water	Depth of well (feet below land surface)	Specific conductance, field (µS/cm)	pH, field (standard units)	Temperature, water, field (°C)	Nitrate, field (mg/L as N)	Date water-quality parameters measured
W1	33N15E31CBDC01	Kjr	2,505	U	180	--	--	--	--	--
W2	33N16E35DDDB01	Qal	2,462	H	40	1,760	8.0	10.5	0.6	07-17-95
W3	33N18E21CACB01	Qal	2,426	S	--	--	--	--	--	--
W4	33N18E21CDAC01	Qal	2,428	S	--	3,300	8.5	12.5	1.6	07-15-95
W5	33N18E22DABC01	Qal	2,244	S	140	--	--	--	--	--
W6	33N19E15CCAD01	Qal	2,412	S	20	910	7.7	17.5	<.5	07-15-95
W7	33N19E15DCBB01	Qal	2,415	U	90	--	--	--	--	--
W8	33N19E20DDAC01	Qal	2,407	S	123	10,000	7.5	13.5	<.5	07-14-95
W9	33N19E25DDDD01	Qal	2,398	S	96	--	--	--	--	--
W10	33N20E29BCBB01	Qal	2,395	H	40	925	7.5	12.0	1.1	07-13-95
W11	33N21E32BBCD01	Qal	2,385	H	109	3,640	8.6	12.5	1.4	07-12-95
W12	33N22E31CBCC01	Kjr	2,385	H	190	3,920	8.3	10.5	.8	07-17-95
W13	32N15E02CCDB01	Kjr	2,516	U	122	--	--	--	--	--
W14	32N16E04DBAD01	Kjr	2,476	C	114	1,940	7.5	10.0	.3	07-18-95
W15	32N17E02ADCA01	Kjr	2,452	P	148	4,080	7.8	9.5	<.5	07-16-95
W16	32N17E05AACB01	Qal	2,458	U	32	--	--	--	--	--
W17	32N17E05ACAB01	Kjr	2,465	U	208	--	--	--	--	--
W18	32N20E02CBBC01	Qal	2,382	U	48.5	--	--	--	--	--
W19	32N20E03ADDD01	Kjr	2,384	U	165	--	--	--	--	--
W20	32N20E03DAAB01	Kjr	2,385	H	220	4,200	7.4	12.0	.9	07-12-95
W21	32N21E01CACB02	Kjr	2,370	H	307	3,710	8.6	13.5	1.9	07-16-95
W22	32N21E03DDAA01	Kjr	2,355	H	220	3,900	7.9	15.0	2.6	07-16-95
W23	32N21E12BDDB01	Qal	2,360	U	35	--	--	--	--	--
W24	32N21E12CADD01	--	2,366	U	170	4,550	7.6	10.0	<.5	07-16-95
W25	32N21E13BCAD01	--	2,372	S	150	--	--	--	--	--
W26	32N22E03CDCC01	--	2,360	H	158	2,800	8.5	11.0	1.0	07-18-95
W27	32N22E03CDCC02	--	2,360	S	120	--	--	--	--	--
W28	32N22E05BABC01	Kjr	2,365	S	190	3,030	8.8	14.0	1.3	07-17-95
W29	32N22E06AABA01	--	2,375	S	45	1,000	7.7	9.5	<.5	07-17-95
W30	32N22E08BBAC01	Kjr	2,370	H	277	2,260	8.7	15.0	1.2	07-17-95
W31	32N22E08DDDD01	--	2,361	H	234	2,020	8.8	13.0	.9	07-16-95
W32	32N22E09AADD01	--	2,358	S	60	--	--	--	--	--
W33	32N22E09DAAD01	--	2,355	H	260	2,120	8.6	14.0	.2	07-18-95
W34	32N22E10BADA01	Qal	2,365	H	15	2,540	7.4	10.5	1.1	07-19-95
W35	32N22E10BADC01	Kjr	2,365	S	315	1,910	8.8	13	.6	07-19-95

Table 1. Records of physical setting and water-quality field measurements for wells inventoried in the Milk River Valley, north-central to northeastern Montana (Continued)

Well number (pl. 1)	Location number	Hydro-geo-logic unit	Altitude of land surface (feet)	Primary use of water	Depth of well (feet below land surface)	Specific conduc-tance, field (µS/cm)	pH, field (stan-dard units)	Temper-ature, water, field (°C)	Nitrate, field (mg/L as N)	Date water-quality parameters measured
W36	32N22E13BCAC01	Qal	2,358	H	13	1,640	7.3	11.5	14	07-18-95
W37	32N22E13BCAC02	Qal	2,358	S	16.5	1,620	7.5	10.0	14	07-18-95
W38	32N22E15DCCC01	--	2,345	H	125	--	--	--	--	--
W39	32N22E18ADBA01	Kjr	2,370	S	260	1,540	8.9	9.5	<.5	07-16-95
W40	32N22E23BBAA01	--	2,350	H	165	2,650	8.9	11.5	<.5	07-19-95
W41	32N22E25BDBD01	Kjr	--	H	250	3,150	8.6	14	.6	07-19-95
W42	32N23E16DCDC01	--	2,350	H	190	4,260	8.2	12.5	<.5	07-14-95
W43	32N23E21DADA01	--	2,348	S	100	4,260	8.2	10	<.5	07-14-95
W44	32N23E23DDBB01	--	2,335	S	40	--	--	--	--	--
W45	32N32E10CACC01	--	2,200	I	46	2,490	7.4	15.5	--	07-14-95
W46	32N32E10CACC02	--	2,200	H	48	--	--	--	--	--
W47	32N33E02DCAB01	--	2,195	H	52	1,730	7.2	16.0	1.1	07-14-95
W48	32N33E09DACD01	--	2,190	H	50	1,370	7.6	14.5	.5	07-14-95
W49	32N33E09DCCA01	--	2,190	U	37	--	--	--	--	--
W50	32N33E17BACC01	--	2,190	H	45	1,510	7.5	12.0	1.8	07-14-95
W51	32N33E32ACCD01	--	2,195	I	33	1,300	7.4	13.5	1.2	07-16-95
W52	32N34E07ACCC01	--	2,188	H	63	--	--	--	--	--
W53	32N34E32CDDD01	--	2,190	I	60	3,590	7.4	12.5	1.8	07-16-95
W54	32N34E32CDDD02	--	2,190	U	50	--	--	--	--	--
W55	32N35E20DDCB01	--	2,169	H	44	3,810	7.2	12.5	--	07-18-95
W56	32N35E29BAAA01	Qal	2,170	S	43	3,810	7.2	12.5	--	07-18-95
W57	32N35E33DDDD01	--	2,158	U	52	--	--	--	--	--
W58	31N24E01BDAC01	--	2,320	H	80	2,800	--	--	.3	10-18-95
W59	31N24E03DCBB01	Qal	2,322	U	100	--	--	--	--	--
W60	31N24E06AAAA01	Qal	2,329	U	--	--	--	--	--	--
W61	31N24E06BCCC01	Qal	2,329	U	10.5	--	--	--	--	--
W62	31N25E14ADBB01	--	2,295	H	70	3,660	8.6	10.0	.5	07-17-95
W63	31N25E17BCCD01	--	2,310	H	80	4,880	7.9	12.5	<.5	07-14-95
W64	31N26E32BAAC01	--	2,300	H	160	3,310	8.1	14.0	<.5	07-15-95
W65	31N26E35CDCD01	--	2,290	H	105	2,450	8.0	10.0	<.5	07-13-95
W66	31N30E21DBDD01	--	2,260	H	49	2,840	7.6	12.5	--	07-13-95
W67	31N32E15DACC01	--	2,215	H	73	2,080	7.8	13.0	<.5	07-17-95
W68	31N33E02BCBB01	--	2,220	S	100	5,590	7.4	13.0	1.3	07-16-95
W69	31N34E14DDCC01	--	2,215	U	90	--	--	--	--	--
W70	31N35E13BDBB01	--	2,142	S	28	1,420	7.5	12.0	.6	07-18-95

