GWPD 5—Documenting the location of a well

VERSION: 2010.1

PURPOSE: To specify a procedure for documenting the location of a well at a groundwater site.

Materials and Instruments

1. Global Positioning System (GPS) receiver, if available
2. GPS calibration and maintenance equipment logbook
3. Best available paper maps:
   - A state highway map
   - Town or county plat map
   - An aerial photograph or satellite image
   - U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map
     - USGS 7.5-minute latitude-longitude scale
     - USGS 1:24,000 scale, graduated in miles and feet
4. Orienteering (transparent base) compass
5. Groundwater Site Inventory (GWSI) System Groundwater Site Schedule, Form 9-1904-A
6. Field notebook
7. Pencil or pen, blue or black ink. Strikethrough, date, and initial errors; no erasures
8. Camera

Data Accuracy and Limitations

1. GPS instrument accuracy varies. Handheld, Wide Area Augmentation System (WAAS)-enabled GPS instruments typically are accurate within a few meters horizontally. Instrument manuals and field tests should be used to confirm instrument accuracy.
2. USGS 7.5-minute latitude-longitude scale should be accurate to 0.5 second or about 50 feet.

Assumptions

1. The person locating the well has been trained to use a GPS instrument to determine the latitude and longitude of a point on the ground.
2. The person locating the well has been trained to use a latitude-longitude scale to determine the latitude and longitude of a point on a USGS 7.5-minute topographic quadrangle map.

Instructions

1. Each groundwater site should have a station log containing detailed narrative descriptions of the site, permanent landmarks, the best route to the site, and job hazards in the vicinity of the site.
2. Make two sketch maps of the site, one showing the general location of the site, and the other showing the details of the site. Orient the sketch maps relative to north using a compass. All distances should be shown in feet from permanent landmarks, such as buildings, bridges, culverts, telephone poles, road centerlines, and road intersections (fig. 1).
   a. General location map:
      (1) If a GPS instrument is available, determine the latitude and longitude of the well site.
      (2) Plot the general location of the well on a suitable paper map. If a GPS instrument is not available, the location should be plotted on a USGS 7.5-minute topographic quadrangle map.
      (3) If a GPS instrument is not available, determine the latitude and longitude of the well site from a USGS 7.5-minute topographic quadrangle map using a USGS 7.5-minute latitude-longitude scale.

