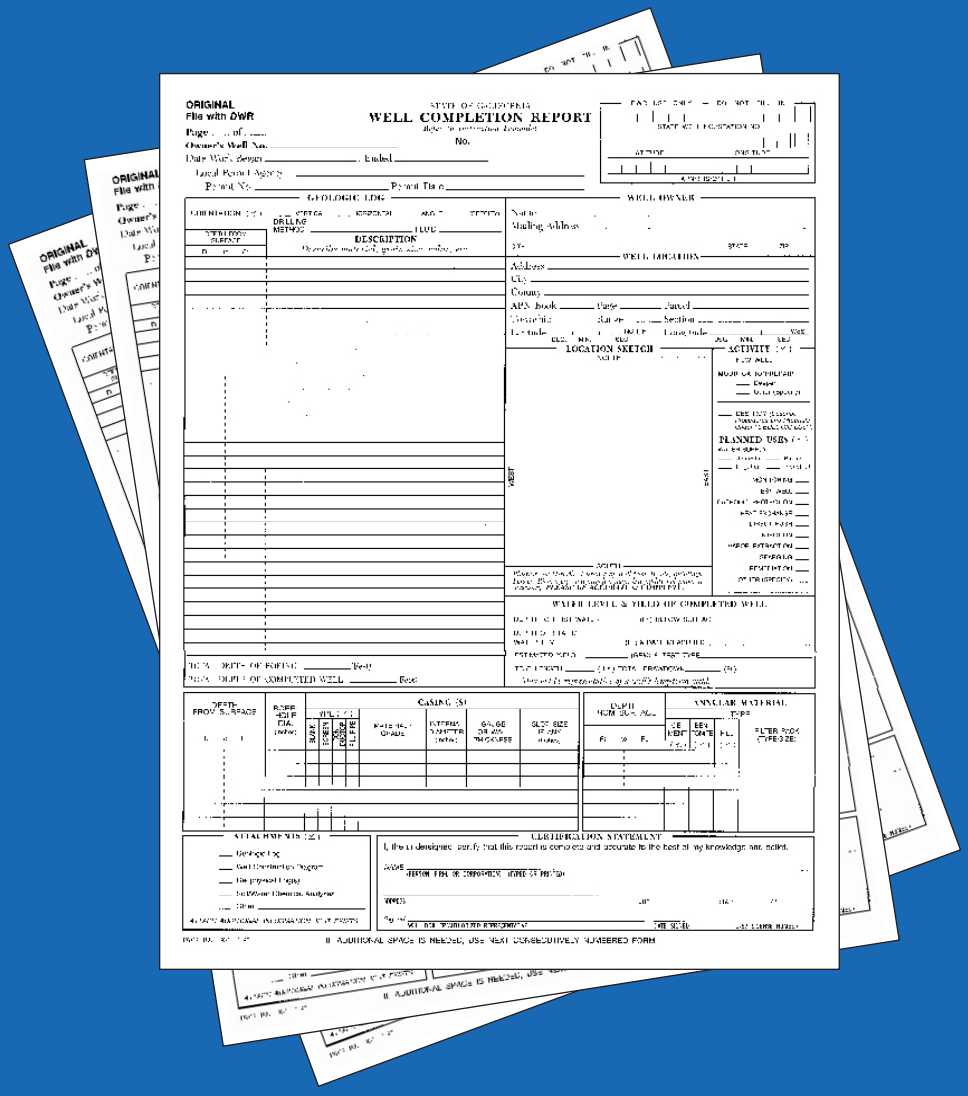
How to Fill Out a Well Completion Report

Instruction Pamphlet



State of California, The Resources Agency, Department of Water Resources—**November 1999**
updated March 2007

For Assistance...

For assistance in preparing the *Well Completion Report* form, contact the nearest Department of Water Resources District Office according to the county in which the well is located (see below). *Well Completion Report* forms which do not have sufficient well location information will be returned to the sender and considered incomplete until the required information is received. Send completed *Well Completion Report* forms to the appropriate District Office listed below. To request copies of this instruction pamphlet contact DWR's Publications and Paperwork Management Office at (916) 653-1097 or imr-publications@water.ca.gov.

For more information:
wwwdwr.water.ca.gov
www.groundwater.water.ca.gov/wells/
wellinfo@water.ca.gov
John Woodling (916) 651-9291
Anne Roth (916) 651-0753
Eric Senter (916) 651-9648

COUNTY	DISTRICT OFFICE
Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity	**Northern District** 2440 Main Street Red Bluff, CA 96080 (530) 529-7368 april@water.ca.gov
Alameda, Alpine, Amador, Calaveras, Contra Costa, El Dorado, Marin, Mendocino, north Mono, Napa, Nevada, Placer, Sacramento, San Francisco, San Joaquin, San Mateo, Santa Clara, Sierra, Solano, Sonoma, Sutter, Tuolumne,Yolo, Yuba	**Central District** 901 P Street, Third Floor Sacramento, CA 95814 (916) 651-0753 aroth@water.ca.gov
Fresno, west Kern (San Joaquin Valley), Kings, Madera, Mariposa, Merced, Monterey, San Benito, Santa Cruz, Stanislaus, Tulare	**San Joaquin District** 3374 East Shields Ave., Room A-7 Fresno, CA 93726-6990 (559) 230-3356 guevara@water.ca.gov
Imperial, Inyo, east Kern (desert), Los Angeles, south Mono, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Ventura	**Southern District** 770 Fairmont Ave., Suite 102 Glendale, CA 91203-1035 (818) 500-1645 x 233 waterdata@sd.water.ca.gov

How to Fill Out a Well Completion Report

Instruction Pamphlet

State of California, The Resources Agency, Department of Water Resources—**November 1999**
updated March 2007

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State of California

Gray Davis, Governor

The Resources Agency

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Department of Water Resources

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Contents

Page

Introduction 1

Water Wells Required to Have a *Well Completion Report* (sidebar) 2

California Well Standards (sidebar) 3

Department of Water Resources District Offices (sidebar) 4

***California Water Code* Requirements** 5

Who Must File 5

What to File 5

When to File 6

Where to File 6

Confidentiality 6

Failure to File 7

Additional Information and Assistance 7

Filling Out the *Well Completion Report* 11

1—Owner's Well Number 11

2—Well Owner 11

3—Well Location 11

Address 11

City, town or subdivision 11

County 12

Assessor's Parcel Number 12

Township, Range and Section 12

Page

Township, Range and Section (sidebar) 12

Latitude and Longitude 13

4—Location Sketch 13

5—Activity 13

6—Planned Uses 13

7—Water Level and Yield of Completed Well 13

Definitions of Water Wells and Some "Other" Types of Wells (sidebar) 14

Depth to First Water 16

Depth of Static Water Level and Date Measured 16

Estimated Yield 16

Test Type and Length 16

Total Drawdown 16

8—Geologic Log 16

Orientation 16

Drilling Method 16

Fluid 16

Description 17

Depth from (Ground) Surface to the Top and the Bottom of Different Types of Material 17

Description of Material 17

Grain Size of Material 17

Color of Material 18

Contents

Page

Other Observations 18

Total Depth of Boring and of the Completed Well 18

9—Casing 18

Depth from Surface 18

Borehole Diameter 18

Casing(s) 19

Type 19

Material/Grade 19

Internal Diameter 19

Gauge or Wall Thickness 19

Slot Size If Any 19

10—Annular Material 19

Depth from Surface 19

Type 19

11—Attachments 19

12—Certification Statement 19

References 29

FIGURES

Well Completion Report 8

Department of Water Resources District Boundaries 9

Well Completion Report with Numbered Sections 10

Page

Completed *Well Completion Report* 20

The 3 Baselines and Meridians in California 21

State Well Number T3S/R4E-36N04S 22

Section of USGS Quadrangle Map for State Well Number T3S/R4E-36N04S 23

Examples of Location Sketches 24

Measuring Drawdown 25

Wentworth Scale 26

Unified Soil Classification System 26

Daily Drilling Report 27

Introduction

The purpose of this instruction pamphlet is to assist Water Well Contractors with filling out a *Well Completion Report* (WCR) to meet the requirements of California law.

In 1949, the California Legislature concluded that collecting information on newly constructed, modified or destroyed wells would be valuable in the event of underground pollution, and would also provide geologic information to better manage California's groundwater resources. Legislation was passed requiring a report of completion be filed with the State of California.