Table 1. Records of physical setting and water-quality field measurements for wells inventoried in the Milk River Valley, north-central to northeastern Montana (Continued)

Well number (pl. 1)	Location number	Hydrogeologic unit	Altitude of land surface (feet)	Primary use of water	Depth of well (feet below land surface)	Specific conductance, field (µS/cm)	pH, field (standard units)	Temperature, water, field (°C)	Nitrate, field (mg/L as N)	Date water-quality parameters measured
W71	31N35E19BCDC01	--	2,177	H	23	1,030	7.6	15.0	1.1	07-17-95
W72	31N35E27BBCD01	--	2,160	S	24	1,600	7.4	11.5	1.8	07-17-95
W73	31N36E19CBAB01	--	2,142	H	72	2,070	7.4	13.0	.7	07-17-95
W74	30N26E03CCBB01	Qal	2,306	S	25	--	--	--	--	--
W75	30N27E06ACCC01	Qal	2,285	H	44	1,470	7.6	11.5	<.5	07-15-95
W76	30N27E11BCCB01	--	2,275	U	80	--	--	--	--	--
W77	30N28E07BABB01	--	2,273	S	135	--	--	--	--	--
W78	30N28E09BCBC01	--	2,270	H	40	903	7.8	12.5	.4	07-13-95
W79	30N28E13DDCC01	--	2,260	H	180	1,990	8.3	16.5	<.5	07-12-95
W80	30N28E14DDDD01	--	2,270	H	140	2,970	8.3	13.0	<.5	07-12-95
W81	30N28E17CDDD01	Qal	2,265	H	35	2,130	8.1	14.0	<.5	07-13-95
W82	30N28E21AABC01	--	2,260	H	--	1,690	8.3	13.5	<.5	07-12-95
W83	30N28E22AABA01	--	2,260	S	120	2,950	7.6	11.5	<.5	07-12-95
W84	30N29E09ADCA01	--	2,285	U	22	--	--	--	--	--
W85	30N29E09DDBB01	--	2,210	H	21	2,280	7.4	12.5	7.8	07-13-95
W86	30N29E13CABA01	--	2,250	H	164	2,170	7.5	12.5	.6	07-13-95
W87	30N29E18DABC01	--	2,225	H	145	3,400	7.7	13.0	.2	07-12-95
W88	30N29E26BBBB01	--	2,255	U	18	--	--	--	--	--
W89	30N29E27AAAA01	--	2,255	H	18	977	7.6	11.5	2.7	07-13-95
W90	30N29E29DADA01	--	2,257	H	40	2,680	7.3	12.5	1.1	07-13-95
W91	30N30E02BCCB01	--	2,240	H	38	1,280	7.3	12.5	1.7	07-15-95
W92	30N30E04ADCD01	--	2,240	H	150	2,300	7.8	12.5	1.1	07-13-95
W93	30N30E12DCCC01	--	2,250	H	50	2,970	7.3	13.5	2.2	07-15-95
W94	30N30E14CBAC01	--	2,250	H	50	1,050	7.4	13.0	2.4	07-15-95
W95	30N30E14CBBD01	--	2,250	U	33	--	--	--	--	--
W96	30N30E17ADCC01	--	2,257	H	50	702	7.6	13.0	1.7	07-15-95
W97	30N30E17BBCA01	--	2,240	H	34	1,870	7.4	13.0	--	07-13-95
W98	30N31E07DCDD01	--	2,240	H	59	1,740	7.3	11.5	--	07-15-95
W99	30N31E15BDDD01	Qal	2,240	H	50	810	7.4	16.5	--	07-15-95
W100	30N32E17BAAA01	--	2,225	H	45	3,420	7.6	12.5	1.9	07-16-95
W101	30N36E02BCBD01	--	2,137	H	64	4,500	7.1	13.0	<.5	07-18-95
W102	30N37E13DCAA01	--	2,118	S	35	4,010	7.5	10.0	.4	07-19-95
W103	29N38E04BBCA01	Qal	2,106	S	50	2,710	10.1	10.0	.1	07-19-95
W104	29N38E04BBDD01	Qal	2,106	S	50	--	--	--	--	--
W105	29N38E05ABAD01	Qal	2,110	H	35	3,120	7.4	12.5	2.6	07-19-95

Table 1. Records of physical setting and water-quality field measurements for wells inventoried in the Milk River Valley, north-central to northeastern Montana (Continued)