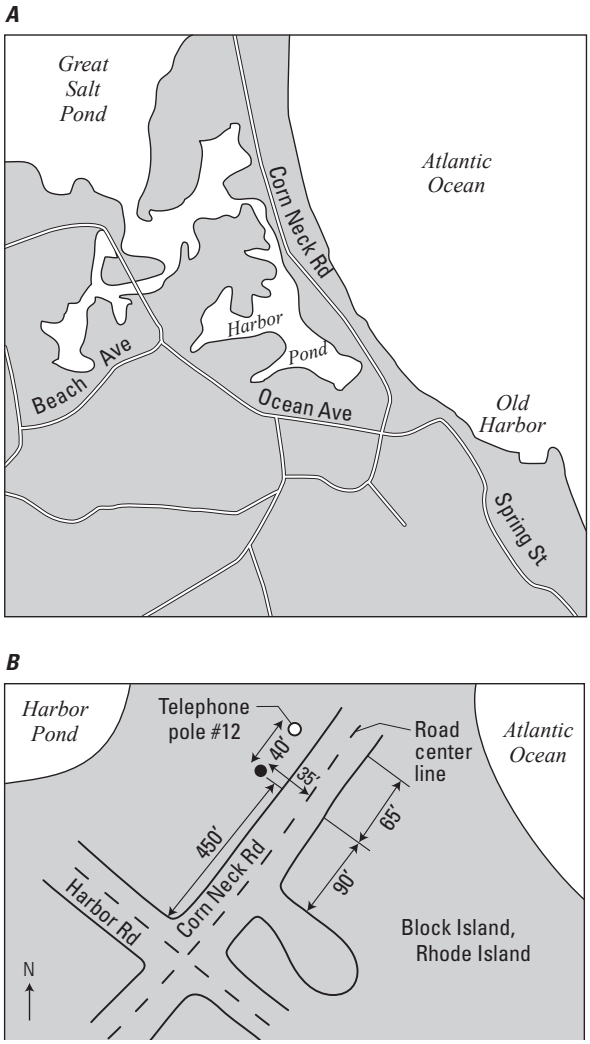


Figure 1. Examples of (*A*) general sketch map and (*B*) detailed sketch map.

b. Detailed site map:

(1) Prepare a detailed sketch map (fig. 1) showing the location of the well site in the field notebook and on the last page of the Groundwater Site Schedule, Form 9-1904-A (fig. 2). The sketch map should contain enough detail so that the site could be found by a person who has never been to the site before.

(2) Take at least two photographs of the well location from different views and indicate on each photograph the direction of view. File location photographs with the GWSI form.

