Hydrologic and Water-Quality Data for Surface Water, Ground Water, and Springs in North-Central Park County, Colorado, April 1997– November 1998

By Breton W. Bruce and Robert A. Kimbrough

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U.S. DEPARTMENT OF THE INTERIOR
BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY
Charles G. Groat, Director

For additional information write to:

District Chief
U.S. Geological Survey
Box 25046, Mail Stop 415
Denver Federal Center
Denver, CO 80225-0046

Copies of this report can be purchased from:

U.S. Geological Survey
Information Services
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CONVERSION FACTORS, VERTICAL DATUM, AND ABBREVIATIONS

Multiply	By	To obtain
	Length	
foot (ft)	0.3048	meter (m)
inch (in)	2.54	centimeter (cm)
	Volume	
acre-foot (acre-ft)	1,233	cubic meter (m^3)
acre-foot (acre-ft)	0.001233	cubic hectometer (hm^3)
	Flow	
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F = 1.8\ °C + 32$$

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

Elevation, as used in this report, refers to distance, in feet, above sea level.

Water levels, as used in this report, refers to distance, in feet, below or above (negative value) land surface.

Isotopic Ratios reported as "per mil" are calculated using the formula:

$$\text{per mil (‰)} = (R_{sample} - R_{reference}/R_{reference}) \times 1{,}000$$

where: R's are the ratios of $^{18}O/^{16}O$ or $^{2}H/^{1}H$; sample, environmental water sample; reference, reference water sample is the Vienna Standard Mean Ocean Water (VSMOW).

ADDITIONAL ABBREVIATIONS

ft.bls	feet below land surface
µm	micrometer

Hydrologic and Water-Quality Data for Surface Water, Ground Water, and Springs in North-Central Park County, Colorado, April 1997–November 1998

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Abstract

This report summarizes baseline hydrologic data collected by the U.S. Geological Survey in north-central Park County, Colorado, during 1997–98. Specifically, daily mean discharge for a location on Tarryall Creek is presented for May 1997 to September 1998. Monthly ground-water-level measurements, from July 1997 to November 1998, are given for a network of wells. The report also provides results of water-quality analyses for several surface- and ground-water sites and a few springs in north-central Park County. The methods used to obtain the hydrologic and water-quality data are presented.

INTRODUCTION

The City of Aurora, Colorado, has proposed a water-development project in north-central Park County, Colorado, called the South Park Conjunctive Use Project (SPCUP). The South Park Basin is an area in north-central Park County consisting of a high-elevation (more than 9,200 ft above sea level) sedimentary basin (fig. 1). South Park Basin is surrounded by granitic and metamorphic terrain that reaches elevations higher than 13,000 ft along the Continental Divide. The phrase "conjunctive use," as used in the title of the SPCUP, has been defined as the combined development of surface- and ground-water resources to provide a sustainable water supply.

The proposed SPCUP would make use of available surface water during wet periods of the year by diverting water from local streams (the headwater tributaries of Tarryall Creek) and using it to artificially recharge the sedimentary aquifers of the South Park Basin. The recharged water would be stored in these bedrock aquifers and used during future dry periods when it would be recovered through a network of pumping wells. Ground water would be pumped into Park Gulch where it would flow into Tarryall Creek and ultimately be delivered to Colorado's Front Range as streamflow in the South Platte River.

In 1997, the U.S. Geological Survey (USGS), in cooperation with the City of Aurora, Colorado, and the Upper South Platte Water Conservancy District, implemented an ongoing project to monitor surface- and ground-water resources in north-central Park County. Park County government joined this group of cooperators in 1998. As part of this project, the USGS is monitoring surface-water discharge at a location on Tarryall Creek, which is the major surface-water drainage in north-central Park County. The USGS also is monitoring water quality at the Tarryall Creek site with monthly collection of surface-water samples. Additional surface-water-quality samples were collected from several locations on Park Gulch and from the headwater tributaries of Tarryall Creek that are proposed to supply recharge water to the SPCUP. Ground-water investigations begun in 1997 in north-central Park County include monthly water-level measurements in a widely distributed network of wells. This network is composed of wells constructed in aquifers that could have hydrologic connection with the area of the proposed SPCUP ground-water development. In 1998, ground-water reconnaissance sampling was done to assess the ground-water-quality conditions in these aquifers.

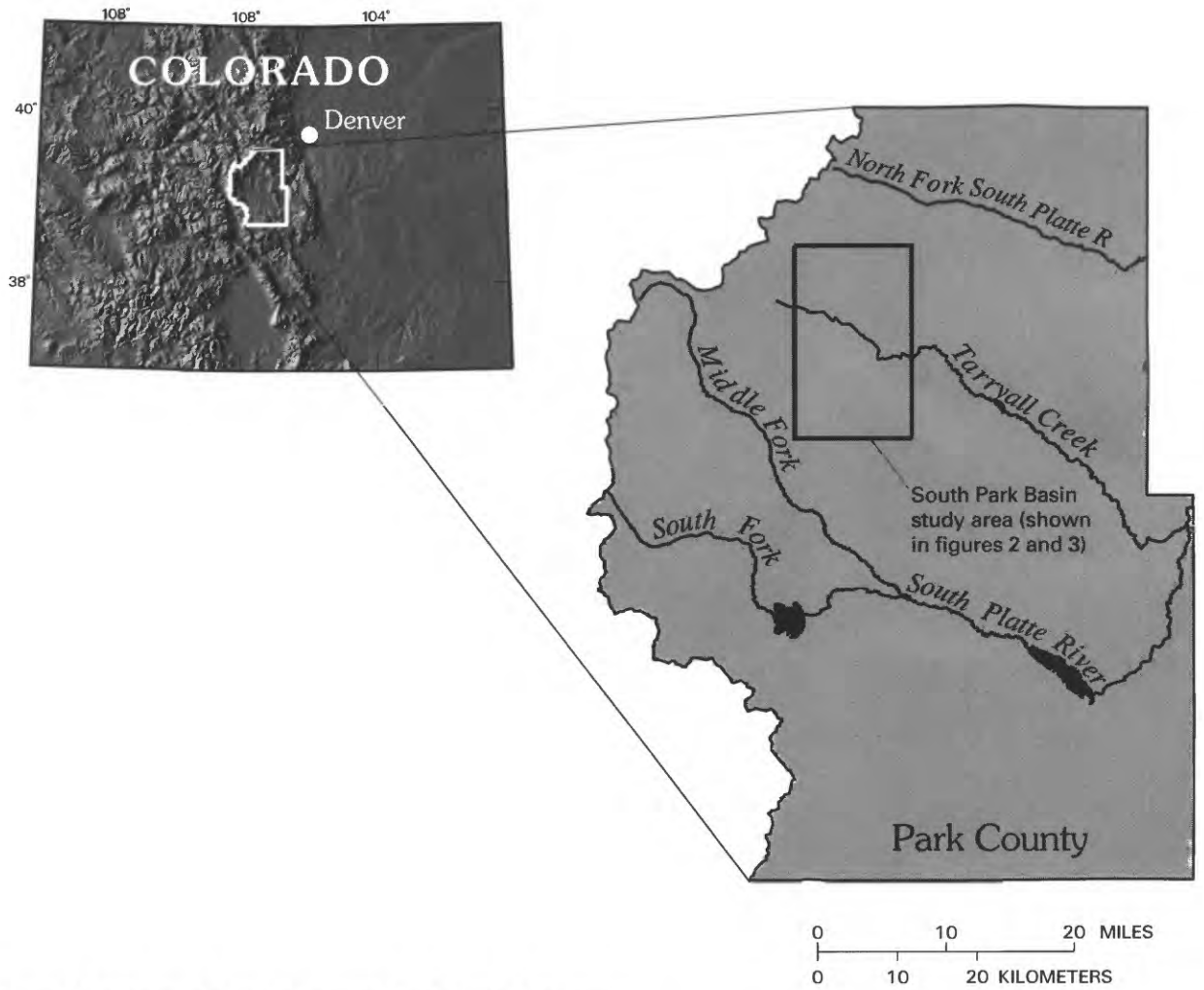

Figure 1. Location of the study area in Park County, Colorado.

Purpose and Scope

This report presents hydrologic data collected by the USGS during 1997–98 in north-central Park County. Surface-water data include daily mean discharge for Tarryall Creek below Park Gulch (May 1997–September 1998) and results of water-quality analyses for Tarryall Creek below Park Gulch (monthly, April 1997–September 1998), four sites on Park Gulch (September 1997), and three headwater tributaries proposed to supply recharge water for the SPCUP (May 1998). Surface-water sites are listed in table 1. Ground-water data include water levels for 35 wells at 29 locations completed in some of the primary aquifers in north-central Park County (monthly, July 1997–November 1998), results of water-quality analyses for ground-water samples collected from these same aquifers (17 wells sampled once between May and August 1998), and water-quality data from 4 springs (sampled once in May 1998). Wells and springs are listed in table 2.

Temperature, pH, specific conductance, and dissolved oxygen were measured onsite at each location where water samples were collected. Water samples were analyzed for alkalinity, major dissolved ions, trace elements, and nutrients (compounds of nitrogen and phosphorus). Additionally, selected samples were analyzed for suspended sediment, organic carbon, radon, and isotopes of oxygen and hydrogen. Isotopic data are reported as the ratio of the concentration of one isotope to the other, compared to a standard (see conversion table at the front of this report). The reporting units for isotopic ratios are in per mil (per thousand). Isotopic ratios can be used to distinguish one water from another or to help to determine the source of a water sample. Selected wells also

Table 1. Description of surface-water-quality sampling sites in north-central Park County, April 1997–September 1998

Site number (fig. 2)	U.S. Geological Survey site identification number	Site name
SW1	06697100	Tarryall Creek below Park Gulch near Como[1]
SW2	391922105535400	Park Gulch above Como
SW3	391847105530400	Park Gulch below Como
SW4	391755105515600	Park Gulch above King Mine near Como
SW5	391628105502100	Park Gulch above Slater Ditch near Como
SW6	391958105520200	Tarryall Creek at U.S. Highway 285 near Como[2]
SW7	06697450	Michigan Creek above Jefferson[2]
SW8	392453105501100	Jefferson Creek below Jefferson Lake near Jefferson

[1]This site also is a continuous-recording streamflow-gaging station operated by the U.S. Geological Survey.

[2]This site also is a continuous-recording streamflow-gaging station operated by the Colorado Division of Water Resources.

Table 2. Description of wells and springs in north-central Park County, Colorado, with monthly water-level measurements or water-quality samples, or both, 1997–98

[n/a, not applicable; SPF, sedimentary South Park aquifer of Tertiary age; GRNT, granite aquifer of Precambrian age; e, estimated from U.S. Geological Survey geophysical logs; --, no data; X, data were collected]

Site identifier (fig. 3)	Station number	Well depth (feet)	Well casing (C) or open hole (O)	Perforated interval (feet below land surface)	Apparent aquifer near well screen	Monthly water levels (1997–98)	Water-quality samples (1998)
GW1	392313105471901	57	C	25–57	SPF	X	--
GW2	392238105480301	100	C	60–80	SPF	X	--
GW3	392239105480501	9	O	n/a	SPF	X	--
GW4	391337105484301	75	C	35–75	SPF	X	X
GW5	392037105505101	35	C	unknown	SPF	X	--
GW6	392232105515001	50	C	30–50	SPF	X	--
GW7	392414105512601	55	O	n/a	SPF	X	--
GW8	392235105504301	120	C	80–120	SPF	X	--
GW9	392202105493501	150	C (0–124 feet) O (124–150 feet)	80–124	SPF	X	X
GW10	392308105492001	57	C	unknown	SPF	X	--
GW11	392148105490801	200	C	120–140 160–200	SPF	X	--
GW12	391645105472301	98	C	38–48 68–98	SPF	X	--
GW13	391511105500301	90	C	35–79	SPF	X	X
GW14a	391631105480404	2,000	C	920–960 1,000–1,080 1,160–1,180 1,280–1,300 1,390–1,430 1,450–1,500 1,570–1,590 1,650–1,690 1,770–1,790 1,810–1,850 1,950–1,970	SPF	X	X

Table 2. Description of wells and springs in north-central Park County, Colorado, with monthly water-level measurements or water-quality samples, or both, 1997–98—Continued

[n/a, not applicable; SPF, sedimentary South Park aquifer of Tertiary age; GRNT, granite aquifer of Precambrian age; e, estimated from U.S. Geological Survey geophysical logs; --, no data; X, data were collected]