Well number (pl. 1)	Location number	Hydrogeologic unit	Altitude of land surface (feet)	Primary use of water	Depth of well (feet below land surface)	Specific conductance, field (µS/cm)	pH, field (standard units)	Temperature, water, field (°C)	Nitrate, field (mg/L as N)	Date water-quality parameters measured
W106	29N38E05DABB01	Qal	2,107	S	50	--	--	--	--	--
W107	29N38E09DCCD01	--	2,102	H	--	3,850	7.9	10.0	.4	07-19-95
W108	29N38E16CCAD01	Qal	2,102	H	79	5,140	7.7	11.0	2.6	07-18-95
W109	29N38E35ABDA01	--	2,099	H	79	4,200	7.6	9.0	.7	07-18-95
W110	29N39E29BDCA01	Qg	2,099	U	45	3,290	7.2	11.5	1.1	07-19-95
W111	29N39E30BBAD01	--	2,093	H	130	3,690	8.6	10.5	1.2	07-17-95
W112	28N39E04DDCB01	--	2,092	H	200	4,180	8.3	9.5	.4	07-18-95
W113	28N40E24DCBB01	Qal	2,086	H	108	3,370	7.4	12.5	2.3	07-16-95
W114	28N40E28BABB01	--	2,085	H	50	1,370	7.7	15.5	.1	07-16-95
W115	28N40E30ABDB01	--	2,080	H	157	3,940	7.9	11.0	1.9	07-17-95
W116	28N40E34ABDC01	Qal	2,075	U	128	--	--	--	--	--
W117	28N41E29ACAB01	Qal	2,069	--	87	2,950	7.3	12.5	.1	07-17-95
W118	28N41E29CABC01	Kjr	2,070	S	750	1,520	8.0	11.5	1.0	07-17-95
W119	28N41E32BBCB01	--	2,075	H	--	4,350	8.3	14.0	.3	07-15-95
W120	28N41E33ADBB01	Qal	2,063	S	85	5,090	--	10.0	--	07-15-95
W121	28N42E31DBBC01	Qal	2,065	U	24.5	--	--	--	--	--
W122	27N41E01AACB01	Qal	2,052	H	50	3,490	6.9	10.0	--	07-14-95
W123	27N41E01AACC01	Qal	2,052	--	52	3,450	7.3	9.5	.6	07-15-95
W124	27N41E02AAAA01	Qal	2,058	U	--	--	--	--	--	--
W125	27N41E04ABBD01	Qal	2,062	H	30	1,540	7.4	12.0	.4	07-15-95
W126	27N41E12BADC01	Qal	2,058	U	90	--	--	--	--	--
W127	27N42E11CADC02	Qal	2,060	H	--	--	--	--	--	--
W128	27N42E15DBCC01	Qal	2,050	--	55	--	--	--	--	--
W129	27N42E22ADCA01	Qal	2,041	--	--	--	--	--	--	--
W130	27N42E26DDDD01	Qal	2,040	H	124	3,500	7.6	9.0	<.5	07-12-95

Table 2. Water-level data for selected wells in the Milk River Valley, north-central to northeastern Montana

[Well number described in text; location shown on plate 1. Abbreviation: ft, feet below or above (+) land surface]

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W1		W2		W3		W5		W7	
07-19-95	10.68	07-17-95	10.45	07-15-95	7.64	07-14-95	7.29	07-15-95	5.17
10-16-95	10.73			10-17-95	8.29	10-17-95	6.91	10-17-95	5.45
04-08-96	8.09					04-08-96	6.88	04-08-96	5.01
06-05-96	9.26					06-05-96	6.68	06-05-96	4.13
09-11-96	11.02					09-11-96	7.10	09-11-96	4.54
11-04-96	10.53					11-04-96	6.72	11-04-96	4.68
01-21-97	4.26					01-21-97	7.26	01-21-97	4.81
03-25-97	8.73					03-25-97	7.02	03-25-97	4.83
03-26-97	8.73								

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W8		W9		W10		W13		W14	
07-14-95	11.23	07-14-95	10.02	07-13-95	10.76	07-18-95	20.75	07-18-95	7.55
10-17-95	10.49	10-17-95	9.67	10-17-95	11.13	10-16-95	25.19	10-16-95	3.57
04-08-96	10.95	04-08-96	14.12	04-08-96	11.60	04-08-96	20.81	04-08-96	4.40
06-05-96	10.02	06-05-96	9.89	06-05-96	9.09	06-05-96	22.55	06-05-96	4.42
09-11-96	9.62	09-11-96	9.30	07-16-96	8.97	09-11-96	25.98	07-15-96	3.92
11-04-96	9.51	11-04-96	9.36	09-11-96	10.49	11-04-96	20.86	09-11-96	3.87
03-25-97	10.80	01-21-97	10.29	11-04-96	11.00	01-21-97	22.78	11-04-96	3.76
		03-25-97	14.17	03-25-97	7.52	03-25-97	24.54		

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W15		W16		W17		W18		W19	
07-16-95	10.31	07-16-95	7.36	07-16-95	17.49	07-12-95	9.19	07-12-95	7.80
10-17-95	10.65	10-16-95	8.32	10-16-95	18.96	10-17-95	9.65	10-17-95	8.83
04-08-96	10.03	04-08-96	2.47	04-08-96	16.42	04-08-96	9.09	04-08-96	1.77
06-05-96	7.18	06-05-96	5.66	06-05-96	17.59	06-05-96	8.49	06-05-96	7.16
09-11-96	9.77	09-11-96	7.51	09-11-96	18.23	09-11-96	8.90	09-11-96	6.63
01-21-97	10.33	11-04-96	5.83	11-04-96	19.76	11-04-96	9.40	11-04-96	8.20
03-25-97	9.04	01-21-97	7.03	01-21-97	18.91	01-21-97	9.64	01-21-97	8.83
		03-25-97	6.33	03-25-97	18.59	03-25-97	9.22	03-25-97	8.35

Table 2. Water-level data for selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W20		W21		W22		W23		W24	
07-12-95	10.32	07-16-95	13.97	07-16-95	12.50	07-15-95	12.40	07-16-95	8.45
		10-17-95	11.12	04-08-96	12.51	10-17-95	12.44	10-17-95	5.80
		06-05-96	11.44	06-05-96	17.02	04-09-96	.33	04-09-96	3.81
		09-11-96	12.68	01-22-97	11.62	06-05-96	1.65	06-05-96	4.67
		11-04-96	14.43	03-25-97	12.14	09-11-96	3.73	09-11-96	4.09
		01-22-97	13.02			11-04-96	3.97		
		03-25-97	13.73			01-22-97	6.63		
						03-25-97	7.50		

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W25		W26		W27		W28		W29	
07-16-95	8.54	07-18-95	49.50	07-18-95	8.99	07-17-95	3.30	07-17-95	7.00
10-17-95	7.56					10-17-95	2.61	10-17-95	6.76
04-09-96	14.77					01-22-96	1.67	04-09-96	6.37
06-05-96	8.60					04-09-96	3.31	04-15-96	5.73
09-11-96	7.12					06-05-96	2.97	06-05-96	7.55
11-04-96	7.21					09-11-96	2.56	01-22-97	12.41
01-22-97	7.70					11-04-96	2.86	03-25-97	7.25
03-25-97	11.05					01-22-97	1.67		
						03-25-97	3.53		

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W30		W31		W32		W33		W34	
07-17-95	6.29	07-16-95	6.13	07-18-95	4.40	07-18-95	4.78	07-19-95	7.95
10-17-95	7.17			10-18-95	4.22			01-22-96	8.85
04-09-96	5.66			04-09-96	3.45			04-09-96	7.99
06-05-96	7.33			06-05-96	3.59			06-05-96	8.08
09-11-96	6.38							09-11-96	8.57
11-04-96	10.48							11-04-96	8.79
01-22-97	8.98							03-25-97	6.97
03-25-97	4.94								

Table 2. Water-level data for selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W35		W36		W37		W38		W39	
07-19-95	4.60	07-18-95	3.55	07-18-95	4.15	07-18-95	1.58	07-15-95	8.24
		10-20-95	7.83					10-17-95	7.68
		04-09-96	7.43					04-09-96	5.72
		06-05-96	7.65					06-05-96	7.79
		09-11-96	6.33					09-11-96	6.90
		11-04-96	7.64					11-04-96	7.18
		01-22-97	8.57					01-22-97	8.42
		03-25-97	8.12					03-25-97	8.45

