

GWPD 2—Identifying a minimum set of data elements to establish a groundwater site

VERSION: 2010.1

PURPOSE: To specify the minimum amount of information that should be collected during the initial site inventory in the field for an individual groundwater site. These data will be recorded in the National Water Information System (NWIS).

Materials and Instruments

1. Best available paper maps or Global Positioning System (GPS) receiver
2. Groundwater Site Inventory (GWSI) System Groundwater Site Schedule, Form 9-1904-A
3. Spray paint, bright color
4. Metal file for marking well casing; hammer and cold steel chisel, survey monument (nail, spike, tablet)
5. Camera
6. Protractor, calculator, or other tools to calculate angles and lengths
7. Rod, leveling instrument, and leveling notes sheets
8. A steel tape graduated in feet, tenths and hundredths of feet
9. Blue carpenter's chalk
10. Clean rag
11. Field notebook
12. Pencil or pen, blue or black ink. Strikethrough, date, and initial errors; no erasures
13. Water-level measurement field form, or handheld computer for data entry
14. Two wrenches with adjustable jaws or other tools for removing well cap
15. Cleaning supplies for water-level tapes as described in the National Field Manual (Wilde, 2004)
16. Key for well access

Data Accuracy and Limitations

1. Altitudes determined from topographic maps are accurate to within one-half the map contour interval; latitudes and longitudes are accurate to about 0.5 second.
2. Accuracy of latitude, longitude, and altitudes determined by use of GPS are dependent on each instrument's capabilities.
3. The accuracy of the measuring point, land-surface datum, measuring point correction, and reference marks depends on the measurement method used. See GWPD 3 for additional information.
4. A graduated steel or electric tape commonly is accurate to 0.01 foot. See GWPD 1 and GWPD 4 for additional information.

Assumptions

1. The groundwater site is established by a field visit. At times, a site is established without a field visit. In that instance, less information may be available to establish the site in GWSI.
2. A groundwater site is a single point, not a geographic area or property.
3. All information available for a site will be compiled and entered in GWSI. This includes data and information that are not mandatory for GWSI (http://nwis.usgs.gov/nwisdocs4_10/gw/gwintrocoding_Sect2-0.pdf).
4. A GPS unit and (or) paper maps will be used to complete the location-based information needed for Form 9-1904-A (fig. 1). A U.S. Geological Survey (USGS) computer

10 Groundwater Technical Procedures of the U.S. Geological Survey

application is available for this task which automates some of the steps in this procedure. Use of that application is encouraged, but it is not yet available for field use.

5. The hydrographer has gathered all of the information available about the well, including a well-construction log, geologic log, owner information, and has permission to access the well.

Instructions

1. Locate the well as described in GWPD 5.
2. Establish a permanent measuring point, land-surface datum, and nearby reference marks as described in GWPD 3.
3. Measure the total depth of the well, as described in GWPD 11.
4. Measure the water level in the well, as described in GWPD 1 or GWPD 4.
5. Use the information collected prior to the field visit and the measurements collected during the field visit to complete every GWSI component (fig. 1) for which you have information.

Data Recording

Data are recorded in the field on the GWSI Groundwater Site Schedule (Form 9-1904-A, fig. 1). Water levels also are recorded on the appropriate water-level measurement field form.