Site identifier (fig. 3)	Station number	Well depth (feet)	Well casing (C) or open hole (O)	Perforated interval (feet below land surface)	Apparent aquifer near well screen	Monthly water levels (1997–98)	Water-quality samples (1998)
GW14b	391631105480401	300	C	[e]197–202 207–222 232–242 252–262 272–282	SPF	X	X
GW14c	391631105480402	500	C	385–395 405–415 425–435 445–455 465–475	SPF	X	X
GW14d	391631105480403	100	C	unknown	SPF	X	--
GW15a	391605105484508	98	C	20–98	SPF	X	--
GW15b	391605105484507	28	C	23–28	SPF	X	--
GW16	391625105501001	98	C	20–98	SPF	X	X
GW17a	391629105501017	43.5	C	33.5–43.5	SPF	X	--
GW17b	391629105501018	15	C	5–15	SPF	X	--
GW17c	391629105501001	400	C	60–100 160–180 200–240 280–340 380–390	SPF	X	--
GW18	391432105485501	100	C	50–95	SPF	X	--
GW19	392058105481101	50	C	17–39	SPF	X	--
GW20	392241105495601	477	C	197–217 237–357 437–457	SPF	X	--
GW21	391158105490601	88	O	n/a	SPF	X	--
GW22	391259105494901	82	C	34–69	SPF	X	--
GW23	391956105475101	90	C	50–72	SPF	X	--
GW24	391150105473701	350	C	290–350	GRNT	X	--
GW25	391314105465501	425	C	320–425	GRNT	X	X
GW26	391845105452301	302	C	240–302	GRNT	X	--
GW27	391830105500801	500	C	40–500	SPF	X	X
GW28	391631105461301	140	C	100–140	GRNT	X	X
GW29	391441105474501	620	C	484–604	GRNT	X	X
GW30	391716105494401	300	C	140–160 260–280	SPF	--	X
GW31	391602105473801	280	C	250–280	GRNT	--	X
GW32a	391452105483501	166.5	C	126.5–166.5	GRNT	--	X
GW32b	391452105483502	77	C	57–77	SPF	--	X
GW32c	391452105483503	68	C	38–68	GRNT	--	X
GW32d	391452105483504	450	C	380–450	SPF	--	X
SPG1	391449105482801	Spring	n/a	n/a	GRNT	--	X
SPG2	391216105484801	Spring	n/a	n/a	SPF	--	X
SPG3	391320105464000	Spring	n/a	n/a	GRNT	--	X
SPG4	391438105483600	Spring	n/a	n/a	SPF	--	X

were sampled for tritium, which can indicate the approximate age of the water by indicating when the water entered the saturated part of the aquifer and became isolated from the atmospheric source of tritium. For a detailed description of the primary analytical procedures used in these water analyses, the reader is referred to Faires (1993) and Fishman (1993).

Sampling Locations

As part of this study, a streamflow-gaging station was installed on Tarryall Creek just downstream from the confluence with Park Gulch (SW1) (fig. 2). Under the proposed SPCUP, discharge in Park Gulch and Tarryall Creek would be augmented with ground water pumped into Park Gulch. The gage provides a record of baseline surface-water discharge in Tarryall Creek prior to the possible implementation of any future water-development projects.

Ground-water levels were monitored monthly in a network of wells distributed over north-central Park County (fig. 3). This water-level network was not designed to generate a potentiometric map, and the measured wells—some with multiple perforated casing intervals—are completed in several different aquifers. Consequently, the elevation of the measuring point for the reported water levels was never determined. Generally, wells were chosen for this network only if a record of well construction was available and the wells had minimal or no regular use. Wells of this type provide a more accurate static water level. Certain domestic wells in the granitic aquifer on the east side of the study area had sporadic use during the measurement period; however, this use could not be documented. Substantial differences in water levels in these wells, from one month to the next, might be related to recent pumping. Additionally, some wells had such shallow water levels that ice developed near the land surface, and water levels could not be measured at those times. A few wells eventually had to be dropped from the network due to plumbing modifications at the surface or a change in frequency of use.

Water samples collected during this study were from locations chosen to provide an areally distributed assessment of water-quality conditions for resources in north-central Park County. Surface-water samples were collected from locations on the headwater tributaries of Tarryall Creek (fig. 2) near the proposed diversion points of artificial-recharge water (SW6, SW7, SW8) and from the streams that would be receiving ground water pumped from the production wells under the proposed SPCUP (SW1 through SW5). Well and spring samples were collected from sedimentary aquifers in the South Park Basin and from the nearby granitic aquifer east of the basin (table 2, fig. 3). With the exception of SPG2, springs indicated as discharging from the sedimentary aquifers of the South Park Basin (SPG1, SPG4) were immediately adjacent to the outcrop of the granitic aquifer to the east, and the subsurface source of the water from these springs has not been determined. Table 2 lists the apparent aquifers sampled by each well and spring and, in the case of sampled wells, the completion depth and perforated intervals of the well below land surface.

METHODS OF DATA COLLECTION

Several collection techniques were used to acquire hydrologic and water-quality data in north-central Park County. Methods used to obtain a continuous record of surface-water discharge and samples of surface water and ground water for chemical analysis are described in this section.

Surface-Water Discharge

The data obtained at the Tarryall Creek streamflow-gaging station (SW1) consist of a continuous record of stream stage, individual measurements of stream discharge throughout a range of stages, and notations regarding factors that may affect the relation of stage to discharge. Using standard USGS methods (Rantz and others, 1982), these data, together with supplemental information such as weather records, are used to compute records of daily mean discharge.

Stream stage at the gaging station is recorded by an electronic data logger every 15 minutes. Additionally, the record of stream stage is transmitted every 4 hours by satellite to the USGS office in Denver, Colorado. The satellite transmissions enable a preliminary record of real-time streamflow to be computed. Stream stage is correlated with monthly measurements of stream discharge to provide a continuous record of the amount of water passing the gage.

The formation of ice in the stream channel prohibits the collection of accurate stage data during

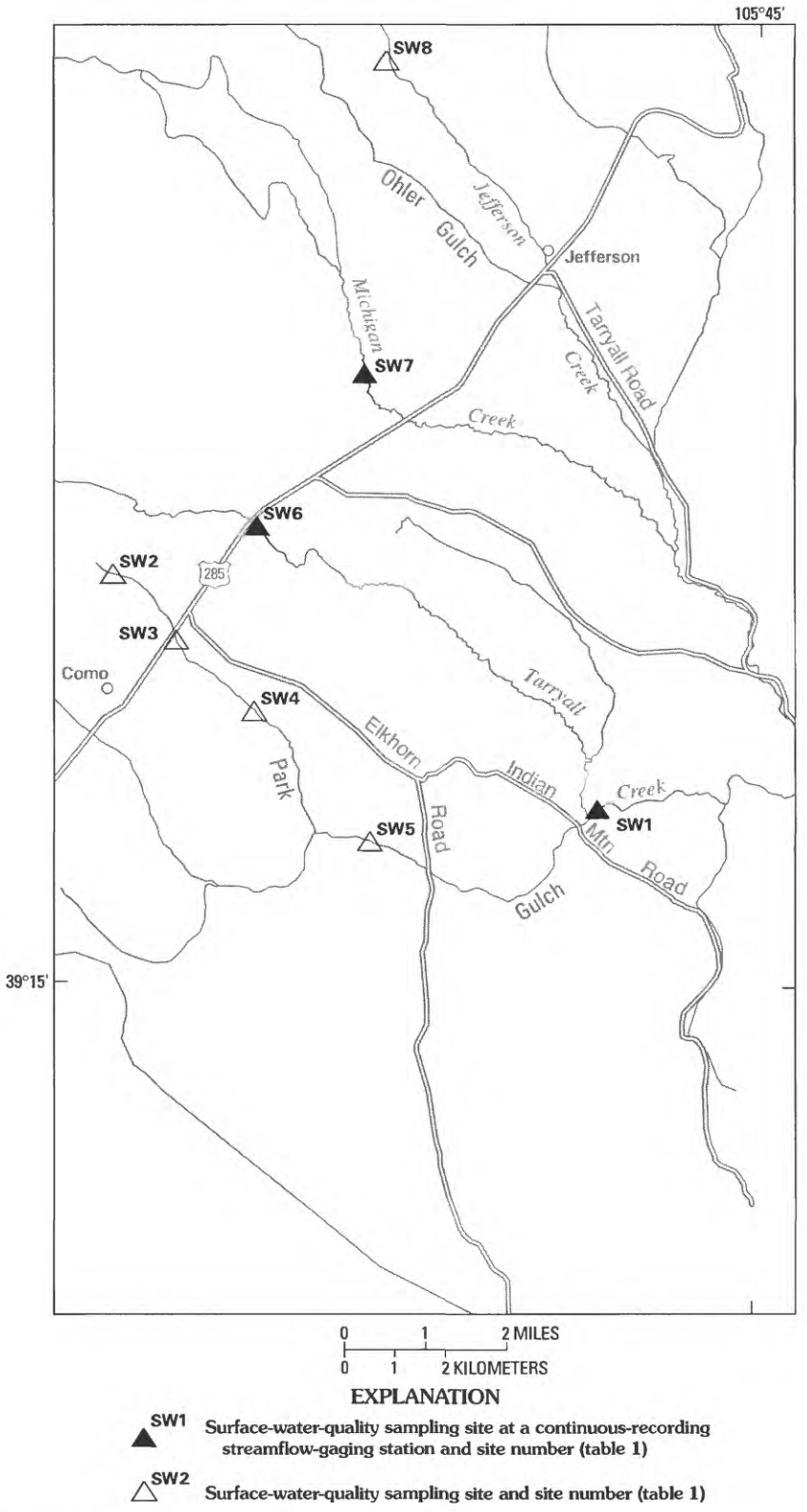

Figure 2. Location of streamflow-gaging station and collection sites of surface-water-quality samples.

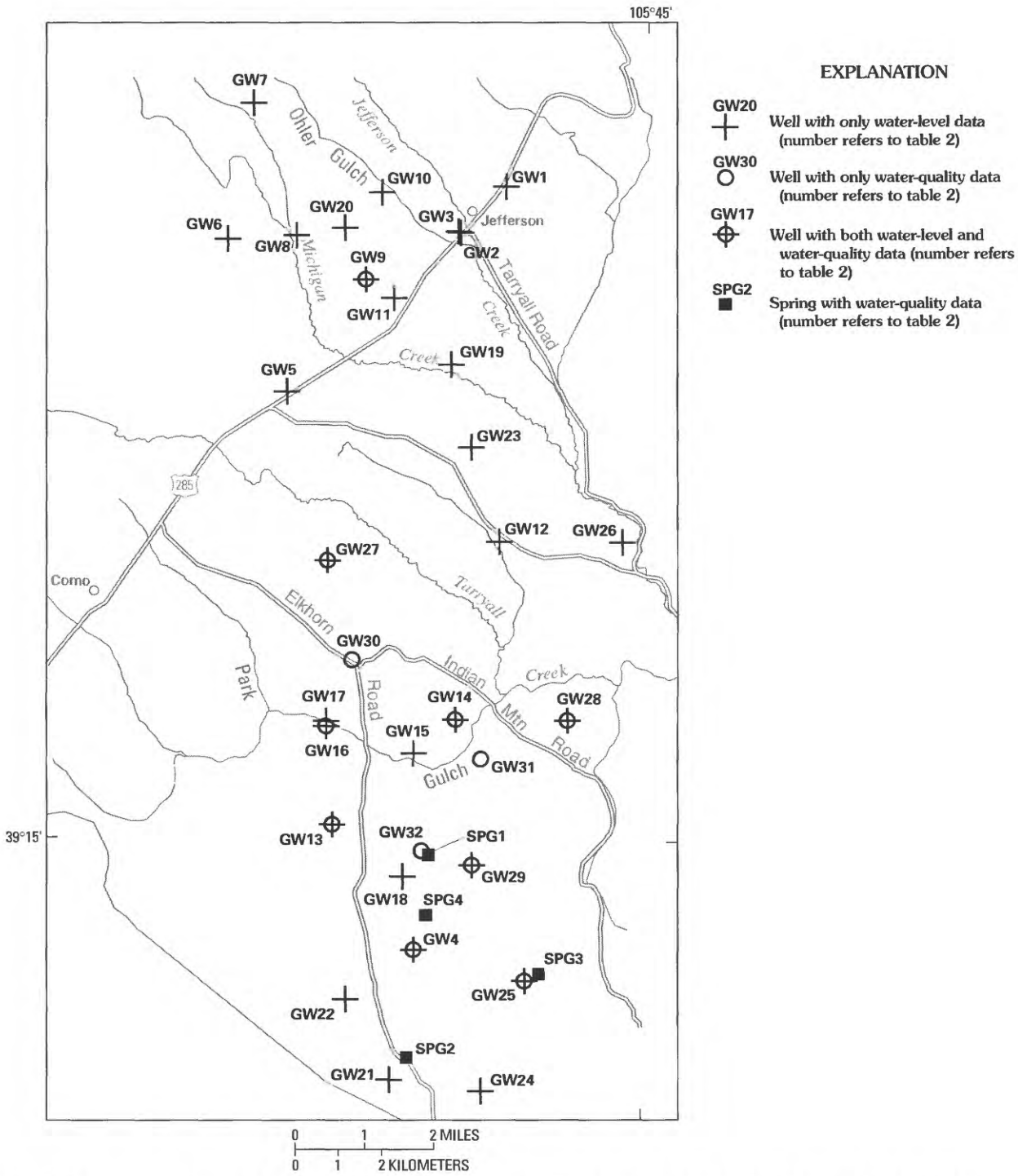

Figure 3. Location of wells in ground-water-level monitoring network and wells and springs sampled for ground-water quality.

winter months at the Tarryall Creek gage (SW1). During periods of ice cover, daily mean discharge was estimated using monthly manual discharge measurements and weather records for sites in Park County. Estimated daily discharges for periods of ice effect or instrument malfunctions are indicated with an "e" in table 3 in the "Hydrologic and Water-Quality Data" section at the back of this report

Ground-Water Levels

Ground-water levels were measured on a monthly basis in 35 wells at 29 different locations in the study area. The locations where water levels were measured monthly are indicated by a plus-sign or a plus-sign/circle in figure 3. Multiple wells measured at a given location each have perforated casing at different depths providing information about vertical hydraulic gradients. Some wells (for example, GW14a) have multiple perforated intervals in the same casing string, and water levels should be interpreted with this consideration. Water levels were measured with either a steel tape or vinyl-coated electric tape. Depth to water at each well was measured from the same point on the well casing every month, and the difference in elevation between the measuring point and the land surface was subtracted, to obtain depth in feet below land surface (ft.bls). Water levels are reported to the nearest 0.01 ft. Monthly depth-to-water values for each measured well are listed in table 4 in the the "Hydrologic and Water-Quality Data" section at the back of this report.