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W40		W42		W43		W44		W45	
07-19-95	3.19	07-14-95	8.20	07-14-95	6.93	07-18-95	2.82	07-14-95	26.75
10-18-95	.91	10-18-95	6.30	10-18-95	6.98	10-19-95	2.44		
07-15-96	.06	04-09-96	7.44	04-09-96	6.77	06-05-96	2.15		
09-11-96	.05	06-05-96	6.40	06-05-96	6.40				
		09-11-96	5.70	07-15-96	5.84				
		11-05-96	8.53	09-11-96	5.95				
		01-22-97	6.51	11-05-96	6.27				
		03-25-97	6.62	01-22-97	6.61				
				03-25-97	6.81				

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W46		W47		W49		W51		W52	
07-14-95	35.91	07-14-95	14.79	07-14-95	26.22	07-16-95	12.57	07-14-95	19.20
10-19-95	36.47	10-18-95	17.04	10-19-95	26.58	10-19-95	12.91	10-18-95	19.63
04-10-96	32.86	04-10-96	13.18	04-10-96	24.81	04-10-96	13.72	04-10-96	18.94
06-03-96	34.79	06-03-96	12.38	06-03-96	24.16	06-03-96	13.52	06-13-96	18.21
09-10-96	38.70	11-05-96	14.87	09-10-96	24.74	07-13-96	12.28	07-12-96	18.24
11-05-96	36.95	01-23-97	15.43	11-04-96	25.01	09-10-96	12.43	09-10-96	18.51
01-22-97	37.72	03-26-97	13.75	01-22-97	25.04	11-05-96	14.36	11-05-96	19.68
03-26-97	34.74			03-26-97	24.81	01-22-97	16.17	01-23-97	19.05
						03-26-97	15.58	03-26-97	18.32

Table 2. Water-level data for selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W53		W54		W55		W56		W57	
07-16-95	13.50	07-16-95	12.15	07-18-95	23.85	07-18-95	15.55	07-17-95	20.54
10-18-95	12.58	10-18-95	12.41	10-18-95	28.14	10-18-95	17.39	10-18-95	23.76
		04-10-96	13.05			04-10-96	10.66	04-10-96	18.42
		06-03-96	12.90			06-03-96	13.94	06-03-96	21.00
		09-10-96	12.91			09-10-96	14.97	09-10-96	19.45
		11-05-96	13.05			11-05-96	15.41	01-23-97	22.08
		01-23-97	13.36					03-26-97	+.53
		03-26-97	13.51						

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W58		W59		W60		W61		W62	
07-14-95	9.96	06-04-96	1.67	06-04-96	6.98	06-04-96	5.80	07-17-95	.99
10-18-95	12.48							10-19-95	3.85
04-09-96	4.17							04-09-96	.88
06-05-96	3.96							06-05-96	.37
09-11-96	5.67							07-15-96	.88
11-05-96	6.29							09-11-96	1.11
01-22-97	5.03							11-05-96	1.21
03-25-97	4.16							01-22-97	8.10
								03-25-97	2.19

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W63		W64		W65		W66		W67	
07-14-95	3.80	07-16-95	18.20	07-13-95	8.17	07-13-95	34.51	07-17-95	7.85
10-19-95	2.67					10-19-95	36.49	10-19-95	8.99
04-09-96	1.57					04-09-96	32.21	04-08-96	7.32
06-05-96	1.44					06-04-96	30.28	06-03-96	7.37
07-15-96	5.78					07-13-96	32.32	07-13-96	8.98
09-11-96	1.85					09-10-96	33.24	09-10-96	8.55
11-05-96	1.90					11-05-96	32.39	11-05-96	8.06
03-25-97	1.79					01-22-97	32.42	01-22-97	8.24
						03-26-97	31.74	03-26-97	7.95

Table 2. Water-level data for selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W69		W70		W71		W72		W73	
07-17-95	53.39	07-18-95	17.73	04-10-96	1.35	07-17-95	15.85	07-17-95	17.01
10-19-95	55.74	10-19-95	17.75			10-19-95	15.09	10-18-95	16.84
04-10-96	52.01	04-10-96	18.36			04-10-96	15.30	04-10-96	14.86
06-03-96	52.98	09-10-96	18.82			06-03-96	15.02	06-03-96	16.11
09-10-96	53.53	11-04-96	23.70			07-12-96	14.53	07-12-96	16.38
11-05-96	54.15	03-26-97	15.12			09-10-96	14.51	09-10-96	16.57
01-23-97	54.70					11-05-96	15.47	11-05-96	18.10
03-26-97	52.62					01-23-97	16.06	01-23-97	18.34
						03-26-97	15.09		

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W74		W75		W76		W77		W78	
06-04-96	8.69	07-15-95	14.75	07-13-95	5.84	07-17-95	24.12	07-13-95	13.15
07-15-96	9.64	10-18-95	16.02	10-18-95	6.82				
09-11-96	10.90	04-09-96	14.59	04-09-96	7.10				
11-05-96	11.01	06-05-96	13.97	06-05-96	6.88				
		09-11-96	14.81	09-01-96	6.95				
		11-05-96	15.73	09-11-96	6.95				
		01-22-97	16.80	11-05-96	6.99				
		03-26-97	15.14	01-22-97	7.22				
				03-26-97	7.37				

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W79		W80		W82		W83		W84	
07-12-95	12.45	07-12-95	4.18	07-12-95	7.76	07-12-95	5.00	07-13-95	19.20
10-19-95	11.12			10-19-95	7.72			10-20-95	21.52
04-09-96	4.10			04-09-96	8.84			04-09-96	15.53
06-05-96	3.71			06-05-96	8.39			06-04-96	16.62
07-14-96	3.65			07-14-96	8.68			11-05-96	19.49
09-11-96	7.79			09-11-96	7.51			03-26-97	15.95
11-05-96	3.83			11-05-96	8.83				
01-22-97	3.64			01-22-97	7.77				
03-26-97	6.74			03-26-97	7.27				

Table 2. Water-level data for selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W85		W86		W87		W88		W90	
07-13-95	15.35	07-13-95	5.03	07-12-95	3.63	07-13-95	9.37	07-13-95	9.62
10-19-95	16.27	10-19-95	5.00	10-19-95	4.85	10-19-95	10.14	10-19-95	11.96
04-09-96	14.82	04-09-96	5.09	04-09-96	20.29	04-09-96	12.21	04-09-96	11.35
06-04-96	15.73	06-04-96	4.73	06-05-96	2.30	11-05-96	10.08	06-03-96	23.08
07-14-96	18.28	07-14-96	7.76	09-11-96	2.42	01-22-97	12.23	07-14-96	14.00
09-10-96	9.25	09-10-96	4.58	11-05-96	2.33	03-26-97	12.28	01-22-97	12.68
11-05-96	18.29	11-05-96	4.55	01-22-97	3.82			03-26-97	17.01
		01-22-97	4.91	03-26-97	19.31				
		03-26-97	4.96						