References

- American Society for Testing and Materials, 1994, ASTM standards on ground water and vadose zone investigations (2d ed.): Philadelphia, Pennsylvania, American Society for Testing and Materials, p. 300–304.
- Cunningham, W.L., and Schalk, C.W., comps., 2011a, Groundwater technical procedures of the U.S. Geological Survey, GWPD 1—Measuring water levels by use of a graduated steel tape: U.S. Geological Survey Techniques and Methods 1–A1, 4 p.
- Cunningham, W.L., and Schalk, C.W., comps., 2011b, Groundwater technical procedures of the U.S. Geological Survey, GWPD 3—Establishing a permanent measuring point and other reference marks: U.S. Geological Survey Techniques and Methods 1–A1, 13 p.
- Cunningham, W.L., and Schalk, C.W., comps., 2011c, Groundwater technical procedures of the U.S. Geological Survey, GWPD 4—Measuring water levels by use of an electric tape: U.S. Geological Survey Techniques and Methods 1–A1, 6 p.
- Cunningham, W.L., and Schalk, C.W., comps., 2011d, Groundwater technical procedures of the U.S. Geological Survey, GWPD 5—Documenting the location of a well: U.S. Geological Survey Techniques and Methods 1–A1, 10 p.
- Cunningham, W.L., and Schalk, C.W., comps., 2011e, Groundwater technical procedures of the U.S. Geological Survey, GWPD 11—Measuring well depth by use of a graduated steel tape: U.S. Geological Survey Techniques and Methods 1–A1, 10 p.
- Hoopes, B.C., ed., 2004, User's manual for the National Water Information System of the U.S. Geological Survey, Groundwater Site-Inventory System (version 4.4): U.S. Geological Survey Open-File Report 2005–1251, 274 p.
- Wilde, F.D., ed., 2004, Cleaning of equipment for water sampling (version 2.0): U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chap. A3, accessed July 17, 2006, at <http://pubs.water.usgs.gov/twri9A3/>.

FORM NO. 9-1904-A
Revised Sept 2009, NWS 4.9

File Code _____
Date _____

Coded by _____
Checked by _____
Entered by _____

U.S DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY

GROUNDWATER SITE SCHEDULE
General Site Data

AGENCY CODE (C4) **USGS** SITE ID (C1) _____ PROJECT (C5) _____

STATION NAME (C12/900) _____

SITE TYPE (C802) **1** Primary Secondary DISTRICT (C6) _____ COUNTRY (C41) _____ STATE (C7) _____

COUNTY or TOWN (C8) _____ County code _____

LATITUDE (C9) _____ LONGITUDE (C10) _____ LAT/LONG ACCURACY (C11) **H 1 5 S R F T M U**
Hndrth sec. tenth sec. half sec. 3 sec. 5 sec. 10 sec. min. Un-known

LAT/LONG METHOD (C35) **C D G L M N R S U** LAT/LONG DATUM (C36) **NAD27 NAD83** ALTITUDE (C16) _____
land net DGPS GPS LORAN map inter-polated digital map reported survey un-known North American Datum of 1927 North American Datum of 1983

ALTITUDE ACCURACY (C18) _____ ALTITUDE METHOD (C17) **A D G I J L M N R U** ALTITUDE DATUM (C22) **NGVD29 NAVD88**
altimeter DGPS GPS IFSAR LIDAR Level map DEM reported un-known National Geodetic Vertical Datum of 1929 North American Vertical Datum of 1988

LAND NET (C13) _____
1/4 1/4 1/4 section township range merid

TOPO-GRAPHIC SETTING (C19) **A B C D E F G H K L M O P S T U V W**
alluvial fan playa stream channel depression dunes flat flood-plain hill-top sink-hole lake or swamp mangrove swamp off-shore pediment hill-side terrace undulating valley flat upland draw

HYDROLOGIC UNIT CODE (C20) _____ DRAINAGE BASIN CODE (C801) _____ STANDARD TIME ZONE (C813) _____ DAYLIGHT SAVINGS TIME FLAG (C814) **Y OR N**

MAP NAME (C14) _____ MAP SCALE (C15) _____

AGENCY USE (C803) **A D I L M O R** 2 NATIONAL WATER-USE (C39) _____
active no/na discontinued inactive site active written active oral inventory remediated site

DATA TYPE (C804) Place an 'A' (active), an 'I' (inactive), or an 'O' (inventory) in the appropriate box

WL cont	WL int	QW cont	QW int	PR cont	PR int	EV cont	EV int	wind vel.	tide cont	tide int	sed. con	sed. ps	peak flow	low flow	state water use
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INSTRUMENTS (C805) (Place a "Y" in the appropriate box):

digital rec-order	graphic rec-order	tele-metry land line	tele-metry radio	tele-metry satellite	AHDAS	crest-stage gage	tide gage	deflection meter	bubble gage	stilling well	CR type recorder	weighing rain gage	tipping bucket rain gage	acoustic velocity meter	electro-magnetic flowmeter	pressure transducer
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DATE INVENTORIED (C711) _____ RECORD READY FOR WEB (C32) **Y C P L**
month day year ready to display conditional proprietary local use only