Water-Quality-Sample Collection

Water-quality samples were collected in a manner to minimize the potential for sample contamination. Most surface-water samples were collected and processed using equipment made from Teflon or high-density polyethylene. Prior to use, all sampling equipment was cleaned with a nonphosphate laboratory detergent and rinsed first with tap water followed by a 5-percent solution of hydrochloric acid and then by deionized water. The equipment was rinsed with copious amounts of native water at the sampling sites before sample collection.

Under ice-free conditions, depth- and width-integrated surface-water samples were collected from streams in the study area using the equal-width-increment method (Edwards and Glysson, 1988). During periods of ice cover, stream water was accessed by chopping a hole in the ice, and samples were collected by either dipping a bottle into the flow or pumping water directly into a compositing container. Concurrent with sample collection, onsite measurements were obtained for water temperature, pH, specific conductance, dissolved oxygen, alkalinity, and discharge.

Ground-water samples collected from existing wells were acquired using either a portable submersible pump or an existing permanent pump according to methods described by Koterba and others (1995). The portable pump was cleaned before each use by circulating a nonphosphate detergent/water solution through the pump and discharge lines for at least 5 minutes followed by a tap-water rinse and deionized-water rinse. Wells were initially purged at the highest flow rate possible until a minimum of three casing volumes was removed. The exceptions were domestic wells that had existing permanent pumps and that were completed in the granitic aquifer. These domestic wells were in daily use by homeowners at the site and had already been pumped on the day of sampling. However, a substantial amount of water was pumped for purging purposes from these domestic wells before sampling commenced. After this initial purging of the wells, flow rates were reduced, and dissolved oxygen, pH, specific conductance, and temperature were monitored inside a sealed flowthrough chamber (Koterba and others, 1995). These field parameters were recorded every 5 minutes until stable readings were achieved. Water then was diverted to a sampling chamber where filtered and unfiltered samples were collected in precleaned bottles.

Samples collected from springs during this study were acquired by installing a temporary well point into the source of the spring water. The well point was manufactured from either a 0.5-in. aluminum electrical conduit with a crimped tip and drilled perforations or a 1.5-in. steel pipe with a stainless-steel wire-wrapped screen attached to the end. The perforated end of each of these well points was about 4 in. in length. The well point was installed either directly into the area where spring water discharged to the land surface or into the ground just above the point of discharge. At two springs, a hand-held posthole auger was used to bore through unsaturated soil layers. Water was pumped from these temporary well points by using clean polyethylene tubing and a peristaltic pump.

Water-quality samples were prepared for analysis onsite using methods described by Horowitz and others (1994), Shelton (1994), and Koterba and others (1995). Aliquots of unfiltered water were collected for analysis of the total recoverable concentrations of the constituents listed in tables 5–9 in the "Hydrologic and Water-Quality Data" section at the back of the report. With the exception of dissolved organic carbon, sample water used to determine the dissolved fraction of constituents was filtered through a 0.45-µm cellulose nitrate filter. Water used for dissolved organic carbon analyses was filtered through a 0.45-µm silver filter. Samples for nutrient and organic carbon analyses were immediately chilled to 4°C, and samples for major-cation and trace-element analyses were acidified to a pH of less than 2.0 by use of ultrapure nitric acid. Samples susceptible to degassing or contamination with atmospheric gases (radon, isotopes of oxygen and hydrogen) were sampled in a closed system to avoid contact with ambient air (Koterba and others, 1995). Samples were submitted for analysis to USGS laboratories in Denver, Colorado; Reston, Virginia; Menlo Park, California; and Iowa City, Iowa. The results of the water-quality analyses for all environmental samples are listed in tables 5–8 at the back of this report.

Quality Control

About 20 percent of the total number of samples analyzed was for quality control. These samples included field equipment blanks and replicate environmental samples. Blank samples are designed to evaluate contamination potential from sampling equipment and sample processing; sequential replicate samples evaluate potential data variability relating to sampling and analytical techniques. The quality-control samples were analyzed for major ions, nutrients, trace elements, and dissolved organic carbon. The results of analyses for the equipment-blank samples are provided in table 9 at the back of this report. Small concentrations of major ions (calcium, magnesium, chloride, and carbonate alkalinity), nutrients (ammonia and orthophosphate), and trace elements (manganese, zinc, and aluminum) were detected in one or more blank samples. Major-ion concentrations detected in blank samples were very small compared to concentrations measured in environmental samples. Concentrations of nutrients and trace elements in environmental samples need to be evaluated compared to constituents and concentrations detected in the blank samples. Replicate quality-control samples and the analyses of the paired environmental samples also are listed in table 9. Good agreement between constituent concentrations in replicate pairs indicate that these data are of high quality.

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HYDROLOGIC AND WATER-QUALITY DATA

Table 3. Daily mean discharge, site SW1, Tarryall Creek below Park Gulch near Como, Colorado, May 1997–September 1998

[Discharge, in cubic feet per second; e, estimated; --, no data; Max, maximum; Min, minimum; Acre-ft, acre-feet]

Day	Water year 1997								Water year 1998								
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1	--	50	56	47	e25	11	e9.2	e6.6	e4.0	e3.5	e3.2	13	13	24	24	40	30
2	--	70	50	50	e30	11	e9.2	e6.4	e4.0	e3.5	e3.0	8.9	14	26	24	40	23
3	--	83	46	37	e50	11	e9.2	e6.2	e4.0	e3.5	e3.2	14	15	27	24	32	18
4	--	90	40	39	e33	10	e9.0	e6.2	e4.0	e3.5	e3.0	9.7	17	29	27	31	16
5	--	104	36	38	e27	9.9	e8.8	e6.0	e4.0	e3.5	e2.9	9.3	19	26	26	33	15
6	--	122	33	43	e25	9.8	e8.8	e5.8	e4.0	e3.5	e2.8	7.7	19	20	24	28	14
7	--	147	32	51	e23	9.6	e8.6	e5.8	e4.0	e3.5	e2.8	9.5	19	18	27	22	13
8	--	138	32	40	e22	10	e8.6	e5.8	e4.0	e3.5	e2.7	7.6	19	18	28	20	13
9	23	163	32	33	e21	9.6	e8.6	e5.6	e4.0	e3.5	e2.5	6.7	22	18	29	21	12
10	24	143	31	35	e20	9.4	e8.6	e5.6	e4.0	e3.5	e2.7	7.3	23	18	58	29	12
11	26	125	29	33	e24	9.9	e8.4	e5.4	e3.9	e3.3	e2.7	8.8	23	20	46	26	12
12	30	109	30	30	e21	10	e8.3	e5.4	e3.8	e3.3	e2.7	10	23	19	23	23	12
13	30	115	27	e29	e19	9.7	e8.2	e5.2	e3.7	e3.3	e2.7	8.7	22	16	17	23	14
14	34	118	25	e28	e19	11	e8.2	e5.2	e3.6	e3.3	e2.7	8.7	24	15	13	28	13
15	37	103	23	e26	e17	11	e8.2	e5.0	e3.5	e3.3	e2.8	6.5	23	19	9.1	25	12
16	42	99	e23	e25	e16	9.8	e8.0	e5.0	e3.4	e3.3	e3.0	7.3	22	26	6.9	23	22
17	44	99	e22	e24	e15	9.4	e8.0	e5.0	e3.3	e3.3	e3.2	8.0	19	24	6.1	26	17
18	46	97	e23	e30	e16	8.8	e8.0	e5.0	e3.3	e3.3	e3.5	7.6	19	22	8.8	21	13
19	51	98	e25	e28	e15	8.4	e8.0	e4.8	e3.3	e3.3	e3.9	6.6	21	22	10	20	12
20	51	102	e31	e25	e17	8.9	e7.7	e4.6	e3.3	e3.3	e4.5	6.8	24	22	11	23	11
21	52	102	e27	e23	e23	11	e7.5	e4.5	e3.3	e3.3	e6.2	6.7	29	23	12	21	11
22	62	130	e26	e21	e21	10	e7.3	e4.3	e3.1	e3.3	e8.0	7.4	27	27	28	18	10
23	55	108	e26	e19	e19	9.5	e7.3	e4.2	e3.1	e3.5	e10	10	24	24	43	16	10
24	45	100	e26	e18	e16	e9.5	e7.3	e4.2	e3.1	e3.7	e13	13	22	19	45	15	10
25	42	92	e26	e17	13	e9.5	e7.3	e4.0	e3.1	e3.7	e16	14	23	21	41	19	9.0
26	40	86	26	e24	13	e9.5	e7.2	e4.0	e3.0	e3.5	e18	14	21	21	42	19	8.7
27	35	81	29	e35	12	e9.5	e7.0	e4.0	e3.0	e3.1	16	12	14	20	34	16	8.9
28	33	67	40	e34	11	e9.5	e7.0	e4.0	e3.1	e3.3	14	12	11	20	34	15	9.0
29	33	65	41	e26	11	e9.5	e7.0	e4.0	e3.3	--	11	11	20	20	47	14	9.3
30	40	61	47	e24	11	e9.5	e6.8	e4.0	e3.3	--	10	12	23	20	34	13	11
31	43	--	41	e25	--	e9.5	--	e4.0	e3.4	--	12	--	23	--	35	13	--
Total	--	3,067	1,001	957	605	305	241	156	110	95.4	195	285	637	644	837	713	401
Mean	--	102	32	31	20	9.8	8.0	5.0	3.6	3.4	6.3	9.5	20	22	27	23	13
Max	--	163	56	51	50	11	9.2	6.6	4.0	3.7	18	14	29	29	58	40	30
Min	--	50	22	17	11	8.4	6.8	4.0	3.0	3.1	2.5	6.5	11	15	6.1	13	8.7
Acre-ft	--	6,080	1,990	1,900	1,200	604	479	309	218	189	386	565	1,260	1,280	1,660	1,410	795

Table 4. Ground-water levels for selected wells in north-central Park County, Colorado, July 1997–November 1998

[WL, water level in feet below or above (–) land surface; T., township; R., range; MP stickup, height of measuring point above (–) or below land surface; --, no data]