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W91		W92		W93		W95		W96	
07-15-95	14.17	07-13-95	7.80	07-15-95	22.53	07-12-95	10.83	07-15-95	22.14
10-19-95	13.48	10-19-95	7.28	10-19-95	21.86	07-15-95	10.83		
04-10-96	15.79	04-09-96	7.23	04-10-96	24.68	10-19-95	11.76		
06-03-96	15.78	06-03-96	9.93			04-10-96	18.15		
07-13-96	14.44	06-04-96	7.02			06-03-96	14.01		
09-10-96	12.44	07-13-96	6.86			09-10-96	8.61		
01-22-97	16.39	09-10-96	6.66			11-05-96	12.57		
03-26-97	16.05	11-05-96	6.61			03-26-97	18.98		
		01-22-97	4.85						

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W97		W98		W99		W100		W101	
07-13-95	16.80	07-15-95	20.70	07-15-95	16.70	07-16-95	16.88	07-18-95	13.14
10-19-95	17.16	10-18-95	20.08					10-18-95	13.38
04-09-96	16.71	04-08-96	21.83					04-10-96	11.37
06-04-96	16.64	06-03-96	21.72					06-04-96	11.63
07-13-96	17.20	07-13-96	20.96					07-11-96	12.21
09-10-96	16.97	09-10-96	19.16					11-05-96	13.97
11-05-96	17.31	11-05-96	20.52					03-26-97	12.81
01-22-97	18.28	01-22-97	22.34						
03-26-97	16.69								

Table 2. Water-level data for selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W102		W103		W104		W105		W106	
07-19-95	21.85	07-19-95	17.42	07-19-95	21.53	07-11-96	25.84	04-09-95	14.93
10-18-95	18.19	04-09-96	14.53	10-18-95	22.39			07-19-95	18.18
		06-04-96	16.74	04-09-96	18.97			10-18-95	19.28
				06-04-96	21.15			06-04-96	17.83
								11-04-96	18.33

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W107		W108		W109		W110		W111	
07-19-95	16.44	07-18-95	14.61	07-18-95	7.45	07-19-95	21.75	07-17-95	22.59
10-18-95	16.86	10-18-95	14.80	10-17-95	7.45	10-19-95	23.04		
04-09-96	14.70	04-09-96	13.29	04-09-96	7.41	04-09-96	11.93		
		06-04-96	13.97	06-04-96	7.03	06-04-96	21.00		
		07-11-96	13.27	07-11-96	6.54	07-11-96	21.35		
		09-10-96	13.60	09-10-96	6.69	11-04-96	21.88		
		11-05-96	14.16	11-05-96	5.91	01-23-97	22.29		
		03-27-97	13.62	01-23-97	8.04				

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W112		W113		W114		W115		W116	
07-18-95	19.88	07-16-95	22.12	07-16-95	26.14	07-17-95	9.67	07-16-95	2.71
10-17-95	20.17	10-17-95	22.87	10-17-95	26.26	10-17-95	9.86	10-17-95	2.83
04-09-96	18.93	04-09-96	20.67	04-09-96	23.24	04-09-96	8.85	06-04-96	1.28
06-04-96	18.43	11-05-96	21.91	06-04-96	22.61	06-04-96	8.02	09-09-96	5.26
07-11-96	18.81	01-23-97	22.23	07-10-96	23.31	07-11-96	8.56	11-05-96	.98
09-10-96	19.72	03-27-97	20.27	09-10-96	25.86	09-10-96	9.44		
11-05-96	18.97			11-05-96	25.08	11-05-96	9.56		
01-23-97	20.57			01-23-97	25.43	01-23-97	9.40		
03-27-97	17.57								

Table 2. Water-level data for selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W117		W121		W122		W123		W124	
07-17-95	20.52	07-13-95	23.52	07-14-95	29.74	07-15-95	24.63	07-15-95	29.63
10-17-95	20.87	07-15-95	21.27	10-17-95	30.31	10-17-95	28.07		
04-09-96	19.05	10-17-95	21.66			04-09-96	25.46		
06-04-96	17.99	04-09-96	20.30			06-04-96	25.52		
09-09-96	24.13	06-04-96	20.97			07-09-96	25.85		
11-05-96	16.32	09-09-96	21.57			09-09-96	27.79		
01-23-97	21.05	11-05-96	21.72			11-05-96	27.88		
03-26-97	18.74	01-23-97	21.39						
		03-26-97	21.25						

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W125		W126		W127		W128	
07-15-95	13.86	07-13-95	21.76	07-13-95	11.15	07-12-95	22.08
10-17-95	13.27	10-17-95	22.12	10-17-95	11.15	10-17-95	21.99
04-09-96	15.32	04-09-96	21.71			04-09-96	22.69
06-04-96	15.04	06-04-96	8.18			06-04-96	23.26
07-10-96	11.66	07-10-96	20.96			09-09-96	22.05
09-09-96	10.91	09-09-96	21.06			11-05-96	21.44
11-05-96	14.88	11-05-96	12.50				
01-23-97	17.03	01-23-97	21.73				
03-26-97	16.12	03-26-97	20.88				

Date of water-level measurement	Static-water level, in ft	Date of water-level measurement	Static-water level, in ft
W129		W130	
10-17-95	24.14	07-12-95	10.24
04-09-96	20.31	10-17-95	10.09
06-04-96	22.88	04-09-96	12.42
		06-04-96	10.85
		07-10-96	7.13
		09-09-96	8.69
		11-04-96	8.97
		01-23-97	10.74
		03-26-97	10.65

Table 3. Water-quality data for ground water from selected wells in the Milk River Valley, north-central to northeastern Montana

[Well number described in text. Constituents are reported as dissolved and values are rounded according to U.S. Geological Survey procedures. Analyses by the Montana Bureau of Mines and Geology, Analytical Division, Butte, Mont., except for field determinations by U.S. Geological Survey. Bicarbonate, carbonate, and alkalinity were determined by incremental titration methods. Abbreviations: µS/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter. Symbols: <, less than minimum reporting level; --, no data]