The *California Water Code* (Section 13700) recognizes that improperly constructed and abandoned water wells can be a source of groundwater contamination and a threat to public health. The *Water Code* requires Water Well Contractors file a WCR form with the California Department of Water Resources (Section 13751).

There are two major sections to this instruction pamphlet. The first, *California Water Code Requirements*, contains segments of the Water Code and explains "who" is required to file a WCR form, "what" the form is, "when" it must be filed, "where" to send completed forms, "confidentiality" for filing and "failure" to file. The second section, *Filling Out the Well Completion Report*, has step-by-step instructions describing the information required under each heading on the form. This section also has several examples and diagrams to help in filling out the form correctly and completely.

The types of wells required to file a WCR form with DWR are listed on page 2. Standards for conducting work on these wells are described in DWR's Bulletin 74, *California Well Standards* and updates (see page 3 for more information on this publication).

WCR forms and help filling them out are available from any DWR District Office. The District Offices' phone numbers and addresses are listed on page 4, the map on page 9 and the front inside cover of this pamphlet.

To request copies of this pamphlet, write or call DWR's Publications and Paperwork Management Office, P.O. Box 942836, Sacramento, CA 94236-0001, (916) 653-1097 or imr-publications@water.ca.gov. Copies are also available at: www.groundwater.water.ca.gov/wells/.

Water Wells Required to Have a *Well Completion Report*

Wells included:

- water supply—domestic, irrigation, public, industrial
- monitoring
- piezometer
- test well
- cathodic protection (over 50 feet deep)
- heat exchange (also called geothermal heat exchange or ground source heat pump wells)
- direct push
- injection (also called recharge wells)
- extraction
- vapor extraction
- sparging
- remediation
- water wells converted from oil or gas wells

See pages 14 and 15 for definitions of these water wells and some other types of wells.

Wells NOT included:

- oil and gas wells
- high-temperature geothermal wells
- dewatering wells for construction
- wells drilled to stabilize hillsides or earth embankments
- holes bored for hydraulic elevators, telephone poles and piles
- boreholes for geotechnical exploration or foundation studies
- mining exploration boreholes

Even though these boreholes are not covered by the *California Water Code*, they could still provide a conduit for contaminating groundwater. The prudent water well drilling contractor, operator or landowner will ensure that such boreholes are built or destroyed properly so that they do not become conduits for contaminating groundwater.

California Well Standards

Standards to construct, alter, abandon or destroy water wells, monitoring wells, cathodic protection wells and geothermal heat exchange wells are explained in Bulletin 74, *California Well Standards,* and its updates, published by the California Department of Water Resources.

In accordance with the *California Water Code*, every county, city or water agency is required to adopt an ordinance establishing minimum standards for these types of wells. These standards must meet the minimum level of protection for groundwater quality as described in *California Well Standards*.

Counties or other authorized enforcing agencies may adopt more stringent standards and may include additional requirements either within the ordinance or by reference. Drilling contractors and landowners planning to work on a well should contact the Department of Environmental Health, or other designated local enforcement agency (LEA), in the county in which the work will take place. In some counties, the Department of Environmental Health will direct the applicant to a water district or other agency that is authorized to oversee standards for wells.

To request a copy of *California Well Standards* contact DWR's Publications and Paperwork Management Office, P.O. Box 942836, Sacramento, CA 94236-0001, (916) 653-1097 or imr-publications@water.ca.gov.

For more information:
wwwdwr.water.ca.gov
www.groundwater.water.ca.gov/wells/
wellinfo@water.ca.gov
John Woodling (916) 651-9291
Anne Roth (916) 651-0753
Eric Senter (916) 651-9648

Department of Water Resources District Offices

Send completed *Well Completion Report* forms to the appropriate District Office according to the county in which the well is located (as listed below):

COUNTY	DISTRICT OFFICE
Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity	Northern District 2440 Main Street Red Bluff, CA 96080 (530) 529-7368 april@water.ca.gov
Alameda, Alpine, Amador, Calaveras, Contra Costa, El Dorado, Marin, Mendocino, north Mono, Napa, Nevada, Placer, Sacramento, San Francisco, San Joaquin, San Mateo, Santa Clara, Sierra, Solano, Sonoma, Sutter, Tuolumne, Yolo, Yuba	Central District 901 P Street, Third Floor Sacramento, CA 95814 (916) 651-0753 aroth@water.ca.gov
Fresno, west Kern (San Joaquin Valley), Kings, Madera, Mariposa, Merced, Monterey, San Benito, Santa Cruz, Stanislaus, Tulare	San Joaquin District 3374 East Shields Ave. Room A-7 Fresno, CA 93726-6990 (559) 230-3356 guevara@water.ca.gov
Imperial, Inyo, east Kern (desert), Los Angeles, south Mono, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Ventura	Southern District 770 Fairmont Avenue Suite 102 Glendale, CA 91203-1035 (818) 500-1645, ext. 233 waterdata@sd.water.ca.gov

California Water Code Requirements

This section contains portions of the *California Water Code* explaining "who" is required by California law to file a *Well Completion Report*, "what" the form is, "when" it must be filed, "where" to send completed forms, "confidentiality" for filing and consequences for "failure" to file. Relevant portions of the *California Water Code* are also available on the World Wide Web at www.leginfo.ca.gov/calaw.html.

Who Must File

Section 13751 of the *California Water Code* states:

> "(a) Every person who digs, bores, or drills a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well, abandons or destroys such a well, or deepens or reperforates such a well, shall file with the department a report of completion of that well within 60 days from the date its construction, alteration, abandonment, or destruction is completed."

The term "person" means the **person actually doing the work** of constructing, altering or destroying a well, or the **person responsible for the work**. The *California Water Code* requires this person to have a C-57 Water Well Contractor's license; therefore, the person who must file the WCR form is the **licensed well drilling contractor**.

What to File

Section 13751 also states:

> "(b) The report shall be made on forms furnished by the department and shall contain information as follows:"

The "forms" are called *Well Completion Report* and are furnished by the California Department of Water Resources (DWR 188 Rev. 11-97). Before 1991, these forms were called "*Water Well Drillers' Report*" and are still often referred to as "driller's logs."

An example of a blank WCR form is shown on page 8. Hard copies of the forms are available by contacting the telephone numbers or e-mail addresses listed on page 4, the map on page 9 and the front inside cover of this pamphlet.

You may also download blank copies of the WCR form in digital format from DWR's Web site at wwwdpla.water.ca.gov/gw.

The WCR form will be available electronically in 3 stages over a period of time. Stage 1 is available now. As we develop procedures for Stages 2 and 3, information will be announced on the DWR Web site listed above.

Stage 1—You can now download a blank copy of the WCR form from the DWR Web site listed above. Enter your data by hand or by typewriter and mail or fax the completed form to DWR and other appropriate agencies.

Stage 2—Soon you will be able to download a copy of the WCR form to your computer system, enter data in the blank spaces (while viewing the form) and file the WCR form with DWR electronically. Such records will constitute an electronic file that is not equivalent to a digital database. Each WCR form will be retrievable for reference.

Stage 3—Finally, you will also be able to enter data while viewing the WCR form on your computer system and store the data locally in a database. When you submit the WCR form to DWR, the data will be transmitted and stored in DWR's database.

When you download or obtain the WCR form electronically, it will not include the sequential number in the top center of the form just below the title (see example on page 20). DWR District staff add the sequential number when the report is received, either by mail, by fax or electronically. (Sequential numbers are preprinted on the hard copy versions only of WCR forms obtained from DWR's District Offices.)

Some firms produce a detailed lithologic and construction log on their own forms. It may not be necessary to recopy all this information onto DWR's WCR form. The firm may submit a copy of their own report in lieu of completing the DWR WCR, only if the firm's report contains the same information that is required on the WCR.

When to File

Section 13751 of the *Water Code* requires WCR forms be filed with DWR "within 60 days from the date its construction, alteration, abandonment, or destruction is completed."

Where to File

Send completed WCR forms to the DWR District Office whose boundaries include the area where the well is located. Even if the well owner lives elsewhere, send the WCR form to the District Office where the well is located. The counties in each District Office area are shown on the map on page 9. (This information is also listed on page 4 and the inside front cover of this pamphlet.)

Some local enforcement agencies (LEAs) have arranged with DWR for WCR forms to be sent to the local agency. In this case, the agency will forward a copy of the WCR form to DWR. Therefore, before you mail your completed WCR form, contact your local enforcement agency.