Site identifier	Township/range	Latitude	Longitude	Depth (feet)	MP stickup (feet)
GW1	T. 8 S., R. 75 W., sec. 4, southwest quarter of the northwest quarter	39°23'13"	105°47'19"	57	–1.4
GW2	T. 8 S., R. 75 W., sec. 5, southeast quarter of the southwest quarter	39°22'38"	105°48'03"	100	–0.4
GW3	T. 8 S., R. 75 W., sec. 5, southeast quarter of the southwest quarter	39°22'39"	105°48'05"	9	0
GW4	T. 9 S., R. 75 W., sec. 31, southeast quarter of the northeast quarter	39°13'37"	105°48'43"	75	–0.85
GW5	T. 8 S., R. 76 W., sec. 23, southeast quarter of the northeast quarter	39°20'37"	105°50'51"	35	1
GW6	T. 8 S., R. 76 W., sec. 11, northwest quarter of the northwest quarter	39°22'32"	105°51'50"	50	–1.65
GW7	T. 7 S., R 76 W., sec. 35, northeast quarter of the northwest quarter	39°24'14"	105°51'26"	55	0
GW8	T. 8 S., R 76 W., sec. 11, northeast quarter of the northeast quarter	39°22'35"	105°50'43"	120	–0 6
GW9	T. 8 S., R 75 W., sec. 7, northwest quarter of the southwest quarter	39°22'02"	105°49'35"	150	–0 7
GW10	T. 8 S., R.75 W., sec. 6, southeast quarter of the northwest quarter	39°23'08"	105°49'20"	57	–0.9
GW11	T. 8 S., R. 75 W., sec. 7, southeast quarter of the southwest quarter	39°21'48"	105°49'08"	200	–0 8
GW12	T. 8 S., R. 75 W., sec. 33, southwest quarter of the northwest quarter	39°16'45"	105°47'23"	98	–0 3
GW13	T. 9 S., R. 76 W., sec. 24, northwest quarter of the southeast quarter	39°15'11"	105°50'03"	90	–1.1
GW14a	T. 9 S., R. 75 W., sec. 8, southeast quarter of the southwest quarter	39°16'31"	105°48'04"	1,950	–1.0
GW14b	T. 9 S., R. 75 W., sec. 8, southeast quarter of the southwest quarter	39°16'31"	105°48'04"	300	–0 9
GW14c	T. 9 S., R. 75 W., sec. 8, southeast quarter of the southwest quarter	39°16'31"	105°48'04"	500	–1.5
GW14d	T. 9 S., R. 75 W., sec. 8, southeast quarter of the southwest quarter	39°16'31"	105°48'04"	100	–2.3
GW15a	T. 9 S., R. 75 W., sec. 18, southwest quarter of the northeast quarter	39°16'05"	105°48'45"	98	–1.5
GW15b	T. 9 S., R. 75 W., sec. 18, southwest quarter of the northeast quarter	39°16'05"	105°48'45"	28	–1.5
GW16	T. 9 S., R. 76 W., sec. 13, northeast quarter of the northwest quarter	39°16'25"	105°50'10"	98	–1.8
GW17a	T. 9 S., R. 75 W., sec. 18, northeast quarter of the northeast quarter	39°16'29"	105°50'10"	43.5	–1.4
GW17b	T. 9 S., R. 75 W., sec. 18, northeast quarter of the northeast quarter	39°16'29"	105°50'10"	15	–1.5
GW17c	T. 9 S., R. 75 W., sec. 18, northeast quarter of the northeast quarter	39°16'29"	105°50'10"	400	–1.2
GW18	T. 9 S., R. 75 W., sec. 30, northwest quarter of the northeast quarter	39°14'32"	105°48'55"	100	–1.8
GW19	T. 8 S., R. 75 W., sec. 17, southeast quarter of the southwest quarter	39°20'58"	105°48'11"	50	–1.2
GW20	T. 8 S., R. 76 W., sec. 1, southeast quarter of the southeast quarter	39°22'41"	105°49'56"	477	–0.9
GW21	T. 10 S., R. 75 W., sec. 7, northeast quarter of the northwest quarter	39°11'58"	105°49'06"	88	–1.3
GW22	T. 10 S., R. 76 W., sec. 1, northeast quarter of the northeast quarter	39°12'59"	105°49'49"	82	–C.7
GW23	T. 8 S., R. 75 W., sec. 29, northwest quarter of the northeast quarter	39°19'56"	105°47'51"	90	–C.7
GW24	T. 10 S., R. 75 W., sec. 8, northeast quarter of the northeast quarter	39°11'50"	105°47'37"	350	–C.4
GW25	T. 9 S., R. 75 W., sec. 33, southwest quarter of the northeast quarter	39°13'14"	105°46'55"	425	–C.6
GW26	T. 8 S., R. 75 W., sec. 34, northeast quarter of the southeast quarter	39°18'45"	105°45'23"	302	–C.9
GW27	T. 8 S., R. 76 W., sec. 36, northwest quarter of the southeast quarter	39°18'30"	105°50'08"	500	–C.7
GW28	T. 9 S., R. 75 W., sec.15, southwest quarter of the northwest quarter	39°16'31"	105°46'13"	140	–C.3
GW29	T. 9 S., R. 75 W., sec. 29, northeast quarter of the northwest quarter	39°14'41"	105°47'45"	620	–1.7

Table 4. Ground-water levels for selected wells in north-central Park County, Colorado, July 1997–November 1998—Continued

[WL, water level in feet below or above (–) land surface; MP stickup, height of measuring point above (–) or below land surface; --, no data]

Site identifier	Measurement 1		Measurement 2		Measurement 3		Measurement 4	
	Date	WL (feet)	Date	WL (feet)	Date	WL (feet)	Date	WL (feet)
GW1	07/31/97	8.49	08/28/97	8.54	10/08/97	8.68	11/07/97	8.35
GW2	07/31/97	4.38	08/28/97	4.42	10/08/97	5.13	11/07/97	4.74
GW3	07/31/97	3.55	08/28/97	3.66	10/08/97	4.03	11/07/97	3.8
GW4	07/31/97	15.74	08/26/97	15.82	10/07/97	15.76	11/06/97	15.95
GW5	07/31/97	6.55	08/28/97	8.83	10/09/97	10.78	11/07/97	11.62
GW6	07/31/97	6.35	08/28/97	10.19	10/08/97	14.06	11/07/97	16.01
GW7	07/31/97	32.69	08/28/97	33.03	10/08/97	32.28	11/07/97	33.33
GW8	07/31/97	10.83	08/28/97	11.01	10/08/97	11.29	11/07/97	11.03
GW9	07/31/97	40.56	08/28/97	40.07	10/08/97	40.89	11/07/97	40.77
GW10	07/31/97	10.13	08/28/97	11.73	10/08/97	12.77	11/07/97	13.07
GW11	07/31/97	41.72	08/28/97	41.68	10/08/97	41.34	11/07/97	41.2
GW12	07/31/97	3.03	08/26/97	3.29	10/08/97	3.63	11/06/97	3.21
GW13	07/31/97	35.17	08/26/97	34.83	10/07/97	34.18	11/06/97	33.7
GW14a	08/01/97	[1]–14.87	08/26/97	[1]–14.87	10/07/97	[2]–10.94	11/07/97	[2]–11.46
GW14b	07/31/97	14.16	08/26/97	14.45	10/07/97	14.08	11/06/97	14.16
GW14c	07/31/97	8.01	08/26/97	7.79	10/07/97	7.02	11/06/97	6.85
GW14d	07/31/97	8	08/26/97	9.78	10/07/97	9.64	11/06/97	9.79
GW15a	08/01/97	22.71	08/26/97	22.58	10/07/97	22.08	11/06/97	21.81
GW15b	08/01/97	22.96	08/26/97	22.87	10/07/97	22.51	11/06/97	22.55
GW16	08/01/97	7.95	08/28/97	7.29	10/06/97	7.4	11/06/97	4.28
GW17a	08/01/97	1.05	08/28/97	0.49	10/06/97	1.53	11/06/97	1.17
GW17b	08/01/97	2.18	08/28/97	1.77	10/06/97	2.47	11/06/97	2.22
GW17c	08/01/97	2.58	08/28/97	1.78	10/06/97	2.51	11/06/97	2.14
GW18	08/01/97	13.06	08/26/97	13.11	10/07/97	13.1	11/06/97	13.29
GW19	08/01/97	3.31	08/26/97	4.53	10/08/97	4.98	11/07/97	5.27
GW20	08/01/97	102.44	08/28/97	102.85	10/08/97	101.84	11/07/97	101.29
GW21	08/01/97	35.7	08/26/97	35.68	10/07/97	35.69	11/06/97	35.73
GW22	08/01/97	30.69	08/26/97	30.69	10/07/97	30.61	11/06/97	30.7
GW23	--	--	08/26/97	16.9	10/09/97	17.38	11/06/97	18.57
GW24	--	--	08/25/97	272.65	10/10/97	277.92	11/6/97	276.78
GW25	--	--	08/25/97	148.09	10/10/97	139.44	11/06/97	137.11
GW26	--	--	08/26/97	100.65	10/09/97	100.22	11/06/97	100.26
GW27	--	--	--	--	10/08/97	71.95	11/06/97	71.96
GW28	--	--	--	--	10/10/97	28.58	11/06/97	29.27
GW29	--	--	--	--	--	--	--	--

Table 4. Ground-water levels for selected wells in north-central Park County, Colorado, July 1997–November 1998—Continued

[WL, water level in feet below or above (–) land surface; MP stickup, height of measuring point above (–) or below land surface; --, no data]

Site identifier	Measurement 5		Measurement 6		Measurement 7		Measurement 8	
	Date	WL (feet)	Date	WL (feet)	Date	WL (feet)	Date	WL (feet)
GW1	12/11/97	8.26	01/08/98	8.52	02/12/98	9.13	03/12/98	9.3?
GW2	12/11/97	5.27	01/08/98	6.08	02/12/98	6.58	03/12/98	6.8?
GW3	12/11/97	4.53	01/08/98	5.21	02/12/98	6.03	03/12/98	6.51
GW4	12/09/97	15.89	01/07/98	16.06	02/11/98	16.18	03/11/98	16.33
GW5	12/10/97	12.07	01/07/98	13.14	02/12/98	14.94	03/12/98	16.2?
GW6	12/11/97	17.64	01/08/98	18.6	02/12/98	19.79	03/12/98	19.9?
GW7	12/10/97	33.59	01/08/98	34.09	02/12/98	34.85	03/12/98	35.4?
GW8	12/11/97	11.39	01/08/98	11.55	02/12/98	11.96	03/12/98	12.2?
GW9	12/11/97	40.62	01/08/98	40.48	02/12/98	40.4	03/12/98	40.3?
GW10	12/10/97	13.17	010/8/98	13.17	02/12/98	13.23	03/12/98	13.2?
GW11	12/11/97	41.22	01/07/98	40.9	02/12/98	40.91	03/12/98	40.92
GW12	12/09/97	3.78	frozen ice bridge		frozen ice bridge		frozen ice bridge	
GW13	12/10/97	33.53	01/07/98	33.34	02/11/98	32.96	03/11/98	33.4?
GW14a	too cold to shut in		too cold to shut in		too cold to shut in		too cold to shut in	
GW14b	12/10/97	14.29	01/07/98	14.63	02/11/98	15.22	03/11/98	15.1
GW14c	12/10/97	7.04	01/07/98	7.65	02/11/98	8.24	03/11/98	8.53
GW14d	12/10/97	9.78	01/07/98	10.04	02/11/98	10.75	03/11/98	10.29
GW15a	12/10/97	21.92	01/07/98	22.51	02/11/98	23.11	03/11/98	23.08
GW15b	12/10/97	22.68	01/07/98	23.23	02/11/98	23.75	03/11/98	23.96
GW16	12/10/97	7.33	01/07/98	7.84	02/11/98	8.1	03/11/98	7.91
GW17a	12/10/97	1.59	01/07/98	2.09	02/11/98	2.33	03/11/98	2.08
GW17b	12/10/97	2.73	01/07/98	3.15	02/11/98	3.28	03/11/98	2.98
GW17c	12/10/97	2.5	01/07/98	3.05	02/11/98	3.32	03/11/98	3.06
GW18	12/9/97	13.21	01/07/98	13.4	02/11/98	13.68	03/11/98	13.65
GW19	12/11/97	5.53	01/07/98	6.12	02/12/98	6.68	03/12/98	7.21
GW20	12/11/97	101.39	01/08/98	102.14	02/12/98	102.39	03/12/98	102.9
GW21	12/09/97	35.7	01/07/98	35.77	02/11/98	35.81	03/11/98	35.85
GW22	12/09/97	30.73	01/07/98	30.88	02/11/98	30.96	03/11/98	31.0?
GW23	12/09/97	20.49	01/08/98	22.28	02/12/98	23.37	03/12/98	33.48
GW24	12/09/97	278.34	01/07/98	279.36	02/11/98	266.29	03/11/98	265.48
GW25	12/09/97	137.06	01/07/98	138.24	02/11/98	136.19	03/11/98	160.18
GW26	12/09/97	100.37	01/07/98	100.47	02/11/98	100.69	03/12/98	100.944
GW27	12/10/97	71.99	01/07/98	72.02	02/11/98	72.07	03/12/98	72.12
GW28	12/09/97	29.24	010/7/98	30.09	02/11/98	30.85	03/12/98	32.01
GW29	--	--	--	--	02/11/98	310.5	03/11/98	310.74

Table 4. Ground-water levels for selected wells in north-central Park County, Colorado, July 1997–November 1998—Continued

[WL, water level in feet below or above (–) land surface; MP stickup, height of measuring point above (–) or below land surface; --, no data]