Well number	Location number	Sample date	Specific conductance, field (µS/cm)	pH, field (standard units)	Temperature, water, field (°C)	Hardness, total (mg/L as $CaCO_3$)	Calcium (mg/L as Ca)	Magnesium (mg/L as Mg)	Sodium (mg/L as Na)	Sodium adsorption ratio	Potassium (mg/L as K)	Bicarbonate, field (mg/L as CO_3)	Carbonate, field (mg/L as CO_3)	Alkalinity, field (mg/L as $CaCO_3$)	Sulfate (mg/L as SO_4)
W10	33N20E29BCBB01	07-16-96	877	7.4	9.0	270	62	27	53	1	3.1	370	0	310	74
W11	33N21E32BBCD01	07-15-96	3,570	8.5	10.0	22	6.7	13	820	76	1.8	780	30	690	600
W11[1]	33N21E32BBCD01	07-15-96	3,570	8.5	9.9	23	6.9	13	670	61	2.3	--	--	--	560
W14	32N16E04DBAD01	07-16-96	1,650	7.5	10.0	420	97	42	280	6	7.8	520	0	430	440
W14[2]	32N16E04DBAD01	07-16-96	11.8	--	--	--	<.1	<1	<.2	--	<.1	77	0	63	<2.5
W34	32N22E10BADA01	07-15-96	1,930	7.2	9.0	530	72	85	260	5	2.8	720	0	590	400
W40	32N22E23BBAA01	07-15-96	2,690	8.7	10.0	40	10	35	630	44	2.4	700	13	600	730
W43	32N23E21DADA01	07-15-96	4,200	7.5	9.0	440	88	52	840	18	5.6	910	0	750	1,300
W47	32N33E02DCAB01	07-12-96	1,400	7.4	9.0	520	100	65	100	2	3.2	390	0	320	470
W47[1]	32N33E02DCAB01	07-12-96	1,400	7.4	9.1	560	110	67	120	2	3.7	--	--	--	450
W51	32N33E32ACCD01	07-13-96	1,030	7.5	10.0	310	75	30	110	3	8.0	350	0	290	240
W52	32N34E07ACCC01	07-12-96	2,050	7.4	10.0	670	120	87	250	4	4.4	530	0	430	680
W56	32N35E29BAAA01	07-12-96	856	8.0	10.0	110	21	14	160	6	2.4	340	0	280	140
W58	31N24E01BDAC01	07-15-96	2,680	8.5	9.0	30	7.0	3.0	640	51	2.3	920	30	800	190
W66	31N30E21DBDD01	07-13-96	2,900	7.4	10.0	670	130	82	440	7	5.2	460	0	380	1,200
W67	31N32E15DACC01	07-13-96	2,100	7.7	10.0	300	64	33	340	9	6.4	670	0	550	460
W72	31N35E27BBCD01	07-12-96	1,210	7.5	8.0	380	91	36	140	3	5.5	340	0	280	330
W73	31N36E19CBAB01	07-12-96	2,100	7.4	10.0	390	89	40	320	7	6.5	560	0	460	600
W74	30N26E03CCBB01	07-15-96	2,290	8.1	9.0	170	35	21	450	15	3.7	550	0	450	620
W75	30N27E06ACCC01	07-01-96	1,440	7.5	9.5	410	72	56	193	4	4.5	480	0	400	400
W79	30N28E13DDCC01	07-14-96	3,020	7.8	10.0	330	82	30	610	15	7.2	840	0	680	910
W82	30N28E21AABC01	07-14-96	1,730	7.8	8.0	180	45	17	360	12	4.5	840	0	680	280
W85	30N29E09DDBB01	07-15-96	2,230	7.5	9.0	710	150	79	270	4	5.3	410	0	340	790

Table 3. Water-quality data for ground water from selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Site number	Location number	Chloride (mg/L as Cl)	Fluoride (mg/L as F)	Bromide (mg/L as Br)	Silica (mg/L as SiO_2)	Dissolved solids, calculated (mg/L)	Nitrite (mg/L as NO_2)	Aluminum (µg/L as Al)	Antimony (µg/L as Sb)	Arsenic (µg/L as As)	Barium (µg/L as Ba)	Beryllium. (µg/L as Be)	Boron (µg/L as B)	Cadmium (µg/L as Cd)	Chromium (µg/L as Cr)
W10	33N20E29BCBB01	10	<1	<100	16	432	<0.05	<30	<2	5	83	<2	150	<2	<2
W11	33N21E32BBCD01	320	<1	<250	6.9	2,170	<.05	<30	<2	11	38	<2	1,500	<2	3.1
W11[1]	33N21E32BBCD01	150	<1	<250	7.5	--	<.05	<30	<2	12	38	<2	1,800	<2	4.3
W14	32N16E04DBAD01	110	<1	1,600	14	1,250	<.05	<30	<2	4	23	<2	550	<2	17
W14[2]	32N16E04DBAD01	<.5	<1	<250	--	--	<.05	<30	<2	<1	<2	<2	<30	<2	<2
W34	32N22E10BADA01	30	<1	<100	13	1,220	<.05	<30	2.1	3	50	<2	380	<2	20
W40	32N22E23BBAA01	33	<1	<250	11	1,790	<.05	<30	<2	6	11	<2	2,700	<2	<2
W43	32N23E21DADA01	120	<1	<250	19	2,920	<.05	<30	<2	17	12	<2	2,300	<2	34
W47	32N33E02DCAB01	24	<1	310	14	974	<.05	<30	<2	<1	--	<2	190	<2	5.6
W47[1]	32N33E02DCAB01	24	<1	310	14	--	<.05	<30	<2	1	17	<2	220	<2	8.2
W51	32N33E32ACCD01	18	<1	<100	12	670	<.05	<30	<2	<1	18	<2	--	<2	<2
W52	32N34E07ACCC01	40	<1	450	16	1,460	<.05	<30	<2	4	13	<2	540	<2	4.6
W56	32N35E29BAAA01	16	<1	<100	18	538	<.05	<30	<2	3	49	<2	290	<2	9.8
W58	31N24E01BDAC01	320	<1	<250	8.5	1,650	<.05	<30	<2	9	8.8	<2	1,600	<2	31
W66	31N30E21DBDD01	25	<1	<100	12	2,070	<.05	<30	<2	<1	8.9	<2	540	<2	5
W67	31N32E15DACC01	26	<1	280	18	1,280	<.05	<30	<2	14	13	<2	730	<2	12
W72	31N35E27BBCD01	32	<1	<100	11	811	<.05	<30	<2	<1	24	<2	190	<2	3.8
W73	31N36E19CBAB01	<.5	<1	550	20	--	<.05	<30	<2	7	16	<2	480	<2	16
W74	30N26E03CCBB01	16	<1	300	15	1,440	<.05	<30	<2	5	12	<2	830	<2	<2
W75	30N27E06ACCC01	19	<1	<100	15	999	<.05	<30	<2	<1	26	<2	250	<2	13
W79	30N28E13DDCC01	41	<1	480	21	2,120	<.05	<30	<2	12	9	<2	900	<2	13
W82	30N28E21AABC01	7.1	<1	<100	18	1,140	<.05	<30	<2	7	21	<2	610	<2	<2
W85	30N29E09DDBB01	27	<1	<250	17	1,540	<.05	120	<2	1	20	<2	480	<2	<2