Confidentiality

Water Code Section 13752 states:

> "Reports made in accordance with paragraph (1) of subdivision (b) of Section 13751 shall not be made available for inspection by the public, but shall be made available to governmental agencies for use in making studies, or to any person who obtains a written authorization from the owner of the well. However, a report associated with a well located within two miles of an area affected or potentially affected by a known unauthorized release of a contaminant shall be made available to any person performing an environmental cleanup study associated with the unauthorized release, if the study is conducted under the order of a regulatory agency. A report released to a person conducting an environmental cleanup study shall not be used for any purpose other than for the purpose of conducting the study."

Failure to File

Failure to file a WCR form or deliberate falsification of the information is a misdemeanor.

> "13754. Failure to comply with any provision of this article, or willful and deliberate falsification of any report required by this article, is a misdemeanor. Before commencing prosecution against any person, other than for willful and deliberate falsification of any report required by this article, the person shall be given reasonable opportunity to comply with the provisions of this article."

Failure to file the WCR form is also grounds for disciplinary action by the Contractors' State License Board. Section 7110 of the *California Business and Professions Code* states:

> "Willful or deliberate disregard ... or violation by any licensee of any provision of the Health and Safety Code or Water Code, relating to digging, boring, or drilling of water wells, ... constitutes a cause for disciplinary action."

Additional Information and Assistance

California State Water Resources Control Board
1001 I Street
Sacramento, CA 95814
P.O. Box 100
Sacramento, CA 95812
(916) 341-5250
(916) 341-5252 Fax
www.swrcb.ca.gov

California Department of Health
Division of Drinking Water and Environmental Management
MS 7000
P. O. Box 997413
Sacramento, CA 95899-7413
(916) 440-7575
www.dhs.ca.gov/ps/ddwem

California Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814-2828
Mailing Address:
P.O. Box 806
Sacramento, CA 95812-0806
www.dtsc.ca.gov/index.cfm

California Division of Oil, Gas and Geothermal Resources
801 K Street, MS 20-20
Sacramento, CA 95814-3530
(916) 445-9686
(916) 323-0424 Fax
www.consrv.ca.gov/dog/

California Water Science Center
6000 J Street, Placer Hall
Sacramento, CA 95819
(916) 278-3000
ca.water.usgs.gov

Local County Department of Environmental Health

Local water agencies

California Groundwater Association
P.O. Box 14369
Santa Rosa, CA 95402-6369
(707) 578-4408
(707) 546-4906 Fax
wellguy@groundh2o.org
www.groundh2o.org

Groundwater Resources Association of California
915 L Street, Suite 1000,
Sacramento, CA 95814
(916) 446-3626
(916) 442-0382 Fax
www.grac.org

ORIGINAL
File with DWR

Page ____ of ____

Owner's Well No. _____

Date Work Began _____, Ended _____

Local Permit Agency _____

Permit No. _____ Permit Date _____

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No.

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD _____ FLUID _____

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*

TOTAL DEPTH OF BORING _____(Feet)

TOTAL DEPTH OF COMPLETED WELL _____(Feet)

WELL OWNER

Name _____

Mailing Address _____

CITY STATE ZIP

WELL LOCATION

Address _____

City _____

County _____

APN Book _____ Page _____ Parcel _____

Township _____ Range _____ Section _____

Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

___ NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify) _____

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial

MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER _____ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL _____ (Ft.) & DATE MEASURED _____

ESTIMATED YIELD * _____ (GPM) & TEST TYPE _____

TEST LENGTH _____ (Hrs.) TOTAL DRAWDOWN _____ (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

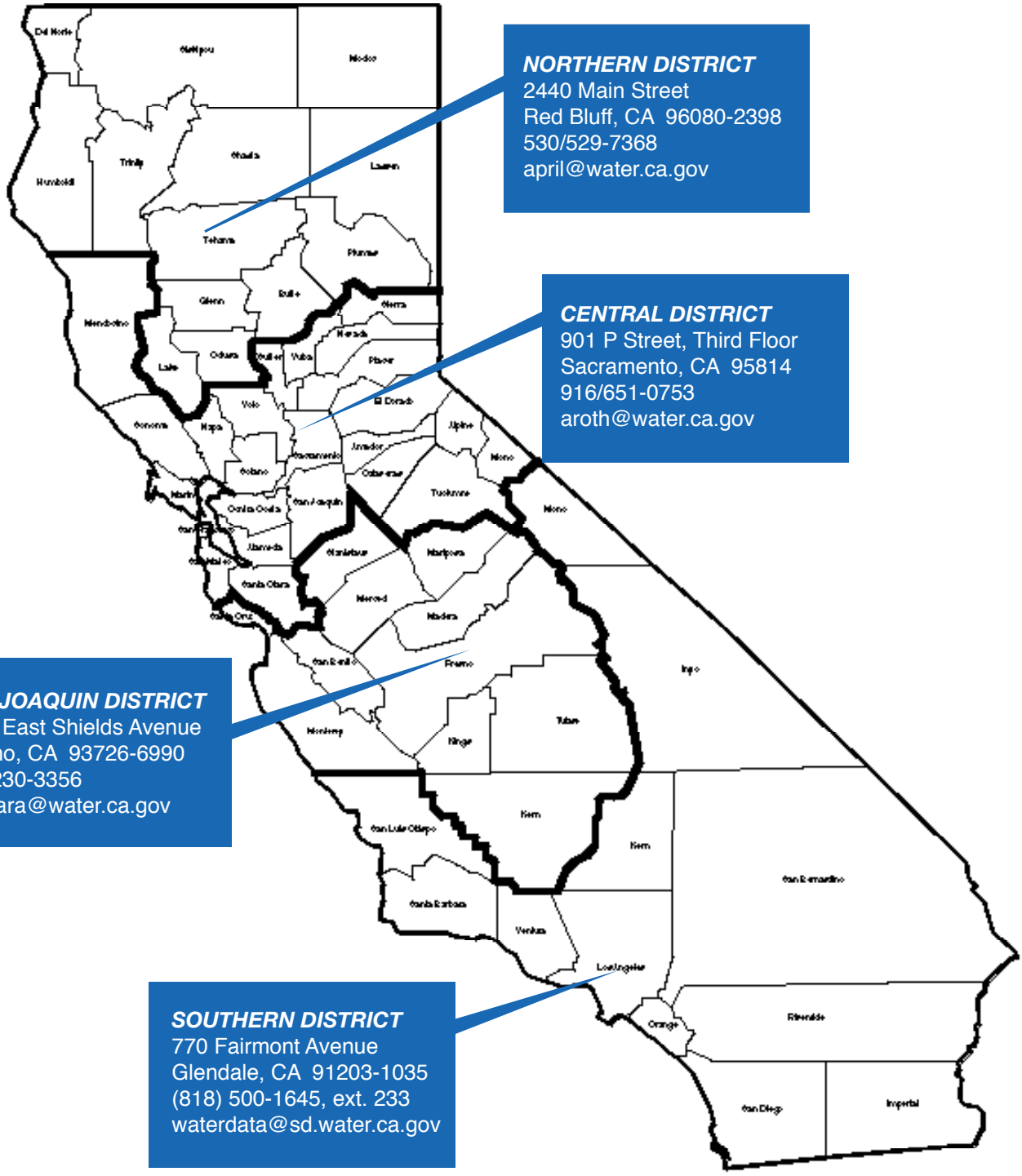
NAME _____
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS CITY STATE ZIP

Signed _____ _____ _____
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Department of Water Resources District Boundaries



NORTHERN DISTRICT
2440 Main Street
Red Bluff, CA 96080-2398
530/529-7368
april@water.ca.gov

CENTRAL DISTRICT
901 P Street, Third Floor
Sacramento, CA 95814
916/651-0753
aroth@water.ca.gov

SAN JOAQUIN DISTRICT
3374 East Shields Avenue
Fresno, CA 93726-6990
559/230-3356
guevara@water.ca.gov

SOUTHERN DISTRICT
770 Fairmont Avenue
Glendale, CA 91203-1035
(818) 500-1645, ext. 233
waterdata@sd.water.ca.gov

ORIGINAL
File with DWR

Page ____ **of** ____
Owner's Well No. _____
Date Work Began _____, Ended _____
Local Permit Agency _____
Permit No. _____ Permit Date _____

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No.