Site identifier	Measurement 9		Measurement 10		Measurement 11		Measurement 12	
	Date	WL (feet)	Date	WL (feet)	Date	WL (feet)	Date	WL (feet)
GW1	04/07/98	8.36	05/05/98	7.42	06/12/98	7.95	07/17/98	8.71
GW2	04/07/98	6.1	05/05/98	6.48	06/11/98	5.32	07/17/98	5.54
GW3	04/07/98	5.48	05/05/98	4.44	06/11/98	4.62	07/17/98	4.87
GW4	04/07/98	15.81	05/04/98	15.37	06/11/98	15.21	07/16/98	15.47
GW5	04/08/98	16.99	05/05/98	17.22	06/11/98	9.49	07/17/98	6.96
GW6	04/07/98	18.97	05/05/98	18.24	06/11/98	18.62	07/17/98	19.47
GW7	04/07/98	35.42	05/05/98	35.4	06/11/98	35.26	07/17/98	32.82
GW8	04/07/98	11.61	05/05/98	11.03	06/11/98	10.96	07/17/98	11.13
GW9	04/07/98	40.22	05/05/98	40.11	06/11/98	39.95	07/17/98	40.04
GW10	04/07/98	13.02	05/05/98	12.22	06/11/98	7.19	07/17/98	9.49
GW11	04/07/98	40.74	05/05/98	40.75	06/11/98	44.4	07/17/98	42.38
GW12	frozen ice bridge		frozen ice bridge		06/12/98	1	07/17/98	1.53
GW13	04/07/98	33.34	05/04/98	33.29	06/11/98	33.68	can no longer be measured due to plumbing changes	
GW14a	04/08/98	[2]–10.94	05/04/98	[2]–11.4	06/12/98	[2]–11.4	07/17/98	[2]–11.4
GW14b	04/07/98	14.5	05/04/98	13.56	06/11/98	13.08	07/17/98	13.55
GW14c	04/07/98	7.25	05/04/98	6.15	06/11/98	6.75	07/17/98	7.14
GW14d	04/07/98	9.26	05/04/98	7.86	06/11/98	6.99	07/17/98	7.79
GW15a	04/08/98	21.42	05/04/98	21.01	06/11/98	21.67	07/16/98	22.03
GW15b	04/08/98	22.06	05/04/98	21.85	06/11/98	22.49	07/16/98	22.88
GW16	04/08/98	7.38	05/04/98	6.89	06/11/98	7.31	07/16/98	7.93
GW17a	040/8/98	frozen	05/04/98	frozen	06/11/98	1.72	07/16/98	2.21
GW17b	04/08/98	2.85	05/04/98	2.61	06/11/98	2.98	07/16/98	3.11
GW17c	04/08/98	2.57	05/04/98	2.7	06/11/98	2.6	07/16/98	3.14
GW18	04/07/98	13.66	05/04/98	13.37	06/11/98	13.15	07/16/98	13.14
GW19	04/08/98	5.75	05/05/98	5.58	06/11/98	5.62	07/17/98	6.15
GW20	04/07/98	102.81	050/5/98	103.3	06/11/98	103.18	07/17/98	103.43
GW21	04/08/98	35.86	050/4/98	35.75	06/11/98	35.69	07/16/98	35.7 3
GW22	040/8/98	30.99	05/04/98	30.89	06/11/98	33.21	07/16/98	30.8
GW23	04/07/98	25.75	05/05/98	25.75	06/12/98	18.59	07/17/98	15.73
GW24	040/8/98	267.02	05/04/98	266.86	06/11/98	267.34	07/16/98	268.85
GW25	04/08/98	136.73	05/04/98	136.75	06/11/98	139.10	07/16/98	141.49
GW26	04/07/98	99.66	05/05/98	98.76	06/12/98	99	07/17/98	99.84
GW27	04/08/98	72.17	05/04/98	72.14	06/12/98	72.19	07/16/98	72.18
GW28	04/08/98	27.57	05/04/98	24.42	06/11/98	25.08	07/17/98	27.67
GW29	04/08/98	310.73	05/04/98	310.7	06/11/98	310.83	07/16/98	311.04

Table 4. Ground-water levels for selected wells in north-central Park County, Colorado, July 1997–November 1998—Continued

[WL, water level in feet below or above (–) land surface; MP stickup, height of measuring point above (–) or below land surface; --, no data]

Site identifier	Measurement 13		Measurement 14		Measurement 15		Measurement 16	
	Date	WL (feet)	Date	WL (feet)	Date	WL (feet)	Date	WL (feet)
GW1	being pumped		being pumped		10/19/98	9.47	11/18/98	8.41
GW2	--	--	09/10/98	4.98	10/19/98	5.46	11/18/98	5.09
GW3	08/07/98	3.75	09/10/98	4.41	10/19/98	4.70	11/18/98	4.32
GW4	08/06/98	15.14	09/10/09	15.2	10/20/98	15.48	11/18/98	15.43
GW5	08/07/98	6.33	09/10/98	9.38	10/19/98	11.51	11/18/98	11.85
GW6	08/07/98	19.26	09/09/98	19.84	10/19/98	20.51	11/18/98	21.13
GW7	08/07/98	30.48	09/09/98	33.05	10/19/98	30.99	11/18/98	30.18
GW8	refused access—home now occupied				--	--	--	--
GW9	08/7/98	40.28	09/09/98	40.64	10/19/98	41.21	11/18/98	41.18
GW10	08/7/98	7.25	09/09/98	10.49	10/19/98	12.85	11/18/98	13.03
GW11	08/07/98	42.04	09/09/98	52.57	10/19/98	46.90	11/18/98	44.15
GW12	08/07/98	0.58	09/09/98	2.56	10/20/98	3.68	11/23/98	2.56
GW13	can no longer be measured due to plumbing changes				--	--	--	--
GW14a	08/07/98	[2]–10.71	09/10/98	[2]–10.71	too cold to shut in		too cold to shut in	
GW14b	08/06/98	13.12	09/09/98	13.35	10/19/98	13.81	11/18/98	13.77
GW14c	08/06/98	6.3	09/09/98	6.9	10/19/98	7.48	11/18/98	7.18
GW14d	08/06/98	7.68	09/09/98	7.85	10/19/98	8.69	11/18/98	8.92
GW15a	08/06/98	21.61	09/09/98	22.04	10/20/98	22.01	11/18/98	21.61
GW15b	08/06/98	22.53	09/09/98	22.89	10/20/98	22.84	11/18/98	22.48
GW16	08/06/98	7.48	09/09/98	8.07	10/20/98	7.92	11/18/98	6.67
GW17a	08/06/98	1.78	09/09/98	2.51	10/20/98	2.10	11/18/98	1.81
GW17b	08/06/98	2.85	09/09/98	3.22	10/20/98	2.93	11/18/98	2.53
GW17c	08/06/98	2.66	09/09/98	3.39	10/20/98	3.04	11/18/98	2.71
GW18	08/06/98	13.03	09/10/98	12.05	10/20/98	12.50	11/18/98	12.46
GW19	08/07/98	5.78	09/09/98	6.3	10/19/98	6.88	11/18/98	6.53
GW20	080/7/98	103.57	09/09/98	107.55	10/19/98	104.32	11/18/98	102.71
GW21	080/6/98	35.71	09/10/98	35.86	10/20/98	35.67	11/23/98	35.66
GW22	08/06/98	30.7	09/10/98	30.49	10/20/98	30.46	11/23/98	30.54
GW23	being pumped		09/09/98	14.26	10/20/98	16.49	11/23/98	21.28
GW24	--	--	09/10/98	268.38	10/20/98	268.13	11/23/98	268.42
GW25	08/07/98	3.75	09/10/98	147.65	10/20/09	142.45	11/23/98	144.29
GW26	08/06/98	15.14	09/09/98	96.91	10/20/98	96.24	11/23/98	96.17
GW27	08/07/98	6.33	09/09/98	72.21	10/20/98	72.71	11/18/98	72.28
GW28	08/07/98	19.26	09/09/98	24.07	10/19/98	25.54	11/18/98	25.99
GW29	080/7/98	30.48	09/10/98	312.68	10/20/98	314.83	--	--

[1]Measured with 100-pound-per-square-inch gage.
[2]Measured with 15 pound-per-square-inch gage.

Table 5. Water-quality data for site SW1, Tarryall Creek below Park Gulch near Como, Colorado, April 1997–September 1998

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; UG/L, micrograms per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; --, no data; <, less than]

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
APR 1997											
17...	1130	7.8	270	8.0	9.3	9.0	120	34	7.3	7.1	1.1
MAY											
21...	0910	53	193	8.2	5.6	9.1	88	27	5.2	2.8	1.0
JUN											
10...	0920	144	234	8.5	7.5	8.1	110	32	6.8	4.7	1.1
JUL											
25...	0850	29	199	8.3	12.7	7.4	95	30	4.8	2.5	.7
AUG											
13...	1120	32	196	8.4	10.5	8.4	93	30	4.6	2.6	.6
SEP											
18...	0750	16	213	8.2	8.8	8.5	100	32	5.5	3.0	.8
OCT											
30...	1300	16	208	8.2	0.5	9.6	94	29	5.4	3.5	.8
NOV											
26...	0910	7.2	224	8.1	0.0	9.2	110	33	6.3	4.4	.9
DEC											
18...	0840	5.2	230	7.7	0.0	9.0	110	32	5.9	3.6	.8
JAN 1998											
22...	1000	3.1	221	7.8	0.0	9.0	110	33	5.9	3.4	.8
FEB											
10...	1130	3.5	227	7.8	0.0	8.5	99	31	5.4	3.3	.8
MAR											
16...	0920	3.0	232	8.0	0.0	8.4	100	30	6.6	3.9	3.9
APR											
10...	1210	6.4	336	8.3	3.6	9.8	140	39	10	12	1.2
MAY											
13...	1000	22	206	8.2	7.5	--	94	28	5.5	4.1	.8
JUN											
10...	1045	19	231	8.2	7.4	8.4	110	35	5.8	3.5	1.0
JUL											
20...	1320	12	201	8.5	18.0	7.5	95	30	5.1	3.0	.8
AUG											
06...	1030	28	222	8.2	15.5	7.9	100	32	5.6	3.7	.4
SEP											
08...	1410	12	205	8.5	17.4	7.4	96	30	5.1	3.0	.8

DATE	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITFO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
APR 1997										
17...	138	113	35	.9	.1	6.7	161	<.01	.06	<.01
MAY										
21...	106	87	13	.4	<.1	9.1	112	<.01	<.05	<.01
JUN										
10...	121	99	19	.5	.1	11	148	<.01	<.05	<.01
JUL										
25...	117	96	9.5	.2	<.1	8.5	120	<.01	<.05	<.01
AUG										
13...	--	81	11	.2	<.1	8.0	120	<.01	<.05	<.01
SEP										
18...	113	95	13	.4	<.1	8.0	126	<.01	<.05	<.01
OCT										
30...	109	89	16	.6	<.1	8.1	126	<.01	.12	<.02
NOV										
26...	126	103	18	.5	<.1	8.6	129	<.01	<.05	<.02
DEC										
18...	107	88	17	.6	<.1	8.2	132	<.01	<.05	<.02
JAN 1998										
22...	109	89	16	.5	<.1	8.3	126	.01	.05	<.02
FEB										
10...	122	100	16	.3	<.1	8.2	123	<.01	<.05	<.02
MAR										
16...	106	87	21	2.0	<.1	7.7	153	<.01	.25	.13
APR										
10...	144	118	45	1.7	.2	8.1	202	<.01	<.05	.03
MAY										
13...	85	70	18	.5	<.1	7.5	123	<.01	<.05	.03
JUN										
10...	122	100	15	.3	.1	10	148	.01	<.05	.06
JUL										
20...	98	84	11	.2	<.1	8.5	129	<.01	<.05	.03
AUG										
06...	122	100	13	.2	.1	8.7	132	<.01	<.05	.04
SEP										
08...	101	89	12	.3	<.1	7.8	131	<.01	<.05	<.02

Table 5. Water-quality data for site SW1, Tarryall Creek below Park Gulch near Como, Colorado, April 1997–September 1998–Continued

US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; UG/L, micrograms per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; --, no data; <, less than]

DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DISSOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ANTIMONY, DISSOLVED (UG/L AS SB)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)
APR 1997										
17...	<.2	<.2	.02	<.01	<.01	1	<1	<1	70	<1
MAY										
21...	.5	<.2	.09	<.01	<.01	3	<1	<1	60	<1
JUN										
10...	.4	.3	<.01	<.01	<.01	3	<1	<1	57	<1
JUL										
25...	<.2	<.2	<.01	<.01	<.01	3	<1	<1	75	<1
AUG										
13...	.2	<.2	.02	<.01	<.01	2	<1	<1	69	<1
SEP										
18...	<.2	<.2	<.01	<.01	<.01	2	<1	<1	78	<1
OCT										
30...	.2	<.1	.04	.02	<.01	7	<1	<1	71	<1
NOV										
26...	<.1	<.1	.01	<.01	.01	4	<1	<1	78	<1
DEC										
18...	.2	<.1	.03	<.01	.01	<1	<1	<1	80	<1
JAN 1998										
22...	<.1	<.1	<.01	.01	<.01	3	<1	<1	84	<1
FEB										
10...	<.1	<.1	<.01	<.01	.02	3	<1	<1	81	<1
MAR										
16...	.5	.5	.02	.01	.01	2	<1	<1	77	<1
APR										
10...	.2	.1	.03	<.01	.02	4	<1	<1	68	<1
MAY										
13...	.2	<.1	<.01	<.01	<.01	2	<1	<1	68	<1
JUN										
10...	.3	.3	.02	<.01	<.01	4	<1	<1	63	<1
JUL										
20...	.2	.1	<.01	<.01	.01	5	<1	<1	71	<1
AUG										
06...	.2	.2	<.01	<.01	.01	5	<1	<1	73	<1
SEP										
08...	.1	<.1	<.01	.02	<.01	4	<1	<1	78	<1