Table 3. Water-quality data for ground water from selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Site number	Location number	Cobalt (µg/L as Co)	Copper (µg/L as Cu)	Iron (µg/L as Fe)	Lead (µg/L as Pb)	Lithium (µg/L as Li)	Manganese (µg/L as Mn)	Molybdenum (µg/L as Mo)	Nickel (µg/L as Ni)	Selenium (µg/L as Se)	Silver (µg/L as Ag)	Strontium (µg/L as Sr)	Vanadium (µg/L as V)	Zinc (µg/L as Zn)
W10	33N20E29BCBB01	<2	<2	520	<2	51	1,100	<10	9.9	2	<1	380	<5	<2
W11	33N21E32BBCD01	<2	14	56	<2	150	9.0	<10	<2	44	<1	270	<5	<2
W11[1]	33N21E32BBCD01	<2	14	26	<2	150	9.0	<10	<2	44	<1	300	<5	<2
W14	32N16E04DBAD01	<2	4.4	130	<2	38	480	<10	10	15	<1	1,000	<5	<2
W14[2]	32N16E04DBAD01	<2	<2	<20	<2	<6	<2	<10	<2	<1	<1	<6	<5	<2
W34	32N22E10BADA01	<2	6.9	57	<2	130	660	<10	16	4	<1	1,300	7	2.6
W40	32N22E23BBAA01	<2	10	1,200	<2	110	60	<10	<2	4	<1	210	<5	<2
W43	32N23E21DADA01	<2	15	5,800	<2	180	590	<10	11	15	<1	1,200	9	3.6
W47	32N33E02DCAB01	<2	2.3	32	<2	65	4	<10	12	5	<1	660	<5	12
W47[1]	32N33E02DCAB01	<2	<2	41	<2	35	<2	<10	12	5	<1	670	<5	11
W51	32N33E32ACCD01	<2	3.0	75	<2	63	250	<10	8.7	<1	<1	720	<5	<2
W52	32N34E07ACCC01	<2	4.2	2,100	<2	99	810	<10	11	4	<1	930	<5	4.6
W56	32N35E29BAAA01	<2	2.4	17	<2	40	<2	<10	<2	16	<1	290	<5	<2
W58	31N24E01BDAC01	<2	11	590	<2	150	15	<10	<2	31	<1	260	9	<2
W66	31N30E21DBDD01	<2	7.5	83	<2	230	76	<10	13	2	<1	1,200	<5	5.0
W67	31N32E15DACC01	<2	5.5	920	<2	70	510	15	7.7	8	<1	700	<5	<2
W72	31N35E27BBCD01	<2	3.2	25	<2	56	<2	<10	10	2	<1	810	<5	3.2
W73	31N36E19CBAB01	<2	5.3	1,600	<2	140	1,500	<10	12	5	<1	730	<5	<2
W74	30N26E03CCBB01	<2	7.4	1,300	<2	140	610	<10	3.4	2	<1	490	<5	<2
W75	30N27E06ACCC01	<2	4.1	<3	<2	62	1,700	<10	9.8	3	<1	770	<5	6.7
W79	30N28E13DDCC01	<2	9.8	6,600	<2	110	180	<10	6.8	5	<1	900	<5	7.0
W82	30N28E21ABAA01	<2	5.4	2,100	<2	72	820	<10	4.7	<1	<1	330	<5	<2
W85	30N29E09DDBB01	<2	4.7	12	<2	180	1,100	<10	16	3	<1	1,300	<5	13

Table 3. Water-quality data for ground water from selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Well number	Location number	Sample date	Specific conductance, field (µS/cm)	pH, field (standard units)	Temperature, water, field (°C)	Hardness, total (mg/L as $CaCO_3$)	Calcium (mg/L as Ca)	Magnesium (mg/L as Mg)	Sodium (mg/L as Na)	Sodium adsorption ratio	Potassium (mg/L as K)	Bicarbonate, field (mg/L as CO_3)	Carbonate, field (mg/L as CO_3)	Alkalinity, field (mg/L as $CaCO_3$)	Sulfate (mg/L as SO_4)
W86	30N29E13CABA01	07-14-96	2,200	7.6	9.5	290	77	24	420	11	7.4	680	0	550	640
W87	30N29E18DABC01	07-14-96	3,500	7.6	10.5	410	100	39	700	15	10	900	0	740	1,100
W90	30N29E29DADA01	07-14-96	2,680	7.4	11.0	670	120	91	420	7	5.6	520	0	430	1,000
W90[1]	30N29E29DADA01	07-14-96	2,680	7.3	11.1	690	120	93	430	7	5.6	--	--	--	1,100
W91	30N30E02BCCB01	07-13-96	1,590	7.3	9.0	730	150	86	81	1	10	470	0	380	440
W92	30N30E04ADCD01	07-13-96	2,290	7.6	10.0	260	70	21	480	13	6.7	690	0	570	690
W97	30N30E17BBCA01	07-13-96	1,980	7.4	10.0	540	130	51	260	5	7.6	490	0	400	660
W98	30N31E07DCDD01	07-13-96	1,900	7.4	9.0	730	160	80	160	3	6.6	520	0	430	580
W101	30N36E02BCBD01	07-11-96	2,550	7.2	10.0	960	200	110	820	12	10	840	0	690	1,800
W105	29N38E05ABAD01	07-11-96	2,680	7.4	10.0	640	150	66	410	7	8.6	690	0	560	890
W108	29N38E16CCAD01	07-11-96	5,120	7.6	9.0	460	120	40	1,040	21	8.2	930	0	760	1,800
W109	29N38E35ABDA 01	07-11-96	4,200	7.7	9.0	410	92	43	790	17	5.4	960	0	790	1,000
W110	29N39E29BDCA01	07-11-96	3,040	7.2	10.0	810	200	74	440	7	4.4	480	0	390	1,300
W112	28N39E04DDCB01	07-11-96	4,200	8.4	9.0	75	17	7.7	920	47	3.8	1,160	0	950	25
W112[1]	28N39E04DDCB01	07-11-96	4,200	8.4	8.9	72	16	7.5	850	44	3.9	1,160	0	950	5.7
W113	28N40E24DCBB01	07-10-96	3,410	7.1	10.0	350	84	34	620	14	5.3	690	0	570	1,100
W114	28N40E28BABB01	07-10-96	1,570	7.5	11.0	190	56	13	290	9	4.3	580	0	470	320
W115	28N40E30ABDB01	07-11-96	3,970	7.7	10.0	250	60	25	790	22	6.2	950	0	780	92
W117	28N41E29ACAB01	07-10-96	--	7.2	11.0	370	88	37	610	14	5.0	670	0	630	1,000
W122	27N41E01AACB01	07-09-96	3,500	7.2	10.0	660	170	60	580	10	6.2	710	0	580	1,200
W125	27N41E04ABBD 01	07-10-96	1,570	7.3	10.0	470	110	45	170	3	6.3	440	0	360	440
W130	27N42E26DDDD01	07-10-96	3,490	7.5	9.0	560	140	51	620	12	8.1	680	0	560	1,300

[1]Replicate sample.
[2]Field blank.