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ____ VERTICAL ____ HORIZONTAL ____ ANGLE ____ (SPECIFY)
DRILLING METHOD _____ FLUID _____

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*

TOTAL DEPTH OF BORING _____(Feet)
TOTAL DEPTH OF COMPLETED WELL _____(Feet)

WELL OWNER

Name _____
Mailing Address _____
CITY STATE ZIP

WELL LOCATION

Address _____
City _____
County _____
APN Book _____ Page _____ Parcel _____
Township _____ Range _____ Section _____
Latitude ____ DEG. ____ MIN. ____ SEC. NORTH Longitude ____ DEG. ____ MIN. ____ SEC. WEST

LOCATION SKETCH

NORTH
WEST EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

____ NEW WELL
MODIFICATION/REPAIR
____ Deepen
____ Other (Specify) _____
____ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)
WATER SUPPLY
____ Domestic ____ Public
____ Irrigation ____ Industrial
MONITORING ____
TEST WELL ____
CATHODIC PROTECTION ____
HEAT EXCHANGE ____
DIRECT PUSH ____
INJECTION ____
VAPOR EXTRACTION ____
SPARGING ____
REMEDIATION ____
OTHER (SPECIFY) ____

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER _____ (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL _____ (Ft.) & DATE MEASURED _____
ESTIMATED YIELD * _____ (GPM) & TEST TYPE _____
TEST LENGTH _____ (Hrs.) TOTAL DRAWDOWN _____ (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CEMENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

ATTACHMENTS (✓)

____ Geologic Log
____ Well Construction Diagram
____ Geophysical Log(s)
____ Soil/Water Chemical Analyses
____ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME _____
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS CITY STATE ZIP

Signed _____ _____ _____
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Filling Out the *Well Completion Report*

This section explains the information that is required on a *Well Completion Report* form. For easy reference, the numbers on the WCR form on the opposite page (to the left) match the numbers of the text in this section. The text explains the information required under each heading on the form.

The WCR form can be filled out by hand using a ball-point type pen and pressing firmly, or by using a typewriter. In addition, some vendors sell software that allows you to use a computer to fill in the information, providing you with an electronic record and a printed hard copy.

If the information about the lithologic log or the construction information does not fit on one page, use as many copies of the WCR form as needed to file all the relevant information. Be sure to properly and adequately identify the additional pages by well location, well number and owner's name so it is clear the pages belong together.

Incomplete WCR forms will be returned. See page 20 for an example of a properly completed form.

1—Owner's Well Number

If the well owner has a well numbering or designation system, enter that number or name here. Also include the date work started and ended along with the appropriate local permit information.

2—Well Owner

The well owner is the person, organization or agency that owns the property on which the well is located and for whom the well is drilled, deepened, reconditioned or destroyed. Enter the mailing address where the owner of the well resides. The owner's address may be different from the well's location. List the well owner's name—even if the well owner does not own the land on which the well is built.

3—Well Location

Describe the location of the well clearly, completely and accurately so it can be located in the field and plotted on topographic quadrangle maps or geographic information systems. If there are other nearby wells, be sure to distinguish this well from the others. We recommend using a Global Positioning System receiver with a differential correction to determine the location of the well. A GPS receiver can determine the well's location in several different coordinate systems, including latitude and longitude and Universal Transverse Mercator. Include the following information in the well location description.

Address where the well is located. If no street address is available, include the lot, block, tract number and subdivision name.

City, town or subdivision where the well is located, or the community nearest to the location of the well.

County where the well is located.

Assessor's Parcel Number or APN Book, Page and Parcel numbers. While this information is useful, it is not an adequate substitute for Township and Range or a location determined by GPS.

Township, Range and Section. This information is available from U.S. Geological Survey topographic maps, which can be purchased from dealers throughout California. Check the USGS Web site at mapping.usgs.gov/esic/map_dealers/ca.html for a list of dealers.

DWR, USGS and other agencies use a system for numbering wells which is an extension of the system for the Public Lands Survey. Each well is assigned a unique

Township, Range and Section

Much of California is divided according to a rectangular coordinate system called the United States System of Surveying the Public Lands, or more commonly, the Public Lands Survey. Through a system of land subdivision based on east-west and north-south lines, land in California is divided into squares called townships, ranges and sections.

Under the Public Lands Survey, all tracts of land are related to one of three "points" in California (see map on page 21). These points are the intersection of an eastwest "baseline" and a north-south "meridian." The three baselines and meridians in California are Humboldt Base and Meridian (Humboldt County), Mt. Diablo Base and Meridian (Contra Costa County) and San Bernardino Base and Meridian (San Bernardino County).

The Public Lands Survey divides the land into "townships." A township is a square parcel of land that is six miles on each side. Its location is established as being so many six-mile units called a Township, north or south of its baseline, and so many six-mile units called a Range, east or west of its meridian.

Each township is further divided into 36 parts called "sections." Each section contains 640 acres or one square mile. Because of the Earth's curvature, not all townships are square, not all townships contain 36 sections and not all sections contain 640 acres.

Since Spanish land grants predate the Public Lands Survey, they are not subdivided by the Public Lands Survey. Similarly, reclaimed lands were not included in the Public Lands Survey. However, DWR, in cooperation with the State Water Resources Control Board and the U.S. Geological Survey, has drawn section lines on 7-1/2 -minute topographic maps showing land grant boundaries.

“State Well Number” that is eventually placed in the space on the upper right corner of the WCR form.

Page 22 shows how a section is divided into 40-acre tracts and how a State Well Number was assigned to the 4th well located in the SW 1/4 of the SW 1/4 of Section 36 of Township 3 South, Range 4 East, San Bernardino Base and Meridian. T3S/R4E36N04S means Township 3 South, Range 4 East, Section 36, 40-acre plot N, 4th well to receive a State Well Number in that 40 acres, San Bernardino Base and Meridian. Page 23 shows how this well is located and plotted on a USGS quadrangle map.

Latitude and Longitude. Write the latitude and longitude numbers in decimal degrees so that the well can be located to within about 100 feet. For example, 34° 21.8’ (34 degrees, 21.8 minutes). Latitude and longitude can be determined using a GPS receiver. If you use a GPS receiver to determine the well location, note this on the WCR form next to the entry for latitude and longitude. If you use a USGS quadrangle map to determine latitude and longitude, note that also.

4—Location Sketch

Provide a well location sketch. This is necessary to supplement the written description to locate the well on the ground. The sketch should have enough detail so that someone could find it on the first visit to the well site and be able to distinguish it from any other nearby well. North is at the top. Show the direction and distance from the nearest city or town, roads, streets, railroads, canals or other prominent physical features. Measure distance with an odometer or by pacing or using a tape, chain or surveying instrument. See page 24 for examples of location sketches. To help locate the well, attach a topographic map or other map to the WCR form that shows the well location in more detail than the limited space provided in this section.

5—Activity

Indicate whether the activity resulted in a new, modified or destroyed well. If the well was modified or repaired, list the changes. For example, if the well was reperforated, old casing was removed, new casing was added, the well was deepened or some strata or existing perforations were sealed off, document those facts. Record the method and materials used to modify the well. Use Section 8, GEOLOGIC LOG, to record this information.

6—Planned Uses

The most common uses for drilling wells are listed on pages 14 and 15. Check the one(s) that apply to your well. If a well is to be used for several different purposes, check every appropriate use. If the planned use of the well is not listed, check “Other” (see page 15) and describe the use. If the well is destroyed, describe the method and materials used in Section 8, GEOLOGIC LOG.

7—Water Level and Yield of Completed Well

This section includes the depth at which water is first encountered, the static water level before a pump test, the drawdown on completion of the test (see page 25), the type

Definitions of Water Wells and Some “Other” Types of Wells

Water Supply Well

- Wells used to supply water for the household needs of an individual residence or up to 4 connections. Household needs include drinking, cooking, washing, sanitary purposes, watering lawns and garden plots and caring for domestic pets.
- Wells used to supply water to irrigate field crops, orchards and vineyards or pastures, or large areas such as cemeteries, parks, golf courses or highway landscapes.
- Wells used to supply water for domestic purposes in systems serving communities or groups of connections that are subject to Chapter 7, Part 1, Division 5, of the California Health and Safety Code. These wells include large community systems serving cities, subdivisions and commercial water purveyors; small community systems serving mutual water companies, private water companies and purveyors; and small noncommunity systems serving schools, churches, parks, motels, hotels, restaurants, prisons and campgrounds where water is provided for public use.
- Private wells, as opposed to community systems, used by an industry where a product is fabricated or manufactured. The water may or may not be incorporated into the product, but may be used to cool machinery or cool or clean products.