REMARKS (C806) _____

FOOTNOTES

1 SITE TYPE (C802)

GL	Glacier	OC	Ocean	GW	Well	SB	Subsurface
WE	Wetland	OC-CO	Coastal	GW-CR	Collector or Ranney type well	SB-CV	Cave
AT	Atmosphere	LK	Lake, Reservoir, Impoundment	GW-EX	Extensometer well	SB-GWD	Groundwater drain
ES	Estuary			GW-HZ	Hyporheic -zone well	SB-TSM	Tunnel, shaft, or mine
LA	Land	SP	Spring	GW-IW	Interconnected wells	SB-UZ	Unsaturated zone
LA-EX	Excavation	ST	Stream	GW-TH	Test hole not completed as a well		
LA-OU	Outcrop	ST-CA	Canal	GW-MW	Multiple wells		
LA-SNK	Sinkhole	ST-DCH	Ditch				
LA-SH	Soil hole	ST-TS	Tidal stream				
LA-SR	Shore	FA-WIW	Waste-Injection well				

2 **WS DO CO IN IR MI LV PH ST RM TE AQ**
water supply domestic commercial industrial irrigation mining livestock power hydro-electric waste water treatment remediation thermo-electric power aquaculture

C22 Other (see manual for codes)
C36 Other (see manual for codes)
C39 is mandatory for all sites having data in SWUDS.

Figure 1. Groundwater Site Schedule, Form 9-1904-A.

12 Groundwater Technical Procedures of the U.S. Geological Survey

GENERAL SITE DATA

DATA RELIABILITY (C3) **C L M U**
field checked poor location minimal data un-checked

DATE OF FIRST CONSTRUCTION (C21) - -
month day year

USE OF SITE (C23) **A C D E G H M O P R S T U V W X Z**
anode standby drain geothermal seismic heat mine observation oil or recharge repres- test unused with- with- waste destroyed
 emer. supply water thermal reservoir gas drawal/ return drawal other

SECONDARY USE OF SITE (C301) TERTIARY USE OF SITE (C302)
(See use of site) (See use of site)

USE OF WATER (C24) **A B C D E F H I J K M N P Q R S T U Y Z**
air bottling comm- de- power fire domes- irri- indus- mining medicinal industrial public aqua- recrea- stock insti- unused desalin- other
 cond. emer- ercial water thermal reservoir tic gation trial (cooling) medical supply culture tions tutional ation

SECONDARY USE OF WATER (C25) TERTIARY USE OF WATER (C26)
(see use of water) (see use of water)

AQUIFER TYPE (C713) **U N C M X**
unconfined single unconfined multiple confined single confined multiple mixed

PRIMARY AQUIFER (C714) NATIONAL AQUIFER (C715)

HOLE DEPTH (C27) . WELL DEPTH (C28) .

SOURCE OF DEPTH DATA (C29) **A D G L M O R S Z**
other gov't driller geol- logs memory owner other reported other
 gov't driller geologist logs memory owner reported agency

WATER-LEVEL DATA

DATE WATER-LEVEL MEASURED (C235) - - TIME (C709)
month day year

WATER-LEVEL TYPE CODE (C243) **L M S**
land surface meas. vertical pt. datum

WATER LEVEL (C237/241/242) . MP SEQUENCE NO. (C248) (Mandatory if WL type=M)

WATER-LEVEL DATUM (C245) (Mandatory if WL type=S) **NGVD29 NAVD88**
National Geodetic Vertical Datum of 1929 North American Vertical Datum of 1988 Other (See manual for codes)

SITE STATUS FOR WATER LEVEL (C238) **A B C D E F G H I J M N O P R S T V W X Z**
atmos. tide ice dry recently flowing nearby recently flowing nearby injector injector plugged measure- obstruction pumping recently nearby nearby foreign well affected by
 pressure stage ice dry recently flowing nearby recently flowing nearby injector site monitor discontinued pumped pumped pumped substance destroyed surface water other