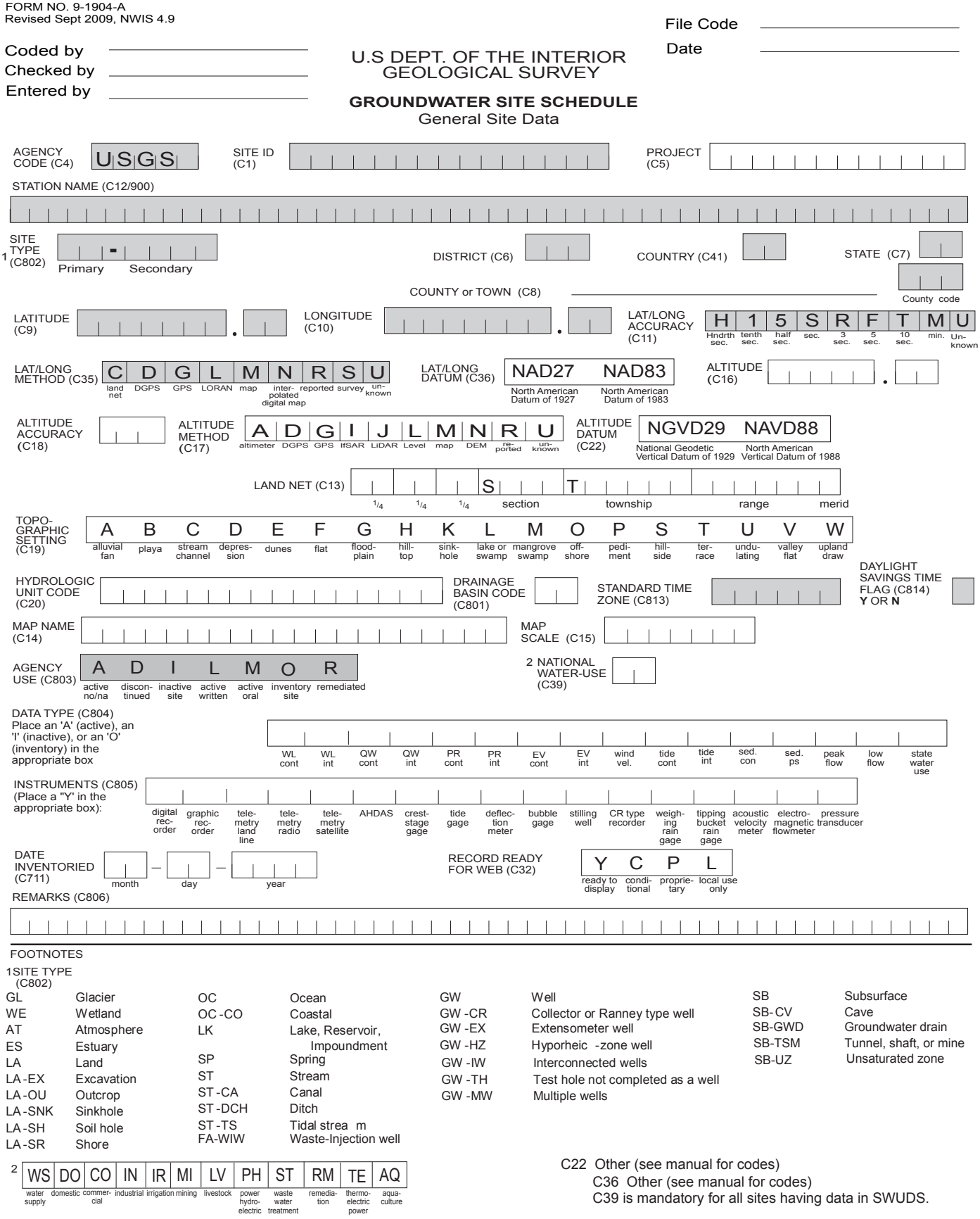
Data Recording

All calibration and maintenance data associated with the GPS instrument use are recorded in the calibration and maintenance equipment logbook. Data are recorded in a field notebook and on the GWSI Groundwater Site Schedule (Form 9-1904-A).

References

Hoopes, B.C., ed., 2004, User's manual for the National Water Information System of the U.S. Geological Survey, Ground-Water Site-Inventory System (version 4.4): U.S. Geological Survey Open-File Report 2005–1251, 274 p.

U.S. Geological Survey, Office of Water Data Coordination, 1977, National handbook of recommended methods for water-data acquisition: Office of Water Data Coordination, Geological Survey, U.S. Department of the Interior, chap. 2, 149 p.



FORM NO. 9-1904-A
Revised Sept 2009, NWIS 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. | sec. | 3 sec. | 5 sec. | 10 sec. | min. | Unknown
LAT/LONG METHOD (C35) C D G L M N R S U
land net | DGPS | GPS | LORAN | map | interpolated digital map | reported | survey | unknown
LAT/LONG DATUM (C36) NAD27 NAD83
North American Datum of 1927 | North American Datum of 1983
ALTITUDE (C16)
ALTITUDE ACCURACY (C18)
ALTITUDE METHOD (C17) A D G I J L M N R U
altimeter | DGPS | GPS | IfSAR | LiDAR | Level | map | DEM | reported | unknown
ALTITUDE DATUM (C22) NGVD29 NAVD88
National Geodetic Vertical Datum of 1929 | North American Vertical Datum of 1988
LAND NET (C13) 1/4 1/4 1/4 S section T township range merid
TOPOGRAPHIC 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
active no/na | discontinued | inactive site | active written | active oral | inventory site | remediated
2 NATIONAL WATER-USE (C39)
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
INSTRUMENTS (C805) (Place a "Y' in the appropriate box):
digital recorder | graphic recorder | telemetry land line | telemetry radio | telemetry 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 | electromagnetic flowmeter | pressure transducer
DATE INVENTORIED (C711) month – day – year
RECORD READY FOR WEB (C32) Y C P L
ready to display | conditional | proprietary | local use only
REMARKS (C806)

FOOTNOTES

1SITE TYPE (C802)

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

2 WS DO CO IN IR MI LV PH ST RM TE AQ
water supply | domestic | commercial | industrial | irrigation | mining | livestock | power hydroelectric | waste water treatment | remediation | thermoelectric 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 2. Groundwater Site Schedule, Form 9-1904-A.