Monitoring Well

Used to observe groundwater levels and flow conditions, obtain samples to determine groundwater quality, evaluate hydraulic properties of water-bearing strata and monitor groundwater contamination. Vapor monitoring wells built in the unsaturated zone to determine the extent of gas migration are included in the definition of monitoring wells.

Test Well

Used to obtain information for designing other wells. Test wells should not be confused with “exploration holes,” which are temporary. Test wells are cased and can be converted to other uses, including, under certain circumstances, production wells.

Cathodic Protection Well

Constructed to house devices to minimize or prevent electrolytic corrosion of metallic pipelines, tanks and other facilities in contact with water in the ground.

Heat Exchange Well

Also called a geothermal heat exchange well or a ground source heat pump well. Means any cased or uncased artificial excavation, by any method, that uses the heat exchange capacity of the Earth for heating and cooling, in which excavation, the ambient ground temperature is 30 degrees Celsius or less. This type of well may include a closed loop or open loop fluid circulating systems.

Direct Push Well
A borehole made by hydraulic rams that push tubes of various sizes into the ground either to obtain information relating to hydrogeology or to build monitoring wells to obtain water samples for analysis of water quality, groundwater level measurements or vapor samples for analysis.

Injection Well
A recharge well or any well used to inject fluids into the ground or into the aquifer, either as a way to dispose of that fluid or to recharge the aquifer for future extraction or to prevent the movement of undesirable underground fluids.

Vapor Extraction Well
Boreholes used in any of several techniques used to remove vapors of volatile organic compounds that result from contamination of an aquifer by hydrocarbons, pesticides and cleaning solvents. The vapors may emanate from the product that remains in the unsaturated portion of the aquifer or from a contaminant in the saturated zone.

Sparging Well
A borehole used in any of several techniques to introduce air or another gas into the aquifer and either transport the contaminant to the surface for treatment or to combine with the contaminant to treat or remove it from the aquifer.

Remediation Well
A well used to remove or contain a toxic spill or hazardous materials from a contaminated site.

Other (Specify)
Wells described here are not specifically listed on the WCR form.

- ► See Injection Well.
- ► See Heat Exchange Well.
- ► Wells constructed to obtain water for bottling for human consumption.
- ► Wells to develop water for discharging into pools or channels for swimming boating or fishing. Includes water for ice rinks, snow and water skiing ponds.
- ► Wells used for fire protection or fire fighting, for frost prevention or protection or to control dust.
- ► Wells used to provide a water supply, often by using a windmill, to range animals.
- ► Wells used to obtain water to irrigate residential lawns and landscaping only. These wells must meet construction standards of the local enforcement agency. Water from backyard wells may not be used for domestic purposes or allowed to intermingle with the domestic water supply. A crossflow prevention valve must be installed and inspected regularly to prevent contamination of the domestic supply.

and length of the test and the estimated yield of the well.

Depth to First Water. Enter the depth at which water is first encountered during drilling the borehole. Measuring the depth to water must always be done from the same reference point on the well casing and corrected to the level of the ground surface.

Depth of Static Water Level and Date Measured. Enter the depth to water measured after the well was built (casing and screen have been installed), the well was developed and the water level was stabilized prior to the pump test. Include the date of the measurement.

Estimated Yield. This may or may not represent the well's long-term yield, but it gives an indication. The yield is the maximum rate at which the water can be discharged from the well and sustained for the period of time stated on the WCR form.

Test Type and Length. Note whether the test was conducted with a pump or by airlift. The water level at the start of the test is the "static" or nonpumping level. Indicate how many hours the test lasted.

Total Drawdown. The depth to water at the end of the pump test is the "pumping level" and must be measured immediately after cessation of pumping at the maximum discharge. The difference in depth between the static level and pumping level is the "drawdown" (see page 25).

Pump tests conducted in the well soon after the drilling is completed may not represent the long-term yield of the well. While such pump tests may give a general idea of the yield, a pump test conducted with a pump similar to the pump to be installed would give a better indication of the yield.

If more than one test is conducted, record the data in the unused space under GEOLOGIC LOG or on an additional WCR form or blank sheet of paper. Attach it to the WCR form.

8—Geologic Log

The GEOLOGIC LOG is one of the most important sections in the WCR form. It is based mainly on the driller's judgment and observation of details while drilling the well and should include the following information.

If the well is being destroyed, use this section to draw the borehole showing depths of casing removal, casing perforation and fill and seals that were emplaced to destroy the well and seal the borehole to prevent it from becoming a conduit for groundwater contamination.

Orientation. Indicate whether the borehole is vertical, horizontal or at an angle from the vertical. Horizontal wells include Ranney-type collectors, infiltration galleries, wagon wheel wells and spring development. If the borehole is at an angle from the vertical, indicate what that angle is.

Drilling method. Indicate the drilling method used to bore the hole and construct the well (rotary, cable tool, reverse circulation, air or hammer drill, dual-wall reverse circulation, bucket auger, etc.).

Fluid. Identify the type of drilling fluid used

(air, bentonite, foam, polymer, water, etc.). If more than one fluid was used, list the order of use (air and foam or water and bentonite).

Description. Describe the materials that are drilled through, the grain size of the material and the color of the material. In addition, record any other details noted during the drilling operation.

Record changes in drilling conditions and any other observations that help describe the subsurface materials and conditions under which groundwater occurs. Technical terms for formation or aquifer names are suitable. Physical descriptions such as “sandy clay,” “sandy gravel” or “cobbles” are also suitable. Describe the materials in your own words as well as possible. Record the following information.

Depth from (Ground) Surface to the Top and the Bottom of Different Types of Material. This is self explanatory.

Description of Material. Report unconsolidated materials such as gravel, sand, silt or clay. If the material is mixed, use combinations of terms such as sand and gravel, gravelly clay, silty sand, etc. If drilling through consolidated rocks, write in the type of rock such as shale, sandstone, granite, limestone, basalt or other. Note any particularly good water-bearing zones. If known, write in the aquifer name.

If the material is granular, note whether the grains are cemented together or loose. The material may be cemented together as in a sandstone or conglomerate, or loose as in a water-bearing sand and gravel aquifer.

Grain Size of Material. The grain size of sedimentary material can be determined by using the Wentworth Scale or the Unified Soil Classification System (see page 26). If the materials have not been pulverized by the drilling action, indicate the size of the gravel and sand and whether you are using the Wentworth Scale or the Unified Soil Classification System. Using either method, samples can be described in great detail.

In the Wentworth Scale, gravel is larger than 2 millimeters, sand ranges from 1/16 millimeter to 2 millimeters and silt and clay are smaller than 1/16 millimeter. Each of these divisions can be subdivided further.

In the Unified Soil Classification System, the sample is called “gravel” when over 50% is retained by a number 4 sieve. The sample is called “sand” when over 50% passes through a number 4 sieve, and is retained by a number 200 sieve. If more than 50% passes through the number 200 sieve the sample is called “silt and clay.” Within these 3 major categories, the USCS provides for additional subdivisions.

If the material is finer than fine sand, try to determine whether it is predominantly silt or clay. Silt and clay cannot be differentiated visually, but silt has little plasticity and will not hold together when rolled in the hand. Clay is plastic and can be rolled into thin strands.

Color of Material. Write in the color of individual formation materials encountered. State whether color is recorded when the material is wet, damp or dry. If a drilling fluid is used, write in the depth at which changes in color occur. The Geological Society of America publishes a chart that can be used to name and code the color of the sample.

Other Observations. Record any abrupt drop in the drill bit which may indicate the presence of quicksand, large crevices or caverns. Large openings may occur in volcanic rock and limestone. When possible, note and interpret any other peculiarities observed in drilling such as changes in drilling rates or mud viscosity, caving, loss of drilling fluid, changes in water temperature or changes in water level (especially a rapid rise or lowering of level) and the depth where the changes occur. A more detailed log can be attached.

To help record those details, a Daily Drilling Report is particularly useful (see page 27). A Daily Drilling Report is an accurate record of time required to drill a certain amount of material. The Daily Drilling Report should include depths at which bits were changed, depths at which drilling fluid losses occurred and other factors that affect the drilling rate. A Daily Drilling Report supplies valuable information about relative positions of various geologic formations because the character of the material being penetrated by the bit largely determines the drilling rate. Often thin beds can be identified that would not otherwise show up in the cuttings. The Daily Drilling Report, together with other means of logging, provide an accurate way to locate formation boundaries and formation changes.