METHOD OF WATER-LEVEL MEASUREMENT (C239) **A B C D E F G H L M N O P R S T V Z**
airline analog calibrated differential estimated trans- pressure calibrated geophysical mano- non-rec. observed acoustic reported steel electric calibrated other
 airline analog calibrated differential estimated trans-ducer gage press. gage logs meter gage gage physical logs pulse reported tape tape elec. tape

WATER-LEVEL ACCURACY (C276) **0 1 2 9** SOURCE OF WATER-LEVEL DATA (C244) **A D G L M O R S Z**
foot tenth hun- not to nearest foot other gov't driller's log geol- geophysical memory owner other reported agency other
 foot tenth hundredth nearest foot other gov't driller's log geologist geophysical logs memory owner reported agency other

PERSON MAKING MEASUREMENT (C246) (WATER LEVEL PARTY) MEASURING AGENCY (C247) (SOURCE) EQUIP ID (C249) (20 char)

REMARKS (C267) (256 char) RECORD READY FOR WEB (C858) **Y C P L**
ready to display conditional proprie- local use only

CONSTRUCTION DATA

RECORD TYPE (C754) **C O N S** RECORD SEQUENCE NO. (C723) DATE OF COMPLETED CONSTRUCTION (C60) - -
month day year

NAME OF CONTRACTOR (C63) SOURCE OF DATA (C64) **A D G L M O R S Z**
other gov't driller geol- logs memory owner other reported agency other
 gov't driller geologist logs memory owner reported agency other

METHOD OF CONSTRUCTION (C65) **A B C D H J P R S T V W Z**
air-rotary bored or cable dug hydraulic jetted air per- reverse sonic trenching driven drive wash other
 air-rotary bored or augered cable tool dug hydraulic rotary jetted air percussion reverse rotary sonic trenching driven drive wash other

TYPE OF FINISH (C66) **C F G H O P S T W X Z** TYPE OF SEAL (C67) **B C G N Z**
porous gravel gravel horiz. open perf or screen sand walled open other bentonite clay cement none other
 porous concrete gravel w/perf. gravel screen horiz. gallery open end perf or slotted sand point walled open hole other bentonite clay cement grout none other

BOTTOM OF SEAL (C68) METHOD OF DEVELOPMENT (C69) **A B C J N P S Z**
air-lift bailed compressed jetted none pumped surged other
 air-lift pump bailed compressed air jetted none pumped surged other

HOURS OF DEVELOPMENT (C70) SPECIAL TREATMENT (C71) **C D E F H M Z**
chemi- dry ice explo- defloc- hydro- mech- other
 cals dry ice sives culent frac- anical other
 chemicals dry ice explosives defloculent hydrofracturing mechanical other

CONSTRUCTION HOLE DATA (3 sets shown)

RECORD TYPE (C756) **HOLE** RECORD SEQUENCE NO. (C724) SEQUENCE NO. OF PARENT RECORD (C59)

DEPTH TO TOP OF INTERVAL (C73) . DEPTH TO BOTTOM OF INTERVAL (C74) . DIAMETER OF INTERVAL (C75) .

RECORD SEQUENCE NO. (C724)

DEPTH TO TOP OF INTERVAL (C73) . DEPTH TO BOTTOM OF INTERVAL (C74) . DIAMETER OF INTERVAL (C75) .

RECORD SEQUENCE NO. (C724)

DEPTH TO TOP OF INTERVAL (C73) . DEPTH TO BOTTOM OF INTERVAL (C74) . DIAMETER OF INTERVAL (C75) .

CONSTRUCTION CASING DATA (4 sets shown)

RECORD TYPE (C758) **CASING** RECORD SEQUENCE NO. (C725) SEQUENCE NO. OF PARENT RECORD (C59)

DEPTH TO TOP OF CASING (C77) . DEPTH TO BOTTOM OF CASING (C78) . DIAMETER OF CASING (C79) .