Table 3. Water-quality data for ground water from selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Site number	Location number	Chloride (mg/L as Cl)	Fluoride (mg/L as F)	Bromide (mg/L as Br)	Silica (mg/L as SiO2)	Dissolved solids, calculated (mg/L)	Nitrite (mg/L as NO2)	Aluminum (µg/L as Al)	Antimony (µg/L as Sb)	Arsenic (µg/L as As)	Barium (µg/L as Ba)	Beryllium (µg/L as Be)	Boron (µg/L as B)	Cadmium (µg/L as Cd)	Chromium (µg/L as Cr)
W86	30N29E13CABA01	11	<1	440	22	1,530	<.05	<30	<2	18	11	<2	510	<2	2.4
W87	30N29E18DABC01	53	<1	410	22	2,470	<.05	<30	<2	3	9	<2	870	<2	18
W90	30N29E29DADA01	18	<1	430	19	1,950	<.05	<30	<2	1	13	<2	450	<2	<2
W90[1]	30N29E29DADA01	21	<1	430	20	--	<.05	<30	<2	1	13	<2	440	<2	6.8
W91	30N30E02BCCB01	25	<1	<100	18	1,040	<.05	<30	<2	1	22	<2	150	<2	11
W92	30N30E04ADCD01	32	<1	430	20	1,660	<.05	<30	<2	15	9.8	<2	740	<2	12
W97	30N30E17BBCA01	26	<1	480	17	1,410	<.05	<30	<2	1	30	<2	330	<2	10
W98	30N31E07DCDD01	34	<1	<100	19	1,300	<.05	<30	<2	<1	12	<2	300	<2	9.5
W101	30N36E02BCBD01	160	<1	<250	21	3,550	<.05	<30	<2	13	11	<2	890	<2	14
W105	29N38E05ABAD01	44	<1	360	17	1,930	<.05	<30	<2	2	26	<2	760	<2	2.2
W108	29N38E16CCAD01	34	<1	570	19	3,520	<.05	<30	<2	13	13	<2	2,600	<2	2.8
W109	29N38E35ABDA01	180	<1	<250	17	2,620	<.05	<30	<2	17	42	<2	2,500	<2	22
W110	29N39E29BDCA01	21	<1	<100	14	2,240	<.05	<30	<2	<1	9.4	<2	520	<2	10
W112	28N39E04DDCB01	770	<1	250	9.3	2,330	<.05	<30	<2	26	940	<2	4,000	<2	2.4
W112[1]	28N39E04DDCB01	660	<1	<250	9.5	2,150	<.05	<30	<2	29	917	<2	4,000	<2	27
W113	28N40E24DCBB01	12	<1	<100	20	2,220	<.05	<30	<2	2	9.2	<2	960	<2	16
W114	28N40E28BABB01	23	<1	<100	23	1,020	<.05	65	<2	5	36	<2	450	<2	9.9
W115	28N40E30ABDB01	790	<1	<250	17	2,250	<.05	<30	<2	31	91	<2	3,200	<2	16
W117	28N41E29ACAB01	30	<1	<100	20	2,190	<.05	<30	<2	2	9	<2	1,200	<2	15
W122	27N41E01AACB01	120	<1	340	18	2,510	<.05	<30	<2	5	16	<2	700	<2	2.5
W125	27N41E04ABBD01	23	<1	<100	15	1,030	<.05	<30	<2	5	23	<2	230	<2	6.5
W130	27N42E26DDDD01	26	<1	410	22	2,520	<.05	<30	<2	6	12	<2	430	<2	13

Table 3. Water-quality data for ground water from selected wells in the Milk River Valley, north-central to northeastern Montana (Continued)

Site number	Location number	Cobalt (µg/L as Co)	Copper (µg/L as Cu)	Iron (µg/L as Fe)	Lead (µg/L as Pb)	Lithium (µg/L as Li)	Manganese (µg/L as Mn)	Molybdenum (µg/L as Mo)	Nickel (µg/L as Ni)	Selenium (µg/L as Se)	Silver (µg/L as Ag)	Strontium (µg/L as Sr)	Vanadium (µg/L as V)	Zinc (µg/L as Zn)
W86	30N29E13CABA01	<2	6.2	3,500	<2	110	130	<10	7.5	3	<1	800	<5	<2
W87	30N29E18DABC01	<2	11	2,500	<2	130	150	<10	8.6	6	<1	1,300	5	<2
W90	30N29E29DADA01	<2	6.7	160	<2	220	970	<10	13	1	<1	1,500	<5	2.4
W90[1]	30N29E29DADA01	<2	7.0	160	<2	230	1,000	<10	12	1	<1	1,600	<5	2.4
W91	30N30E02BCCB01	<2	<2	54	<2	65	640	<10	19	6	<1	1,100	<5	9.9
W92	30N30E04ADCD01	<2	7.3	3,400	<2	100	140	<10	8.1	4	<1	810	<5	<2
W97	30N30E17BBCA01	<2	3.5	390	<2	69	2,200	<10	15	1	<1	1,100	<5	14
W98	30N31E07DCDD01	<2	3.2	160	<2	95	1,600	<10	20	2	<1	980	<5	12
W101	30N36E02BCBD01	5	12	5,500	<2	240	3,900	<10	24	16	<1	1,900	<5	3.0
W105	29N38E05ABAD01	<2	8.5	49	<2	200	780	<10	14	19	<1	1,300	<5	8.6
W108	29N38E16CCAD01	<2	19	3,500	<2	220	1,500	<10	11	15	<1	1,300	<5	3.3
W109	29N38E35ABDA01	<2	14	2,400	<2	140	1,000	<10	11	19	<1	1,200	6	9.7
W110	29N39E29BDCA01	<2	9.8	6	<2	210	27	<10	22	10	<1	1,800	<5	11
W112	28N39E04DDCB01	<2	16	680	<2	140	130	<10	<2	66	<1	470	<5	2.7
W112[1]	28N39E04DDCB01	<2	15	850	<2	120	130	<10	2.2	68	<1	470	8.1	3.8
W113	28N40E24DCBB01	<2	11	2,300	<2	280	1,700	<10	12	2	<1	580	<5	28
W114	28N40E28BABB01	<2	5.3	320	<2	91	700	11	14	3	<1	490	<5	<8
W115	28N40E30ABDB01	<2	13	2,700	<2	100	190	11	6.9	68	<1	700	<5	<2
W117	28N41E29ACAB01	<2	19	330	<2	210	1,500	<10	11	4	<1	840	<5	6.7
W122	27N41E01AACB01	2.4	9.1	1,300	<2	210	3,400	<10	18	8	<1	1,600	<5	2.5
W125	27N41E04ABBD01	<2	3.2	660	<2	120	800	<10	12	3	<1	830	<5	8.4
W130	27N42E26DDDD01	<2	11	5,500	<2	190	1,700	<10	16	3	<1	1,900	<5	2.6

☆ U.S. GOVERNMENT PRINTING OFFICE: 2000 — 574-838 / 25003 Region No. 8