Total Depth of Boring and of the Completed Well. The total depth of boring is the greatest depth to which the borehole was drilled or sampled. The completed well depth is the depth below land surface to which the well was completed after installing the casing and bottom plug, if any. The completed depth for destroyed wells is 0 after destruction.

9—Casing

Record the information about the casing here. If there is not enough room in this section to record this information, use the GEOLOGIC LOG section, or use a separate piece of paper and attached it to the WCR form.

Attach an “as built” drawing of the completed borehole that includes details of the screened intervals, gravel chute location, vents, sealing material and all other pertinent information about the construction of the well or the destruction of the well and borehole.

Depth from Surface. Write in the depth at which the casing put into the borehole changes from one diameter to another.

Borehole Diameter. Write in the diameter of the borehole into which the conductor casing or well casing is placed. If the borehole diameter changes, note that fact and the depth of the change.

Casing(s).

Type. Indicate whether the casing in that depth interval is blank, screen, conductor or fill pipe. If the hole is an “open bottom,” record that fact at the appropriate depth.

Material/Grade. Describe the material and grade of the casing material.

Internal Diameter. Indicate the internal diameter of the casing.

Gauge or Wall Thickness. Describe the gauge or wall thickness of the casing in each interval.

Slot Size If Any. If there are slots in the casing, describe their size and shape. Record whether the casing was perforated on-site after placement in the borehole or perforated at the factory.

10—Annular Material

Describe the annular material. This may include a filter pack consisting of sand or gravel or sealing material.

Depth from Surface. Write in the depth at which the material put into the annular space changes from one type to another.

Type. The annular material may consist of cement, bentonite, fill or a filter pack. Indicate what type of material is placed in each depth interval. If a filter pack is placed, indicate its type and size.

11—Attachments

If additional information or reports are available, such as logs, location maps and tests (geologic log, well construction diagram, geophysical log, soil/water chemical analysis, pump test or other information), note this in this section and attach the additional information to the WCR form.

12—Certification Statement

The final item on the WCR form is a statement by the C-57 licensed Water Well Contractor who did the work certifying that the form is complete and accurate to the best of the contractor’s knowledge.

ORIGINAL
File with DWR

Page 1 of 1
Owner's Well No. 1
Date Work Began 8/14/91, Ended 8/28/91
Local Permit Agency Tehama County Environmental Health
Permit No. 395-91 Permit Date 8/01/91

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 01020304

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ___ FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	6	topsoil
6	20	brown clay
20	50	brown clay & gravel
50	62	gravel (water)
62	80	brown clay
80	100	gravel to cobble size brown to tan
100	116	brown clay, fat changing to sand
116	133	cobbles and gravel
133	168	brown clay, fat with sandy lenses
168	207	gravel to cobble size
207	288	blue clay, fat
288	305	sand, medium size
305	330	blue clay
		* screen type: shutter screen

TOTAL DEPTH OF BORING 330 (Feet)
TOTAL DEPTH OF COMPLETED WELL 310 (Feet)

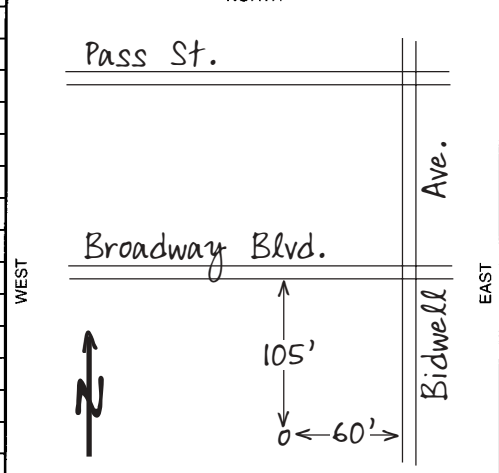
WELL OWNER

Name John Smith
Mailing Address 227 Bidwell Avenue
CITY Red Bluff STATE Calif ZIP 96080

WELL LOCATION

Address ___
City same as above
County Tehama
APN Book 07 Page 120 Parcel 14
Township 25N Range 03W Section 10 MDBM
Latitude 40 | 2.15 | NORTH (DEG. ~~MIN~~ SEC.) Longitude 122 | 27.2 | WEST (DEG. ~~MIN~~ SEC.)

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)
WATER SUPPLY
✓ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 47 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 54 (Ft.) & DATE MEASURED 8/14/91
ESTIMATED YIELD * 100 (GPM) & TEST TYPE pump
TEST LENGTH 3 (Hrs.) TOTAL DRAWDOWN 19 (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	116	12	✓				steel	6	.25	
116	133	12		✓			steel	6	.25	1/8" x 2"
133	168	12	✓				steel	6	.25	
168	207	12		✓			steel	6	.25	1/8" x 2"
207	288	12	✓				steel	6	.25	
288	310	12		✓			steel	6	.25	1/8" x 2"

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	110		✓		
110	310				#8 sand

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
✓ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

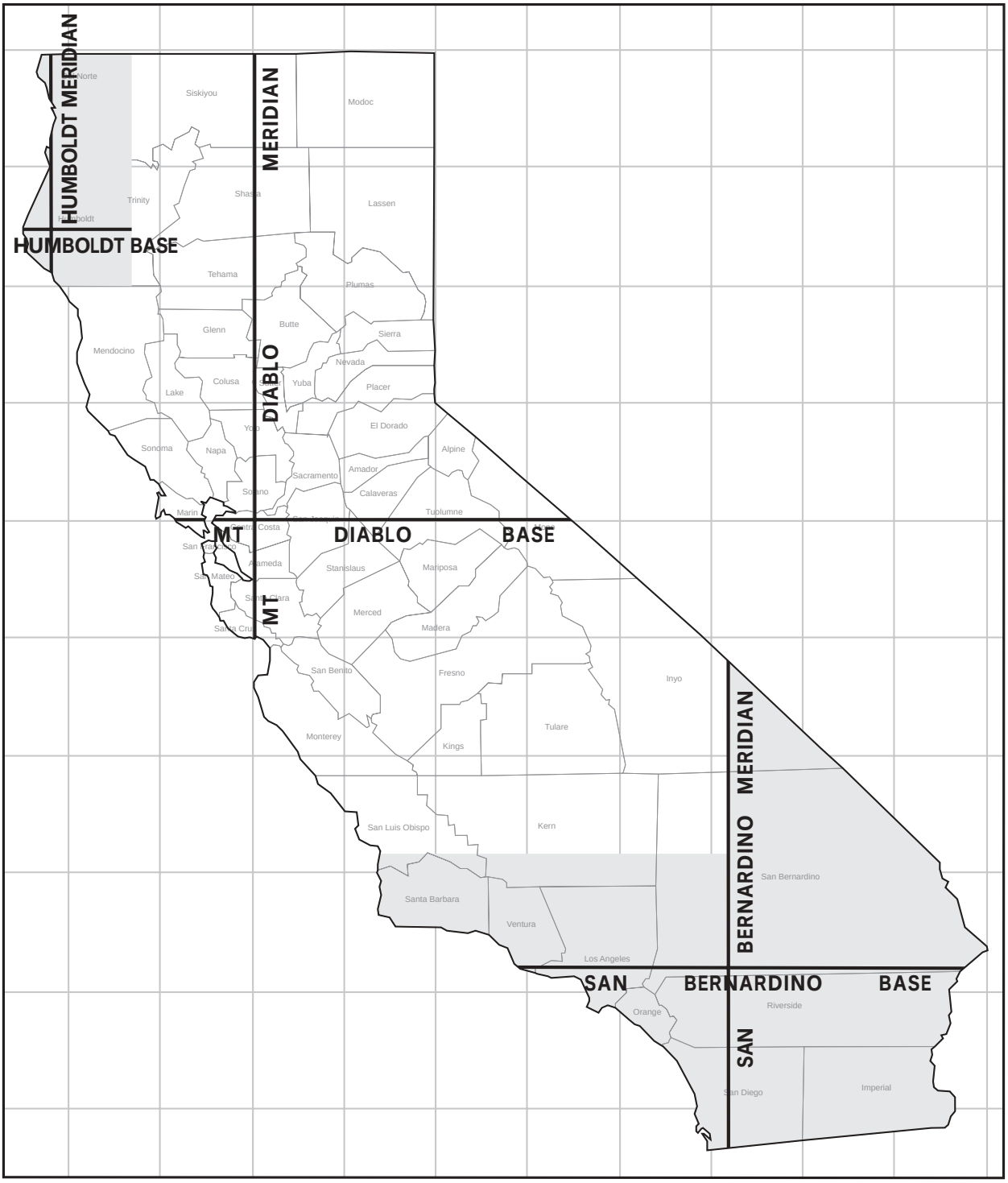
CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