4 CASING MATERIAL (C80) CASING THICKNESS (C81) .

RECORD SEQUENCE NO. (C725) SEQUENCE NO. OF PARENT RECORD (C59)

DEPTH TO TOP OF CASING (C77) . DEPTH TO BOTTOM OF CASING (C78) . DIAMETER OF CASING (C79) .

4 CASING MATERIAL (C80) CASING THICKNESS (C81) .

RECORD SEQUENCE NO. (C725) SEQUENCE NO. OF PARENT RECORD (C59)

DEPTH TO TOP OF CASING (C77) . DEPTH TO BOTTOM OF CASING (C78) . DIAMETER OF CASING (C79) .

4 CASING MATERIAL (C80) CASING THICKNESS (C81) .

RECORD SEQUENCE NO. (C725) SEQUENCE NO. OF PARENT RECORD (C59)

DEPTH TO TOP OF CASING (C77) . DEPTH TO BOTTOM OF CASING (C78) . DIAMETER OF CASING (C79) .

4 CASING MATERIAL (C80) CASING THICKNESS (C81) .

FOOTNOTE:

4 CASING MATERIAL CODES	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	4	6
	abs	brick	concrete	copper	PTFE	Fiber-glass	galv. iron	Fiber-glass	wrought iron	Fiber-glass	thread-ed	PVC metal	glass	other	PVC glued	PVC or FEP plastic	rock or stone	steel	tile	coated steel	stain-less steel	wood	steel carbon	steel galvanized	other mat.	stain-less 304	stain-less 316

14 Groundwater Technical Procedures of the U.S. Geological Survey

CONSTRUCTION OPENINGS DATA (3 sets shown)

RECORD TYPE (C760) RECORD SEQUENCE NO. (C726) SEQUENCE NO. OF PARENT RECORD (C59)

DEPTH TO TOP OF INTERVAL (C83) DEPTH TO BOTTOM OF INTERVAL (C84) DIAMETER OF INTERVAL (C87)

⁵ MATERIAL TYPE (C86) ⁶ TYPE OF OPENING (C85) LENGTH OF OPENING (C89) WIDTH OF OPENING (C88)

RECORD SEQUENCE NO. (C726)

DEPTH TO TOP OF INTERVAL (C83) DEPTH TO BOTTOM OF INTERVAL (C84) DIAMETER OF INTERVAL (C87)

⁵ MATERIAL TYPE (C86) ⁶ TYPE OF OPENING (C85) LENGTH OF OPENING (C89) WIDTH OF OPENING (C88)

RECORD SEQUENCE NO. (C726)

DEPTH TO TOP OF INTERVAL (C83) DEPTH TO BOTTOM OF INTERVAL (C84) DIAMETER OF INTERVAL (C87)

⁵ MATERIAL TYPE (C86) ⁶ TYPE OF OPENING (C85) LENGTH OF OPENING (C89) WIDTH OF OPENING (C88)

FOOTNOTES:

⁵ TYPE OF MATERIAL CODES FOR OPEN SECTIONS

A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	V	W	X	Y	Z	4	6
ABS or bronze	brass	concrete	ceramic	PTFE	fiber-glass	galv. iron plastic	fiber-glass	wrought iron	fiber-glass epoxy	PVC threaded	glass	other metal	PVC glued	PVC	FEP	stainless steel	steel	tile	brick	mem-brane	steel carbon	steel galvanized	other	stain-less 304	stain-less 316

⁶ TYPE OF OPENINGS CODES

F	L	M	P	R	S	T	W	X	Z
fractured rock	louvered or shutter-type	mesh screen	perforated, porous or slotted	wire-wound screen	screen (unk.)	sand point screen	walled or shored	open hole	other

CONSTRUCTION MEASURING POINT DATA

RECORD TYPE (C766) RECORD SEQUENCE NO. (C728) BEGINNING DATE (C321) -- ENDING DATE (C322) --
month day year

M.P. HEIGHT (C323) ALTITUDE OF MEASURING POINT (C325) ALTITUDE METHOD (C326) ALTITUDE ACCURACY (C327)

ALTITUDE DATUM (C328) M.P. REMARKS (C324)

RECORD READY FOR WEB (C857)