GENERAL SITE DATA

DATA RELIABILITY (C3): C L M U
(C = field checked; L = poor location; M = minimal data; U = unchecked)

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
(A = anode; C = standby emer. supply; D = drain; E = geothermal; G = seismic; H = heat reservoir; M = mine; O = observation; P = oil or gas; R = recharge; S = repressurize; T = test; U = unused; V = withdrawal/return; W = withdrawal; X = waste; Z = destroyed)

SECONDARY USE OF SITE (C301) (See use of site): ___

TERTIARY USE OF SITE (C302) (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
(A = air cond.; B = bottling; C = commercial; D = dewater; E = power; F = fire; H = domestic; I = irrigation; J = industrial (cooling); K = mining; M = medicinal; N = industrial; P = public supply; Q = aquaculture; R = recreations; S = stock; T = institutional; U = unused; Y = desalination; Z = other)

SECONDARY USE OF WATER (C25) (see use of water): ___

TERTIARY USE OF WATER (C26) (see use of water): ___

AQUIFER TYPE (C713): U N C M X
(U = unconfined single; N = unconfined multiple; C = confined single; M = confined multiple; X = 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
(A = other gov't; D = driller; G = geologist; L = logs; M = memory; O = owner; R = other reported; S = reporting agency; Z = other)

WATER-LEVEL DATA

DATE WATER-LEVEL MEASURED (C235): ___ – ___ – ____ (month – day – year)

TIME (C709): ____

WATER-LEVEL TYPE CODE (C243): L M S
(L = land surface; M = meas. pt.; S = vertical 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 (National Geodetic Vertical Datum 0f 1929) NAVD88 (North American Vertical Datum 0f 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
(A = atmos. pressure; B = tide stage; C = ice; D = dry; E = recently flowing; F = flowing; G = nearby flowing; H = nearby recently flowing; I = injector site; J = injector site monitor; M = plugged; N = measurement discontinued; O = obstruction; P = pumping; R = recently pumped; S = nearby pumping; T = nearby recently pumped; V = foreign substance; W = well destroyed; X = affected by surface water; Z = 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
(A = airline; B = analog; C = calibrated airline; D = differential GPS; E = estimated; F = transducer; G = pressure gage; H = calibrated press. gage; L = geophysical logs; M = manometer; N = non-rec. gage; O = observed; P = acoustic pulse; R = reported; S = steel tape; T = electric tape; V = calibrated elec. tape; Z = other)

WATER-LEVEL ACCURACY (C276): 0 1 2 9
(0 = foot; 1 = tenth; 2 = hundredth; 9 = not to nearest foot)

SOURCE OF WATER-LEVEL DATA (C244): A D G L M O R S Z
(A = other gov't; D = driller's log; G = geologist; L = geophysical logs; M = memory; O = owner; R = other reported; S = reporting agency; Z = 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
(Y = ready to display; C = conditional; P = proprietary; L = 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
(A = other gov't; D = driller; G = geologist; L = logs; M = memory; O = owner; R = other reported; S = reporting agency; Z = other)

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

TYPE OF FINISH (C66): C F G H O P S T W X Z
(C = porous concrete; F = gravel w/perf.; G = gravel screen; H = horiz. gallery; O = open end; P = perf or slotted screen; S = sand point; T = walled; W = open hole; X = other)

TYPE OF SEAL (C67): B C G N Z
(B = bentonite; C = clay; G = cement grout; N = none; Z = other)

BOTTOM OF SEAL (C68): ____

METHOD OF DEVELOPMENT (C69): A B C J N P S Z
(A = air-lift pump; B = bailed; C = compressed air; J = jetted; N = none; P = pumped; S = surged; Z = other)

HOURS OF DEVELOPMENT (C70): ___

SPECIAL TREATMENT (C71): C D E F H M Z
(C = chemicals; D = dry ice; E = explosives; F = deflocculent; H = hydrofracturing; M = mechanical; Z = 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) CSNG 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 plastic	wrought iron	Fiber-glass epoxy	PVC thread-ed	glass	other metal	PVC glued	PVC or plastic	FEP	rock or stone	steel	tile	coated steel	stain-less steel	wood	steel carbon	steel galva-nized	other mat.	stain-less 304	stain-less 316