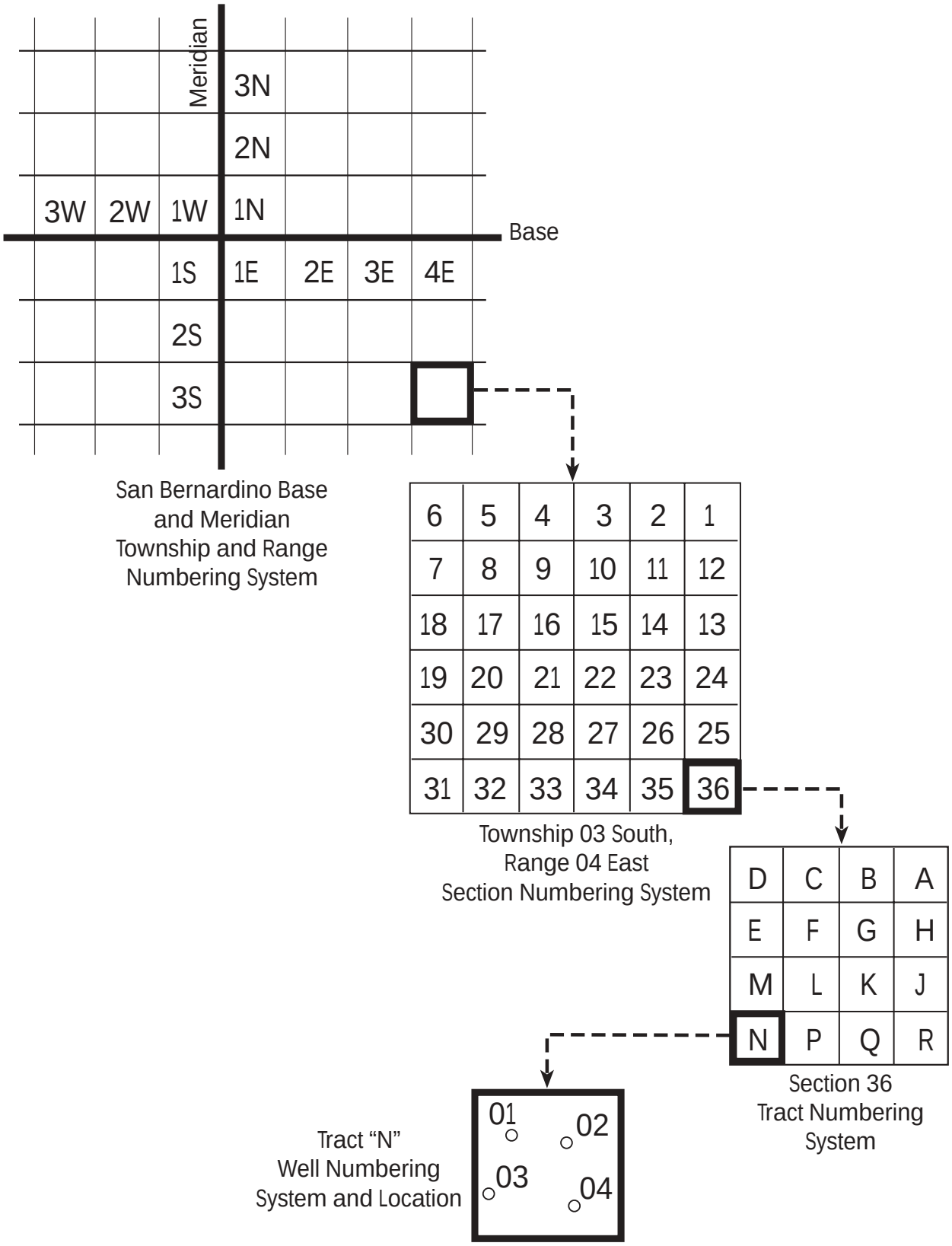
NAME ESSIG WELL DRILLING (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS P.O. BOX 711 CITY WESTPORT STATE CALIF ZIP 91201
Signed Carl Essig (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED Jan 1, 2020 C-57 LICENSE NUMBER 0505051

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

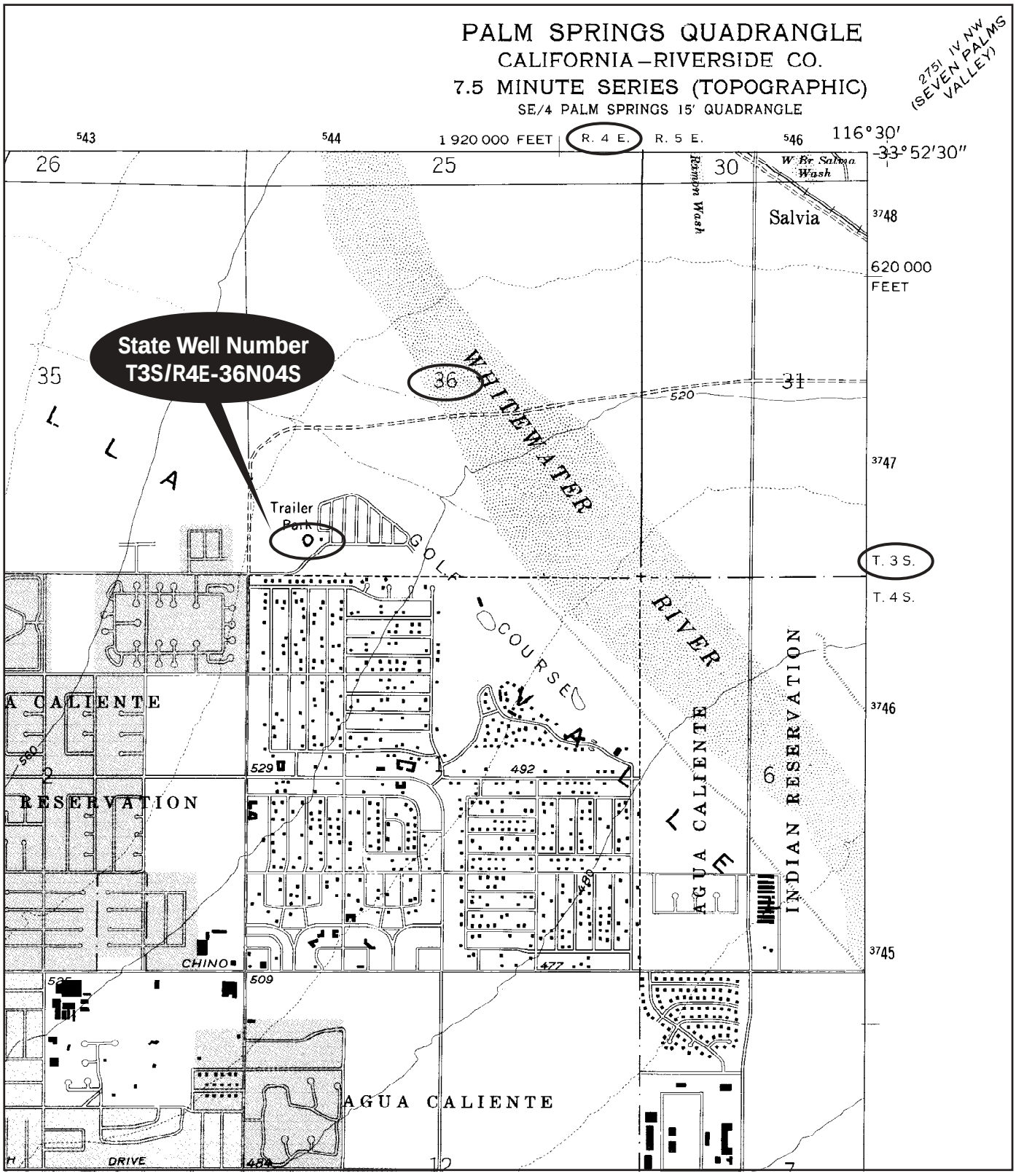
The 3 Baselines and Meridians in California