Y	C	P	L
ready to display	condi-tional	proprie-tary	local use only

CONSTRUCTION LIFT DATA

RECORD TYPE (C752) **L I F T** RECORD SEQUENCE NO. (C254) TYPE OF LIFT (C43) **A B C J P R S T U X Z**
air bucket centri-fugal jet piston rotary submer-sible turbine un-known no lift other

DATE RECORDED (C38) - - PUMP INTAKE DEPTH (C44) TYPE OF POWER (C45) **D E G H L N S W Z**
month day year diesel electric gaso-line hand LP gas natural gas solar windmill other

HORSE-POWER RATING (C46) . MANUFACTURER (C48) SERIAL NO. (C49)

POWER COMPANY (C50) POWER COMPANY ACCOUNT NUMBER (C51)

POWER METER NUMBER (C52) PUMP RATING (C53) (million gallons/units of fuel) . ADDITIONAL LIFT (C255)

PERSON OR COMPANY MAINTAINING PUMP (C54) RATED PUMP CAPACITY (gpm) (C268) STANDBY POWER (C56) (see TYPE OF POWER)

HORSEPOWER OF STANDBY POWER SOURCE (C57) .

MISCELLANEOUS OWNER DATA

RECORD TYPE (C768) **O W N E R** RECORD SEQUENCE NO. (C718) DATE OF OWNERSHIP (C159) - -

WU OWNER TYPE (C350) **CP GV IN MI OT TG WS** END DATE OF OWNERSHIP (C374) - -
Corporation Government Individual Military Other Tribal Water Supplier

OWNER'S NAME (C161)
 EXAMPLES: JONES, RALPH A.
 JONES CONSTRUCTION COMPANY

OWNER'S PHONE NUMBER (C351) ACCESS TO OWNER'S NAME (C352) **0 1 2 3 4**
Public Access Cooperator Only USGS District Proprietary Only

OWNER'S ADDRESS (LINE 1) (C353)

OWNER'S ADDRESS (LINE 2) (C354)

OWNER'S CITY NAME (C355)

STATE (C356) OWNER'S ZIP CODE (C357)

OWNER'S COUNTRY NAME (C358)

ACCESS TO OWNER'S PHONE/ADDRESS (C359) **0 1 2 3 4**
Public Access Cooperator Only USGS District Proprietary Only

MISCELLANEOUS VISIT DATA

RECORD TYPE (C774) **V I S I T** RECORD SEQUENCE NO. (C737) DATE OF VISIT (C187) - -
month day year

NAME OF PERSON (C188)

16 Groundwater Technical Procedures of the U.S. Geological Survey

MISCELLANEOUS OTHER ID DATA (2 sets shown)

RECORD TYPE (C770) **O T I D** RECORD SEQUENCE NO. (C736) OTHER ID (C190)

ASSIGNER (C191)

RECORD SEQUENCE NO. (C736) OTHER ID (C190)

ASSIGNER (C191)

MISCELLANEOUS OTHER DATA

RECORD TYPE (C772) **O T D T** RECORD SEQUENCE NO. (C312)

OTHER DATA TYPE (C181)

OTHER DATA LOCATION (C182) **C D R Z** DATA FORMAT (C261) **F M P Z**

Cooperator's Office, District Office, Reporting Agency, other files, machine readable, published, other

MISCELLANEOUS LOGS DATA (3 sets shown)

RECORD TYPE (C778) **L O G S** RECORD SEQUENCE NO. (C739) TYPE OF LOG (C199)

BEGINNING DEPTH (C200) ENDING DEPTH (C201) SOURCE OF DATA (C202) **A D G L M O R S Z**

other govt, driller, geologist, logs, memory owner, other reported, reporting agency

DATA FORMAT (C225) **F M P Z** OTHER DATA LOCATION (C226)

files, machine readable, published, other

RECORD TYPE (C778) **L O G S** RECORD SEQUENCE NO. (C739) TYPE OF LOG (C199)

BEGINNING DEPTH (C200) ENDING DEPTH (C201) SOURCE OF DATA (C202) **A D G L M O R S Z**

other govt, driller, geologist, logs, memory owner, other reported, reporting agency