DATE	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)
APR 1997										
17...	<1	1	<1	1	72	<1	16	<1	<1	<1
MAY										
21...	<1	2	<1	2	68	<1	10	1	1	<1
JUN										
10...	<1	2	<1	1	42	<1	6	1	<1	<1
JUL										
25...	<1	2	<1	1	110	<1	9	1	<1	<1
AUG										
13...	<1	<1	<1	1	110	<1	9	1	<1	<1
SEP										
18...	<1	<1	<1	<1	58	<1	9	<1	<1	<1
OCT										
30...	<1	2	<1	<1	170	<1	14	<1	<1	<1
NOV										
26...	<1	1	<1	<1	130	<1	12	<1	<1	<1
DEC										
18...	<1	<1	<1	<1	17	<1	14	1	<1	<1
JAN 1998										
22...	<1	2	<1	<1	73	<1	9	<1	<1	<1
FEB										
10...	<1	1	<1	<1	69	<1	10	<1	<1	<1
MAR										
16...	<1	1	<1	1	69	<1	58	1	<1	<1
APR										
10...	<1	2	<1	<1	65	<1	24	1	<1	<1
MAY										
13...	<1	<1	<1	<1	97	<1	10	1	<1	<1
JUN										
10...	<1	1	<1	1	82	<1	9	1	<1	<1
JUL										
20...	<1	1	<1	<1	110	<1	9	1	<1	<1
AUG										
06...	<1	<1	<1	<1	95	<1	9	<1	<1	<1
SEP										
08...	<1	3	<1	<1	96	<1	7	1	<1	<1

Table 5. Water-quality data for site SW1, Tarryall Creek below Park Gulch near Como, Colorado, April 1997–September 1998–Continued

US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; UG/L, micrograms per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; --, no data; <, less than]

DATE	SILVER, DIS-SOLVED (UG/L AS AG)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL
APR 1997										
17...	<1	<1	<1	--	--	--	--	--	--	--
MAY										
21...	<1	1	1	--	--	91	13	69	--	--
JUN										
10...	<1	1	<1	--	--	15	5.8	50	--	--
JUL										
25...	<1	<1	1	--	--	17	1.3	89	--	--
AUG										
13...	<1	<1	1	--	--	15	1.2	87	--	--
SEP										
18...	<1	<1	2	1.7	1.8	8	.32	85	--	--
OCT										
30...	<1	<1	<1	--	--	36	1.6	86	--	--
NOV										
26...	<1	<1	<1	2.0	1.3	7	.14	82	--	--
DEC										
18...	<1	<1	<1	1.4	1.1	3	.04	83	--	--
JAN 1998										
22...	<1	<1	<1	1.4	.8	--	--	--	--	--
FEB										
10...	<1	<1	<1	1.4	1.1	4	.04	86	--	--
MAR										
16...	<1	<1	1	9.2	8.0	5	.04	91	--	--
APR										
10...	<1	2	<1	3.4	2.7	6	.10	84	--	--
MAY										
13...	<1	<1	<1	5.2	2.3	34	2.0	89	-125	-16.75
JUN										
10...	<1	3	<1	5.6	4.6	16	.82	89	--	--
JUL										
20...	<1	<1	<1	3.3	2.2	9	.28	84	--	--
AUG										
06...	<1	<1	<1	3.6	2.7	14	1.1	85	--	--
SEP										
08...	<1	<1	<1	2.1	1.8	4	.13	79	--	--

Table 6. Water-quality data for sites on Park Gulch (SW2–SW5), north-central Park County, Colorado, September 1997

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; UG/L, micrograms per liter; <, less than; --, no data]

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)
SW2 - PARK GULCH ABOVE COMO, CO (LAT 39 19 22N LONG 105 53 54W)											
SEP 1997 17...	0840	.03	346	8.0	5.2	7.8	51	8.4	10	.6	158
SW3 - PARK GULCH BELOW COMO, CO (LAT 39 18 47N LONG 105 53 04W)											
SEP 1997 17...	1010	.01	3220	7.3	7.6	4.9	380	240	120	2.0	326
SW4 - PARK GULCH ABOVE KING MINE NEAR COMO, CO (LAT 39 17 55N LONG 105 51 56W)											
SEP 1997 17...	1150	.01	2880	8.2	13.0	8.4	270	230	170	2.3	418
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)											
SEP 1997 17...	1420	.03	788	8.0	20.3	6.5	75	29	52	1.8	296

DATE	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
SW2 - PARK GULCH ABOVE COMO, CO (LAT 39 19 22N LONG 105 53 54W)											
SEP 1997 17...	20	2.6	.2	18	218	<.01	<.05	<.01	<.2	<.2	<.01
SW3 - PARK GULCH BELOW COMO, CO (LAT 39 18 47N LONG 105 53 04W)											
SEP 1997 17...	2000	.6	.3	17	3090	<.01	<.05	.08	.4	.3	.04
SW4 - PARK GULCH ABOVE KING MINE NEAR COMO, CO (LAT 39 17 55N LONG 105 51 56W)											
SEP 1997 17...	1600	24	.3	9.0	2700	<.01	<.05	.06	.6	.6	.01
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)											
SEP 1997 17...	140	3.5	.6	15	503	<.01	<.05	.04	.5	.3	.06

Table 6. Water-quality data for sites on Park Gulch (SW2–SW5), north-central Park County, Colorado, September 1997–Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; UG/L, micrograms per liter; <, less than; --, no data]

DATE	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)
SW2 - PARK GULCH ABOVE COMO, CO (LAT 39 19 22N LONG 105 53 54W)										
SEP 1997 17...	<.01	<.01	2	<1	<1	61	<1	<1	2	<1
SW3 - PARK GULCH BELOW COMO, CO (LAT 39 18 47N LONG 105 53 04W)										
SEP 1997 17...	<.01	<.01	3	<2	<1	58	<2	<2	<2	3
SW4 - PARK GULCH ABOVE KING MINE NEAR COMO, CO (LAT 39 17 55N LONG 105 51 56W)										
SEP 1997 17...	<.01	.01	2	<2	<1	33	<2	<2	<2	<2
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)										
SEP 1997 17...	.04	.03	1	<1	<1	60	<1	<1	4	<1

DATE	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ZINC, DIS-SOLVED (UG/L AS ZN)
SW2 - PARK GULCH ABOVE COMO, CO (LAT 39 19 22N LONG 105 53 54W)										
SEP 1997 17...	<1	61	<1	165	<1	<1	<1	<1	<1	<1
SW3 - PARK GULCH BELOW COMO, CO (LAT 39 18 47N LONG 105 53 04W)										
SEP 1997 17...	4	4600	<2	1840	<2	6	<1	<2	<2	7
SW4 - PARK GULCH ABOVE KING MINE NEAR COMO, CO (LAT 39 17 55N LONG 105 51 56W)										
SEP 1997 17...	4	12	<2	2720	<2	5	<1	<2	<2	3
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)										
SEP 1997 17...	<1	45	<1	51	<1	<1	<1	<1	<1	1

Table 7. Water-quality data for sites on selected tributaries (SW6–SW8) in north-central Park County, Colorado, May 1998

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; UG/L, micrograms per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; --, no data; <, less than]

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)
SW6 - Tarryall Cr at U.S. 285 nr Como, CO (LAT 39 19 58N LONG 105 52 02W)												
MAY 1998 13...	1210	21	153	8.3	9.9	11.5	22	3.6	1.9	.6	63	12
SW7 - MICHIGAN CREEK ABOVE JEFFERSON, CO. (LAT 39 21 32N LONG 105 50 27W)												
MAY 1998 13...	1445	9.5	92	8.0	13.3	10.5	12	2.0	2.5	.6	38	5.7
SW8 - Jefferson Cr blw Jefferson Lake nr Jefferson, CO (LAT 39 24 53N LONG 105 50 11W)												
MAY 1998 13...	1620	12	59	7.9	12.6	7.0	7.1	1.7	1.3	.8	25	3.3

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)
SW6 - Tarryall Cr at U.S. 285 nr Como, CO (LAT 39 19 58N LONG 105 52 02W)											
MAY 1998 13...	.3	<.1	6.9	92	<.01	<.05	.03	.2	<.1	<.01	<.01
SW7 - MICHIGAN CREEK ABOVE JEFFERSON, CO. (LAT 39 21 32N LONG 105 50 27W)											
MAY 1998 13...	.3	<.1	7.7	59	<.01	<.05	.02	.2	<.1	<.01	<.01
SW8 - Jefferson Cr blw Jefferson Lake nr Jefferson, CO (LAT 39 24 53N LONG 105 50 11W)											
MAY 1998 13...	.3	<.1	6.5	38	<.01	.07	.03	.1	<.1	<.01	<.01

Table 7. Water-quality data for sites on selected tributaries (SW6–SW8) in north-central Park County, Colorado, May 1998–Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; UG/L, micrograms per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; --, no data; <, less than]

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ANTI-MONY, DIS-SOLVED (UG/L AS SB)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
SW6 - Tarryall Cr at U.S. 285 nr Como, CO (LAT 39 19 58N LONG 105 52 02W)											
MAY 1998 13...	<.01	2	<1	<1	66	<1	<1	<1	<1	<1	120
SW7 - MICHIGAN CREEK ABOVE JEFFERSON, CO. (LAT 39 21 32N LONG 105 50 27W)											
MAY 1998 13...	<.01	3	<1	<1	11	<1	<1	<1	<1	<1	440
SW8 - Jefferson Cr blw Jefferson Lake nr Jefferson, CO (LAT 39 24 53N LONG 105 50 11W)											
MAY 1998 13...	<.01	13	<1	<1	13	<1	<1	<1	<1	<1	100

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL
SW6 - Tarryall Cr at U.S. 285 nr Como, CO (LAT 39 19 58N LONG 105 52 02W)											
MAY 1998 13...	<1	20	<1	<1	<1	<1	<1	<1	12	-130	-17.16
SW7 - MICHIGAN CREEK ABOVE JEFFERSON, CO. (LAT 39 21 32N LONG 105 50 27W)											
MAY 1998 13...	<1	15	<1	<1	<1	<1	<1	<1	6	-128	-16.72
SW8 - Jefferson Cr blw Jefferson Lake nr Jefferson, CO (LAT 39 24 53N LONG 105 50 11W)											
MAY 1998 13...	<1	5	<1	<1	<1	<1	<1	<1	4	-132	-17.65

Table 8. Water-quality data for selected wells and springs in north-central Park County, Colorado, May–August 1998

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; ANC, acid neutralizing capacity, UNFLTRD, unfiltered; UG/L, micrograms per liter; PCI/L, picocuries per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; <, less than; --, no data]

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ANC UNFLTRD LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
GW4 - 391337105484301 SC00907531ADB01 (LAT 39 13 37N LONG 105 48 43W)												
MAY 1998 28...	1100	386	7.8	7.8	.5	53	5.2	21	1.1	145	42	9.2
GW9 - 392202105493501 SC00807507CBC01 (LAT 39 22 02N LONG 105 49 35W)												
MAY 1998 07...	0940	164	7.3	5.8	5.2	20	4.6	7.5	.6	76	7.3	1.6
GW13 - 391511105500301 SC00907624CBB01 (LAT 39 15 11N LONG 105 50 03W)												
MAY 1998 04...	1100	598	7.8	7.3	.3	93	15	17	1.7	151	130	21
GW14a - 391631105480404 SC00907508CDA04 (LAT 39 16 31N LONG 105 48 04W)												
MAY 1998 06...	1445	278	9.7	9.0	.1	1.0	.005	65	<.1	127	8.3	3.8
GW14b - 391631105480401 SC00907508CDA01 (LAT 39 16 31N LONG 105 48 04W)												
MAY 1998 06...	1200	221	8.3	6.4	.3	22	1.3	23	.4	96	13	2.4
GW14c - 391631105480402 SC00907508CDA02 (LAT 39 16 31N LONG 105 48 04W)												
MAY 1998 06...	1615	273	8.5	7.6	.2	30	1.4	28	.4	103	29	3.8
GW16 - 391625105501001 SC00907613ABB01 (LAT 39 16 25N LONG 105 50 10W)												
MAY 1998 04...	1500	1080	7.6	8.8	.9	120	26	98	1.8	293	310	17
GW25 - 391314105465501 SC00907533CDA01 (LAT 39 13 14N LONG 105 46 55W)												
JUN 1998 15...	1030	222	7.7	6.4	2.1	28	6.3	8.2	1.4	108	6.2	1.8
GW27 - 391830105500801 SC00807636CAA01 (LAT 39 18 30N LONG 105 50 08W)												
MAY 1998 05...	1510	344	7.8	7.9	1.1	50	9.6	14	1.1	151	27	2.9
GW28 - 391631105461301 SC00907510CCC01 (LAT 39 16 31N LONG 105 46 13W)												
MAY 1998 12...	1350	146	6.6	6.5	6.5	17	3.3	7.0	1.2	48	15	1.6
GW29 - 391441105474501 SC00907529ABA01 (LAT 39 14 41N LONG 105 47 45W)												
MAY 1998 12...	0945	241	7.6	8.0	.9	32	4.5	8.6	1.0	109	8.0	4.2
GW30 - 391716105494401 SC00907612AAC01 (LAT 39 17 16N LONG 105 49 44W)												
MAY 1998 05...	1200	709	7.1	7.4	.1	180	29	40	2.1	282	350	17
GW31 - 391602105473801 SC00907517DAB01 (LAT 39 16 02N LONG 105 47 38W)												
MAY 1998 14...	1120	156	6.5	6.5	2.5	17	3.5	9.6	.9	71	4.3	2.0