CONSTRUCTION OPENINGS DATA (3 sets shown)

RECORD TYPE (C760) O P E N

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	brass or bronze	concrete	ceramic	PTFE	fiber-glass	galv. iron	fiber-glass plastic	wrought iron	fiber-glass epoxy	PVC threaded	glass	other metal	PVC glued	PVC	FEP	stainless steel	steel	tile	brick	membrane	steel carbon	steel galvanized	other	stainless 304	stainless 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) M P N T

RECORD SEQUENCE NO. (C728)

BEGINNING DATE (C321) – – (month – day – year)

ENDING DATE (C322) – –

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	conditional	proprietary	local use only

CONSTRUCTION LIFT DATA

RECORD TYPE (C752) L I F T
RECORD SEQUENCE NO. (C254)
TYPE OF LIFT (C43) A (air) B (bucket) C (centrifugal) J (jet) P (piston) R (rotary) S (submersible) T (turbine) U (unknown) X (no lift) Z (other)
DATE RECORDED (C38) month – day – year
PUMP INTAKE DEPTH (C44)
TYPE OF POWER (C45) D (diesel) E (electric) G (gasoline) H (hand) L (LP gas) N (natural gas) S (solar) W (windmill) Z (other)
HORSEPOWER 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 R
RECORD SEQUENCE NO. (C718)
DATE OF OWNERSHIP (C159) – –
WU OWNER TYPE (C350) CP (Corporation) GV (Government) IN (Individual) MI (Military) OT (Other) TG (Tribal) WS (Water Supplier)
END DATE OF OWNERSHIP (C374) – –
OWNER'S NAME (C161)
EXAMPLES: JONES, RALPH A.
JONES CONSTRUCTION COMPANY
OWNER'S PHONE NUMBER (C351)
ACCESS TO OWNER'S NAME (C352) 0 (Public Access) 1 (Cooperator) 2 (USGS Only) 3 (District Only) 4 (Proprietary)
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 (Public Access) 1 (Cooperator) 2 (USGS Only) 3 (District Only) 4 (Proprietary)

MISCELLANEOUS VISIT DATA

RECORD TYPE (C774) V I S T
RECORD SEQUENCE NO. (C737)
DATE OF VISIT (C187) month – day – year
NAME OF PERSON (C188)

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
(Cooperator's Office, District Office, Reporting Agency, other)

DATA FORMAT (C261) F M P Z
(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 gov't, driller, geologist, logs, memory, owner, other reported, reporting agency, other)

DATA FORMAT (C225) F M P Z
(files, machine readable, published, other)

OTHER DATA LOCATION (C226)

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 gov't, driller, geologist, logs, memory, owner, other reported, reporting agency, other)

DATA FORMAT (C225) F M P Z
(files, machine readable, published, other)

OTHER DATA LOCATION (C226)

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 gov't, driller, geologist, logs, memory, owner, other reported, reporting agency, other)

DATA FORMAT (C225) F M P Z
(files, machine readable, published, other)

OTHER DATA LOCATION (C226)

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, forused
EO Microresistivity, lateral
ED Dipmeter

ELECTROMAGNETIC LOG:
MM Magnetic log
MS Magnetic susceptibiity 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 activitation
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 resitivity, temperature

WELL CONSTRUCTION LOG:
WC Casing collar
WD Borehold 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 (water quality) | BEGINNING YEAR (C115) | ENDING YEAR (C116)

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& radioactive	codes B,C&A	other

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

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

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

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

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

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)

REMARKS (C185)

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)

REMARKS (C185)

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

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 elec. tape, other)

PUMPING PERIOD (C157) _____.__

SPECIFIC CAPACITY (C272) _____.__

DRAWDOWN (C309) _____.__

GEOHYDROLOGIC DATA

RECORD TYPE (C748): G E O H

RECORD SEQUENCE N0. (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 # _____