DATA FORMAT (C225) **F M P Z** OTHER DATA LOCATION (C226)

files, machine readable, published, other

RECORD TYPE (C778) **L O G S** RECORD SEQUENCE NO. (C739) TYPE OF LOG (C199)

BEGINNING DEPTH (C200) ENDING DEPTH (C201) SOURCE OF DATA (C202) **A D G L M O R S Z**

other govt, driller, geologist, logs, memory owner, other reported, reporting agency

DATA FORMAT (C225) **F M P Z** OTHER DATA LOCATION (C226)

files, machine readable, published, other

ACOUSTIC LOG:
 AS Sonic
 AV Acoustic velocity
 AW Acoustic waveform
 AT Acoustic televiewer

CALIPER LOG:
 CP Caliper
 CS Caliper, single arm
 CT Caliper, three arm
 CM Caliper, multi arm
 CA Caliper, acoustic

DRILLING LOG:
 DT Drilling time
 DR Drillers
 DG Geologists
 DC Core

ELECTRIC LOG:
 EE Electric
 ER Single-point resistance
 EP Spontaneous potential
 EL Long-normal resistivity
 ES Short-normal resistivity
 EF Focused resistivity
 ET Lateral resistivity
 EN Microresistivity
 EC Microresistivity, focused
 EO Microresistivity, lateral
 ED Dipmeter

ELECTROMAGNETIC LOG:
 MM Magnetic log
 MS Magnetic susceptibility log
 MI Electromagnetic induction log
 MD Electromagnetic dual induction log
 MR Radar reflection image log
 MV Radar direct-wave velocity log
 MA Radar direct-wave amplitude log

FLUID LOG:
 FC Fluid conductivity
 FR Fluid resistivity
 FT Fluid temperature
 FF Fluid differential temperature
 FV Fluid velocity
 FS Spinner flowmeter
 FH Heat-pulse flowmeter
 FE Electromagnetic flowmeter
 FD Doppler flowmeter
 FA Radioactive tracer
 FY Dye tracer
 FB Brine tracer

NUCLEAR LOG:
 NG Gamma
 NS Spectral gamma
 NA Gamma-gamma
 NN Neutron
 NT Neutron activation
 NM Neuclear magnetic resonance

OPTICAL LOG:
 OV Video
 OF Fisheye video
 OS Sidewall video
 OT Optical televiewer

COMBINATION LOG:
 ZF Gamma, fluid resistivity, temperature
 ZI Gamma, electromagnetic induction
 ZR Long/short normal resistivity
 ZT Fluid resistivity, temperature
 ZM Electromagnetic flowmeter, fluid resistivity, temperature
 ZN Long/short normal resistivity, spontaneous potential
 ZP Single-point resistance, spontaneous potential
 ZE Gamma, long/short normal resistivity, spontaneous potential, single-point resistance, fluid resistivity, temperature

WELL CONSTRUCTION LOG:
 WC Casing collar
 WD Borehole deviation

OTHER LOG:
 OR Other

MISCELLANEOUS NETWORK DATA (3 types shown)

RECORD TYPE (C780) **N E T W** RECORD SEQUENCE NO. (C730) TYPE OF NETWORK (C706) **Q W** BEGINNING YEAR (C115) ENDING YEAR (C116)
water quality

TYPE OF ANALYSIS (C120) **A B C D E F G H I J K L M N P Z**
physical properties common ions trace elements pesticides nutrients sanitary analysis codes D&B codes B&E codes B&C codes B&F codes D&E codes C,D&E all or most codes B&C& radio-active codes B,C&A other

SOURCE AGENCY (C117) ⁷FREQUENCY OF COLLECTION (C118) ANALYZING AGENCY (C307) ⁸PRIMARY NETWORK SITE (C257) ⁸SECONDARY NETWORK SITE (C708)

RECORD TYPE (C780) **N E T W** RECORD SEQUENCE NO. (C730) TYPE OF NETWORK (C706) **W L** BEGINNING YEAR (C115) ENDING YEAR (C116)
water level