Table 8. Water-quality data for selected wells and springs in north-central Park County, Colorado, May–August 1998—Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; ANC, acid neutralizing capacity, UNFLTRD, unfiltered; UG/L, micrograms per liter; PCI/L, picocuries per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; <, less than; --, no data]

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	BROMIDE DISSOLVED (MG/L AS BR)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS DISSOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)
GW4 - 391337105484301 SC00907531ADB01 (LAT 39 13 37N LONG 105 48 43W)											
MAY 1998 28...	.3	.20	16	243	.01	<.05	<.02	.2	<.01	.02	4
GW9 - 392202105493501 SC00807507CBC01 (LAT 39 22 02N LONG 105 49 35W)											
MAY 1998 07...	.3	.04	24	122	<.01	.36	.04	<.1	.10	.08	6
GW13 - 391511105500301 SC00907624CBB01 (LAT 39 15 11N LONG 105 50 03W)											
MAY 1998 04...	.3	.22	9.9	394	<.01	<.05	.05	.2	<.01	<.01	4
GW14a - 391631105480404 SC00907508CDA04 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	1.3	.08	13	173	<.01	<.05	.07	<.1	.04	.06	14
GW14b - 391631105480401 SC00907508CDA01 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	.4	.05	15	144	<.01	<.05	.12	.2	<.01	.02	6
GW14c - 391631105480402 SC00907508CDA02 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	.3	.08	13	177	<.01	<.05	.12	.1	<.01	<.01	5
GW16 - 391625105501001 SC00907613ABB01 (LAT 39 16 25N LONG 105 50 10W)											
MAY 1998 04...	.4	.26	13	794	<.01	<.05	.08	.2	<.01	<.01	3
GW25 - 391314105465501 SC00907533CDA01 (LAT 39 13 14N LONG 105 46 55W)											
JUN 1998 15...	.3	--	12	134	<.01	.19	.04	<.1	.02	<.01	4
GW27 - 391830105500801 SC00807636CAA01 (LAT 39 18 30N LONG 105 50 08W)											
MAY 1998 05...	.7	.05	13	210	.02	.10	.04	<.1	<.01	<.01	5
GW28 - 391631105461301 SC00907510CCC01 (LAT 39 16 31N LONG 105 46 13W)											
MAY 1998 12...	.1	<.01	22	118	<.01	1.0	.08	.4	.15	.14	10
GW29 - 391441105474501 SC00907529ABA01 (LAT 39 14 41N LONG 105 47 45W)											
MAY 1998 12...	.2	.13	21	150	<.01	.63	.07	<.1	.04	.03	3
GW30 - 391716105494401 SC00907612AAC01 (LAT 39 17 16N LONG 105 49 44W)											
MAY 1998 05...	.3	.16	15	850	.01	<.05	.08	<.1	<.01	<.01	3
GW31 - 3391602105473801 SC00907517DAB01 (LAT 39 16 02N LONG 105 47 38W)											
MAY 1998 14...	.2	.05	26	116	<.01	.67	.02	<.1	.14	.15	4

Table 8. Water-quality data for selected wells and springs in north-central Park County, Colorado, May–August 1998—Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; ANC, acid neutralizing capacity, UNFLTRD, unfiltered; UG/L, micrograms per liter; PCI/L, picocuries per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; <, less than; --, no data]

DATE	ANTIMONY, DISSOLVED (UG/L AS SB)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)
GW4 - 391337105484301 SC00907531ADB01 (LAT 39 13 37N LONG 105 48 43W)											
MAY 1998 28...	<1	<1	78	<1	<1	2	<1	<1	200	<1	146
GW9 - 392202105493501 SC00807507CBC01 (LAT 39 22 02N LONG 105 49 35W)											
MAY 1998 07...	<1	<1	18	<1	<1	1	<1	<1	<10	<1	14
GW13 - 391511105500301 SC00907624CBB01 (LAT 39 15 11N LONG 105 50 03W)											
MAY 1998 04...	<1	<1	28	<1	<1	3	<1	<1	<10	<1	15
GW14a - 391631105480404 SC00907508CDA04 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	<1	<1	2	<1	<1	<1	<1	<1	<10	<1	<1
GW14b - 391631105480401 SC00907508CDA01 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	<1	<1	50	<1	<1	<1	<1	<1	31	<1	8
GW14c - 391631105480402 SC00907508CDA02 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	<1	<1	69	<1	<1	<1	<1	<1	12	<1	12
GW16 - 391625105501001 SC00907613ABB01 (LAT 39 16 25N LONG 105 50 10W)											
MAY 1998 04...	<1	<1	20	<1	<1	7	<1	<1	160	<1	77
GW25 - 391314105465501 SC00907533CDA01 (LAT 39 13 14N LONG 105 46 55W)											
JUN 1998 15...	<1	<1	44	<1	<1	1	<1	2	<10	<1	<1
GW27 - 391830105500801 SC00807636CAA01 (LAT 39 18 30N LONG 105 50 08W)											
MAY 1998 05...	<1	<1	4	<1	<1	3	<1	<1	<10	<1	8
GW28 - 391631105461301 SC00907510CCC01 (LAT 39 16 31N LONG 105 46 13W)											
MAY 1998 12...	<1	<1	8	<1	<1	<1	<1	46	10	1	5
GW29 - 391441105474501 SC00907529ABA01 (LAT 39 14 41N LONG 105 47 45W)											
MAY 1998 12...	<1	<1	5	<1	<1	2	<1	1	<10	<1	3
GW30 - 391716105494401 SC00907612AAC01 (LAT 39 17 16N LONG 105 49 44W)											
MAY 1998 05...	<1	<1	26	<1	<1	7	<1	<1	850	<1	588
GW31 - 3391602105473801 SC00907517DAB01 (LAT 39 16 02N LONG 105 47 38W)											
MAY 1998 14...	<1	<1	5	<1	<1	<1	<1	5	<10	<1	<1

Table 8. Water-quality data for selected wells and springs in north-central Park County, Colorado, May–August 1998—Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; ANC, acid neutralizing capacity, UNFLTRD, unfiltered; UG/L, micrograms per liter; PCI/L, picocuries per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; <, less than; --, no data]

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	RADON 222 TOTAL (PCI/L)	TRITIUM TOTAL (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL
GW4 - 391337105484301 SC00907531ADB01 (LAT 39 13 37N LONG 105 48 43W)											
MAY 1998 28...	<1	<1	<1	<1	<1	2900	--	<1	3.1	--	--
GW9 - 392202105493501 SC00807507CBC01 (LAT 39 22 02N LONG 105 49 35W)											
MAY 1998 07...	<1	1	1	<1	1	6400	--	2	1.4	--	--
GW13 - 391511105500301 SC00907624CBB01 (LAT 39 15 11N LONG 105 50 03W)											
MAY 1998 04...	2	<1	<1	<1	77	2500	8.6	17	2.1	--	--
GW14a - 391631105480404 SC00907508CDA04 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	11	<1	<1	<1	<1	1900	<2.5	<1	.2	-87.4	-11.25
GW14b - 391631105480401 SC00907508CDA01 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	2	<1	<1	<1	<1	3300	<2.5	2	1.2	-95.4	-12.47
GW14c - 391631105480402 SC00907508CDA02 (LAT 39 16 31N LONG 105 48 04W)											
MAY 1998 06...	2	<1	<1	<1	<1	4200	--	2	1.0	--	--
GW16 - 391625105501001 SC00907613ABB01 (LAT 39 16 25N LONG 105 50 10W)											
MAY 1998 04...	2	1	<1	<1	<1	6300	8.0	4	2.3	--	--
GW25 - 391314105465501 SC00907533CDA01 (LAT 39 13 14N LONG 105 46 55W)											
JUN 1998 15...	<1	<1	<1	<1	2	--	--	19	.5	--	--
GW27 - 391830105500801 SC00807636CAA01 (LAT 39 18 30N LONG 105 50 08W)											
MAY 1998 05...	2	<1	2	<1	<1	4900	--	17	.7	--	--
GW28 - 391631105461301 SC00907510CCC01 (LAT 39 16 31N LONG 105 46 13W)											
MAY 1998 12...	<1	1	<1	<1	10	1900	--	<1	9.2	-109	-13.84
GW29 - 391441105474501 SC00907529ABA01 (LAT 39 14 41N LONG 105 47 45W)											
MAY 1998 12...	7	<1	1	<1	7	4200	--	6	.6	-113	-14.34
GW30 - 391716105494401 SC00907612AAC01 (LAT 39 17 16N LONG 105 49 44W)											
MAY 1998 05...	<1	1	<1	<1	<1	2500	--	4	1.3	--	--
GW31 - 3391602105473801 SC00907517DAB01 (LAT 39 16 02N LONG 105 47 38W)											
MAY 1998 14...	<1	<1	<1	<1	<1	14000	3.5	<1	1.8	-108	-13.95

Table 8. Water-quality data for selected wells and springs in north-central Park County, Colorado, May–August 1998—Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; ANC, acid neutralizing capacity, UNFLTRD, unfiltered; UG/L, micrograms per liter; PCI/L, picocuries per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; <, less than; --, no data]

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ANC UNFLTRD LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
GW32a - 391452105483501 SC00907519DDA1 (LAT 39 14 52N LONG 105 48 35W)												
JUN 1998 17...	0950	214	8.2	6.5	.3	26	3.0	15	1	95	9.8	3.9
GW32b - 391452105483502 SC00907519DDA2 (LAT 39 14 52N LONG 105 48 35W)												
JUN 1998 17...	1335	209	8.0	6.6	.3	26	3.1	13	.9	91	11	3.9
GW32c - 391452105483503 SC00907519DDA3 (LAT 39 14 52N LONG 105 48 35W)												
JUN 1998 16...	1130	219	8.1	5.8	1.2	26	3.3	15	1	93	12	4.2
GW32d - 391452105483504 SC00907519DDA4 (LAT 39 14 52N LONG 105 48 35W)												
AUG 1998 21...	1025	516	7.4	--	.1	6.8	1.5	110	1.9	178	50	2.6
SPG1 - 391449105482801 SC00907520CCC01 (LAT 39 14 49N LONG 105 48 28W)												
MAY 1998 28...	1450	203	7.2	7.2	.6	23	3.4	15	1	87	11	4.0
SPG2 - 391216105484801 SC01007506DCA01 (LAT 39 12 16N LONG 105 48 48W)												
MAY 1998 14...	1515	619	6.3	3.4	5.1	130	24	54	<.1	108	360	25
SPG3 - 391320105464000 SC01007533DBD01 (LAT 39 13 20N LONG 105 46 40W)												
MAY 1998 11...	1400	131	6.6	6.3	6.6	15	2.6	6.3	.6	50	11	1.4
SPG 4 - 391438105483600 SC00907530DDA (LAT 39 14 04N LONG 105 48 30W)												
MAY 1998 11...	1700	267	7.4	2.6	1.8	30	3.9	22	1.0	130	7.8	3.9

Table 8. Water-quality data for selected wells and springs in north-central Park County, Colorado, May–August 1998—Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; ANC, acid neutralizing capacity, UNFLTRD, unfiltered; UG/L, micrograms per liter; PCI/L, picocuries per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; <, less than; --, no data]

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	BROMIDE DISSOLVED (MG/L AS BR)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS DISSOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)
GW32a - 391452105483501 SC00907519DDA1 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 17...	.4	.09	13	130	<.01	<.05	.04	<.1	<.01	.01	6
GW32b - 391452105483502 SC00907519DDA2 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 17...	.4	.09	12	130	<.01	<.05	.03	<.1	<.01	.01	6
GW32c - 391452105483503 SC00907519DDA3 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 16...	.4	.08	14	137	<.01	.31	.03	<.1	<.01	.01	6
GW32d - 391452105483504 SC00907519DDA4 (LAT 39 14 52N LONG 105 48 35W)											
AUG 1998 21...	.8	.04	26	442	--	--	--	--	--	--	2460
SPG1 - 391449105482801 SC00907520CCC01 (LAT 39 14 49N LONG 105 48 28W)											
MAY 1998 28...	.4	.11	17	130	.01	.07	.02	<.1	<.01	<.01	4
SPG2 - 391216105484801 SC01007506DCA01 (LAT 39 12 16N LONG 105 48 48W)											
MAY 1998 14...	.5	.17	34	797	<.01	<.05	1.1	2.2	.12	.14	128
SPG3 - 391320105464000 SC01007533DBD01 (LAT 39 13 20N LONG 105 46 40W)											
MAY 1998 11...	.1	<.01	21	98	<.01	.25	.06	.2	.08	.07	8
SPG 4 - 391438105483600 SC00907530DDA (LAT 39 14 04N LONG 105 48 30W)											
MAY 1998 11...	.3	.09	15	160	<.01	<.05	.08	<.1	.01	<.01	5

Table 8. Water-quality data for selected wells and springs in north-central Park County, Colorado, May–August 1998—Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; ANC, acid neutralizing capacity, UNFLTRD, unfiltered; UG/L, micrograms per liter; PCI/L, picocuries per liter; H, hydrogen; O, oxygen: PER MIL, per thousand; <, less than; --, no data]