SOURCE AGENCY (C117) ⁷FREQUENCY OF COLLECTION (C118) ⁸PRIMARY NETWORK SITE (C257) ⁸SECONDARY NETWORK SITE (C708)

RECORD TYPE (C780) **N E T W** RECORD SEQUENCE NO. (C730) TYPE OF NETWORK (C706) **W D** BEGINNING YEAR (C115) ENDING YEAR (C116)
pumpage or withdrawals

SOURCE AGENCY (C117) ⁷FREQUENCY OF COLLECTION (C118) METHOD OF COLLECTION (C133) **C E M U Z** ⁸PRIMARY NETWORK SITE (C257) ⁸SECONDARY NETWORK SITE (C708)
calculated estimated metered unknown other

FOOTNOTES:

⁷ FREQUENCY OF COLLECTION CODES **A B C D F I M O Q S W Z 2 3 4 5 X**
annually bi-monthly continuously daily semi-monthly inter-mittent monthly one-time only quarterly semi-annually weekly other bi-annually every 3 years every 4 years every 5 years every 10 years

⁸ NETWORK SITE CODES **1 2 3 4**
national, district, project, co-operator,

MISCELLANEOUS REMARKS DATA (4 types shown)

RECORD TYPE (C788) **R M K S** RECORD SEQUENCE NO. (C311) DATE OF REMARK (C184) - -
month day year

Subsequent entries may be used to continue the remark. Miscellaneous remarks field is limited to 256 characters.

RECORD TYPE (C788) **R M K S** RECORD SEQUENCE NO. (C311) DATE OF REMARK (C184) - -
month day year

Subsequent entries may be used to continue the remark. Miscellaneous remarks field is limited to 256 characters.

18 Groundwater Technical Procedures of the U.S. Geological Survey

DISCHARGE DATA

RECORD SEQUENCE NO. (C147)

DATE DISCHARGE MEASURED (C148) - - month - day - year

TYPE OF DISCHARGE (C703) P F pumped flow

DISCHARGE (gpm) (C150) .

ACCURACY OF DISCHARGE MEASUREMENT (C310) E G F P
excellent (LT 2%), good (2%-5%), fair (5%-8%), poor (GT 8%)

SOURCE OF DATA (C151) A D G L M O R S Z
other gov't driller geologist logs memory owner other reported reporting agency other

METHOD OF DISCHARGE MEASUREMENT (C152) A B C D E F M O P R T U V W X Z
acoustic meter bailer current meter Doppler meter estimated flume totaling meter orifice pitot-tube reported trajectory venturi meter volumetric meas weir unknown other

PRODUCTION WATER LEVEL (C153) .

STATIC WATER LEVEL (C154) .

SOURCE OF DATA (C155) A D G L M O R S Z
other gov't driller geologist logs memory owner other reported reporting agency other

METHOD OF WATER-LEVEL MEASUREMENT (C156) A B C D E F G H L M N O P R S T V Z
airline recorder calibrated airline differential GP estimated transducer pressure gage calibrated press. gage geophysical logs manometer non-rec. gage observed acoustic pulse reported steel tape electric tape calibrated other elec. tape

PUMPING PERIOD (C157) .

SPECIFIC CAPACITY (C272) .

DRAWDOWN (C309) .

GEOHYDROLOGIC DATA

RECORD TYPE (C748) G E O H

RECORD SEQUENCE NO. (C721)

DEPTH TO TOP OF UNIT (C91) .

DEPTH TO BOTTOM OF UNIT (C92) .

UNIT IDENTIFIER (C93)

LITHOLOGY (C96)

CONTRIBUTING UNIT (C304) P Q S N U
principal aquifer aggregate of lithologic units secondary aquifer no contribution unknown

LITHOLOGIC MODIFIER (C97)

GEOHYDROLOGIC AQUIFER DATA

RECORD TYPE (C750) A Q F R

RECORD SEQUENCE NO. (C742)

SEQUENCE NO. OF PARENT RECORD (C256)

DATE (C95) - - month - day - year

STATIC WATER LEVEL (C126) .

CONTRIBUTION (C132)

SITE LOCATION SKETCH AND DIRECTIONS

Township _____ Range _____
 Section # _____