DATE	ANTIMONY, DISSOLVED (UG/L AS SB)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)
GW32a - 391452105483501 SC00907519DDA1 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 17...	<1	<1	17	<1	<1	1	<1	<1	33	<1	155
GW32b - 391452105483502 SC00907519DDA2 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 17...	<1	<1	12	<1	<1	<1	<1	<1	17	<1	12
GW32c - 391452105483503 SC00907519DDA3 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 16...	<1	<1	10	<1	<1	<1	<1	<1	<10	<1	2
GW32d - 391452105483504 SC00907519DDA4 (LAT 39 14 52N LONG 105 48 35W)											
AUG 1998 21...	<1	4	26	4	<1	53	2	1	11000	8	672
SPG1 - 391449105482801 SC00907520CCC01 (LAT 39 14 49N LONG 105 48 28W)											
MAY 1998 28...	<1	<1	3	<1	<1	1	<1	<1	33	<1	71
SPG2 - 391216105484801 SC01007506DCA01 (LAT 39 12 16N LONG 105 48 48W)											
MAY 1998 14...	<1	2	32	<1	<1	1	7	1	32000	<1	246
SPG3 - 391320105464000 SC01007533DBD01 (LAT 39 13 20N LONG 105 46 40W)											
MAY 1998 11...	<1	<1	4	<1	<1	<1	<1	2	24	<1	2
SPG 4 - 391438105483600 SC00907530DDA (LAT 39 14 04N LONG 105 48 30W)											
MAY 1998 11...	<1	<1	13	<1	<1	1	<1	<1	51	<1	133

Table 8. Water-quality data for selected wells and springs in north-central Park County, Colorado, May–August 1998—Continued

[US/CM, microsiemens per centimeter at 25 degrees Celsius; DEG C, degrees Celsius; MG/L, milligrams per liter; ANC, acid neutralizing capacity, UNFLTRD, unfiltered; UG/L, micrograms per liter; PCI/L, picocuries per liter; H, hydrogen; O, oxygen; PER MIL, per thousand; <, less than; --, no data]

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	RADON 222 TOTAL (PCI/L)	TRITIUM TOTAL (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL
GW32a - 391452105483501 SC00907519DDA1 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 17...	28	<1	<1	<1	1	5600	<2.5	13	.9	--	--
GW32b - 391452105483502 SC00907519DDA2 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 17...	18	<1	<1	<1	<1	--	--	5	.4	--	--
GW32c - 391452105483503 SC00907519DDA3 (LAT 39 14 52N LONG 105 48 35W)											
JUN 1998 16...	17	<1	<1	<1	<1	--	--	11	.5	--	--
GW32d - 391452105483504 SC00907519DDA4 (LAT 39 14 52N LONG 105 48 35W)											
AUG 1998 21...	29	5	<1	<1	264	--	<2.5	9	--	--	--
SPG1 - 391449105482801 SC00907520CCC01 (LAT 39 14 49N LONG 105 48 28W)											
MAY 1998 28...	14	1	1	<1	3	4900	7.7	7	.7	--	--
SPG2 - 391216105484801 SC01007506DCA01 (LAT 39 12 16N LONG 105 48 48W)											
MAY 1998 14...	<1	4	<1	<1	2	--	--	2	15	-103	-13.19
SPG3 - 391320105464000 SC01007533DBD01 (LAT 39 13 20N LONG 105 46 40W)											
MAY 1998 11...	<1	<1	<1	<1	<1	--	--	3	5.5	-113	-14.21
SPG 4 - 391438105483600 SC00907530DDA (LAT 39 14 04N LONG 105 48 30W)											
MAY 1998 11...	2	<1	<1	<1	<1	--	<2.5	<1	1.8	-98.3	-12.88

Table 9. Water-quality-control data for sites in north-central Park County, Colorado, July 1997–June 1998

[MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, less than]

DATE	TIME	SAMPLE TYPE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
SW1 - TARRYALL CREEK BLW PARK GULCH NR COMO, CO (LAT 39 16 54N LONG 105 47 11W)										
JUL 1997										
25...	0800	BLANK	<.02	<.01	<.2	<.1	1.7	<.1	<.1	<.1
MAY 1998										
13...	0930	BLANK	<.02	<.004	<.1	<.1	1.7	<.1	<.1	<.1
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)										
SEP 1997										
17...	1400	BLANK	<.02	<.01	<.2	<.1	1.9	<.1	<.1	<.1
GW30 - 391716105494401 SC00907612AAC01 (LAT 39 17 16N LONG 105 49 44W)										
MAY 1998										
05...	0845	BLANK	<.02	<.004	<.1	<.1	2.2	<.1	.3	<.1
GW32d - 391452105483504 SC00907519DDA4 (LAT 39 14 52N LONG 105 48 35W)										
JUN 1998										
16...	1615	BLANK	.03	.004	<.1	<.1	1.4	<.1	<.1	<.1
SW1 - TARRYALL CREEK BLW PARK GULCH NR COMO, CO (LAT 39 16 54N LONG 105 47 11W)										
JUL 1997										
25...	0850	REPLICATE	30	4.8	2.5	.7	92	9.5	.2	<.1
25...	0851	REPLICATE	30	4.8	2.5	.7	92	9.6	.2	<.1
MAY 1998										
13...	1000	REPLICATE	28	5.5	4.1	.8	85	18	.5	<.1
13...	1010	REPLICATE	28	5.5	4.1	.9	85	18	.5	<.1
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)										
SEP 1997										
17...	1420	REPLICATE	75	29	52	1.8	296	140	3.5	.6
17...	1430	REPLICATE	77	29	52	1.8	295	140	3.5	.6
GW27 - 391830105500801 SC00807636CAA01 (LAT 39 18 30N LONG 105 50 08W)										
MAY 1998										
05...	1510	REPLICATE	50	9.6	14	1.1	151	27	2.9	.7
05...	1520	REPLICATE	45	9.1	14	1.1	151	27	3.0	.8
GW4 - 391337105484301 SC00907531ADB01 (LAT 39 13 37N LONG 105 48 43W)										
MAY 1998										
28...	1100	REPLICATE	53	5.2	21	1.1	145	42	9.2	.3
28...	1105	REPLICATE	52	5.0	21	1.0	145	41	9.1	.4

Table 9. Water-quality-control data for sites in north-central Park County, Colorado, July 1997–June 1998—Continued

[MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, less than]

DATE	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)
SW1 - TARRYALL CREEK BLW PARK GULCH NR COMO, CO (LAT 39 16 54N LONG 105 47 11W)										
JUL 1997										
25...	--	.04	6	<.01	<.05	.03	<.2	<.2	<.01	<.01
MAY 1998										
13...	--	<.10	<10	<.01	<.05	<.02	<.1	<.1	<.01	<.01
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)										
SEP 1997										
17...	--	<.01	<1	<.01	<.05	.02	<.2	<.2	.01	<.01
GW30 - 391716105494401 SC00907612AAC01 (LAT 39 17 16N LONG 105 49 44W)										
MAY 1998										
05...	<.01	<.10	<10	<.01	<.05	.03	--	<.1	--	<.01
GW32d - 391452105483504 SC00907519DDA4 (LAT 39 14 52N LONG 105 48 35W)										
JUN 1998										
16...	<.01	<.10	<10	<.01	<.05	.04	--	<.1	--	<.01
SW1 - TARRYALL CREEK BLW PARK GULCH NR COMO, CO (LAT 39 16 54N LONG 105 47 11W)										
JUL 1997										
25...	--	8.5	120	<.01	<.05	<.01	<.2	<.2	<.01	<.01
25...	--	8.6	121	<.01	<.05	<.01	<.2	<.2	.01	<.01
MAY 1998										
13...	--	7.5	123	<.01	<.05	.03	.2	<.1	<.01	<.01
13...	--	7.4	120	<.01	<.05	.03	.2	<.1	.03	<.01
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)										
SEP 1997										
17...	--	15	503	<.01	<.05	.04	.5	.3	.06	.04
17...	--	15	507	<.01	<.05	.03	.5	.3	.04	.01
GW27 - 391830105500801 SC00807636CAA01 (LAT 39 18 30N LONG 105 50 08W)										
MAY 1998										
05...	.05	13	210	.02	.10	.04	--	<.1	--	<.01
05...	.05	12	209	.02	.11	.03	--	<.1	--	<.01
GW4 - 391337105484301 SC00907531ADB01 (LAT 39 13 37N LONG 105 48 43W)										
MAY 1998										
28...	.20	16	243	.01	<.05	<.02	--	.2	--	<.01
28...	.21	16	246	.01	<.05	.06	--	.1	--	.01

Table 9. Water-quality-control data for sites in north-central Park County, Colorado, July 1997–June 1998—Continued

[MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, less than]

DATE	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ANTIMONY, DISSOLVED (UG/L AS SB)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)
SW1 - TARRYALL CREEK BLW PARK GULCH NR COMO, CO (LAT 39 16 54N LONG 105 47 11W)										
JUL 1997										
25...	<.01	<1	<1	<1	<1	<1	<1	<1	<1	<1
MAY 1998										
13...	<.01	<1	<1	<1	<1	<1	<1	<1	<1	<1
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)										
SEP 1997										
17...	.01	<1	<1	<1	<1	<1	<1	<1	<1	<1
GW30 - 391716105494401 SC00907612AAC01 (LAT 39 17 16N LONG 105 49 44W)										
MAY 1998										
05...	.02	4	<1	<1	<1	<1	<1	<1	<1	<1
GW32d - 91452105483504 SC00907519DDA4 (LAT 39 14 52N LONG 105 48 35W)										
JUN 1998										
16...	.02	7	<1	<1	<1	<1	<1	<1	<1	<1
SW1 - TARRYALL CREEK BLW PARK GULCH NR COMO, CO (LAT 39 16 54N LONG 105 47 11W)										
JUL 1997										
25...	<.01	3	<1	<1	75	<1	<1	2	<1	1
25...	<.01	2	<1	<1	77	<1	<1	2	<1	1
MAY 1998										
13...	<.01	2	<1	<1	68	<1	<1	<1	<1	<1
13...	<.01	2	<1	1	66	<1	<1	1	<1	<1
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)										
SEP 1997										
17...	.03	1	<1	<1	60	<1	<1	4	<1	<1
17...	.01	<1	<1	1	60	<1	<1	3	<1	<1
GW27 - 391830105500801 SC00807636CAA01 (LAT 39 18 30N LONG 105 50 08W)										
MAY 1998										
05...	<.01	5	<1	<1	4	<1	<1	3	<1	<1
05...	.01	5	<1	<1	4	<1	<1	3	<1	<1
GW4 - 391337105484301 SC00907531ADB01 (LAT 39 13 37N LONG 105 48 43W)										
MAY 1998										
28...	.02	4	<1	<1	78	<1	<1	2	<1	<1
28...	.02	4	<1	<1	78	<1	<1	2	<1	<1

Table 9. Water-quality-control data for sites in north-central Park County, Colorado, July 1997–June 1998—Continued

[MG/L, milligrams per liter; UG/L, micrograms per liter; --, no data; <, less than]

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
SW1 - TARRYALL CREEK BLW PARK GULCH NR COMO, CO (LAT 39 16 54N LONG 105 47 11W)									
JUL 1997									
25...	<3	<1	<1	<1	<1	<1	<1	<1	<1
MAY 1998									
13...	<10	<1	<1	<1	<1	<1	<1	<1	<1
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)									
SEP 1997									
17...	<3	<1	<1	<1	<1	<1	<1	<1	<1
GW30 - 391716105494401 SC00907612AAC01 (LAT 39 17 16N LONG 105 49 44W)									
MAY 1998									
05...	<10	<1	2	<1	<1	<1	<1	1	<1
GW32d - 391452105483504 SC00907519DDA4 (LAT 39 14 52N LONG 105 48 35W)									
JUN 1998									
16...	<10	<1	<1	<1	<1	<1	<1	2	<1
SW1 - TARRYALL CREEK BLW PARK GULCH NR COMO, CO (LAT 39 16 54N LONG 105 47 11W)									
JUL 1997									
25...	110	<1	9	1	<1	<1	<1	1	<1
25...	95	<1	9	1	<1	<1	<1	<1	<1
MAY 1998									
13...	97	<1	10	1	<1	<1	<1	<1	<1
13...	89	<1	10	1	<1	<1	<1	<1	<1
SW5 - PARK GULCH ABOVE SLATER DITCH NEAR COMO, CO (LAT 39 16 28N LONG 105 50 21W)									
SEP 1997									
17...	45	<1	51	<1	<1	<1	<1	1	<1
17...	50	<1	56	<1	<1	<1	<1	<1	<1
GW27 - 391830105500801 SC00807636CAA01 (LAT 39 18 30N LONG 105 50 08W)									
MAY 1998									
05...	<10	<1	8	2	<1	2	<1	<1	17
05...	<10	<1	7	2	<1	2	<1	<1	18
GW4 - 391337105484301 SC00907531ADB01 (LAT 39 13 37N LONG 105 48 43W)									
MAY 1998									
28...	200	<1	146	<1	<1	<1	<1	<1	<1
28...	190	<1	146	<1	<1	<1	<1	<1	<1

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