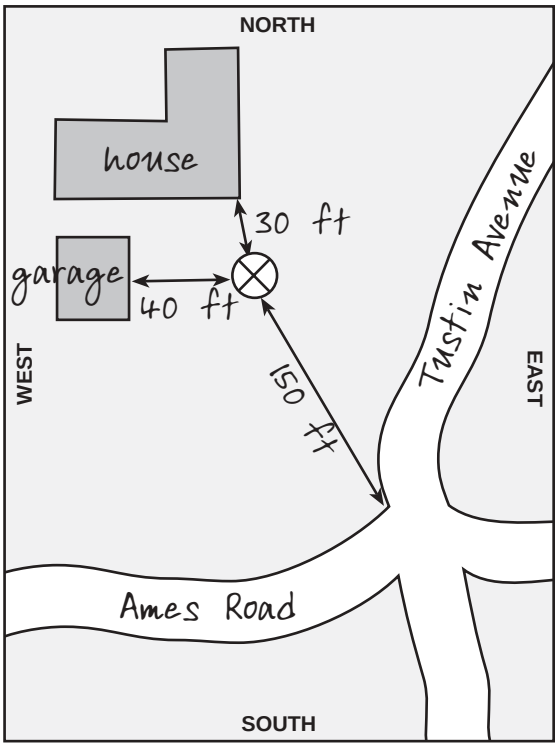
State Well Number T3S/R4E-36N04S

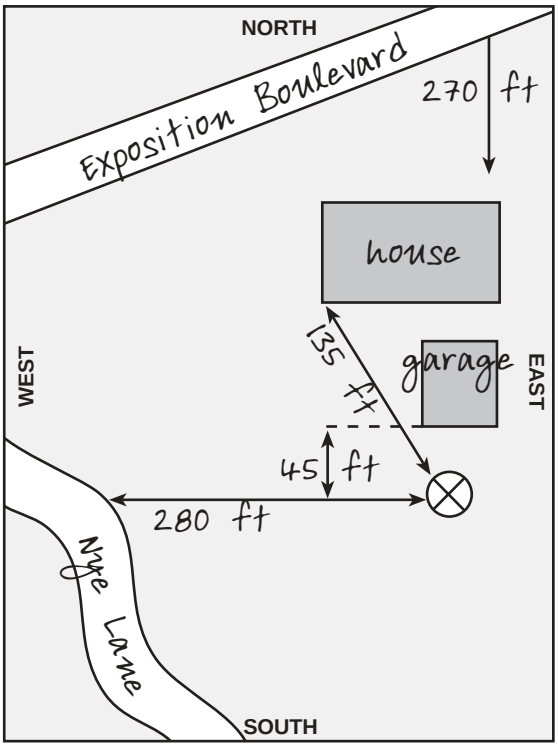


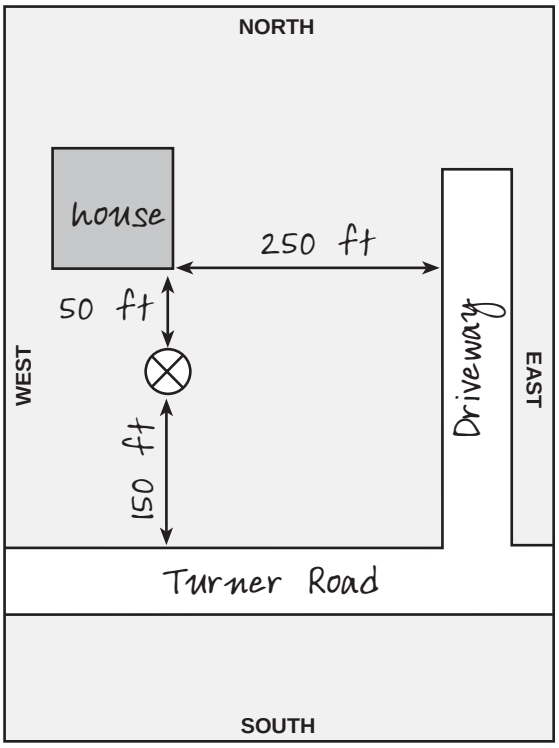
Section of USGS Quadrangle Map for State Well Number T3S/R4E-36N04S

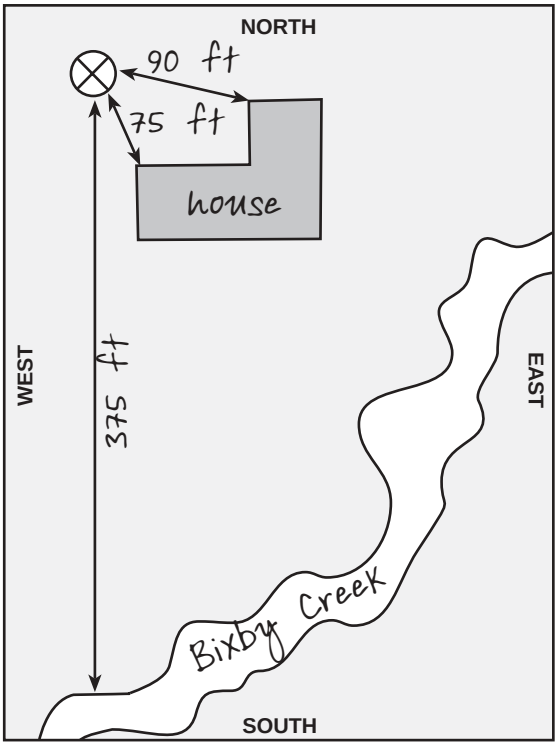


Examples of Location Sketches

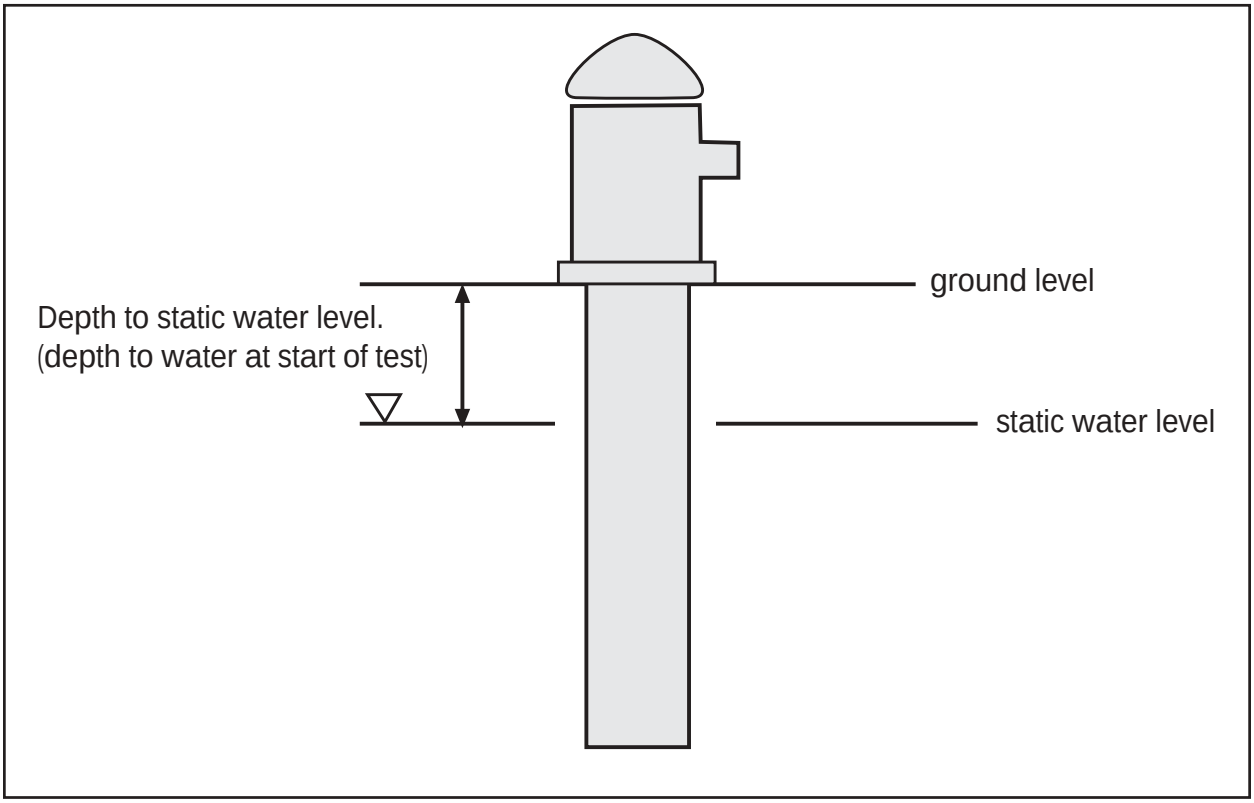


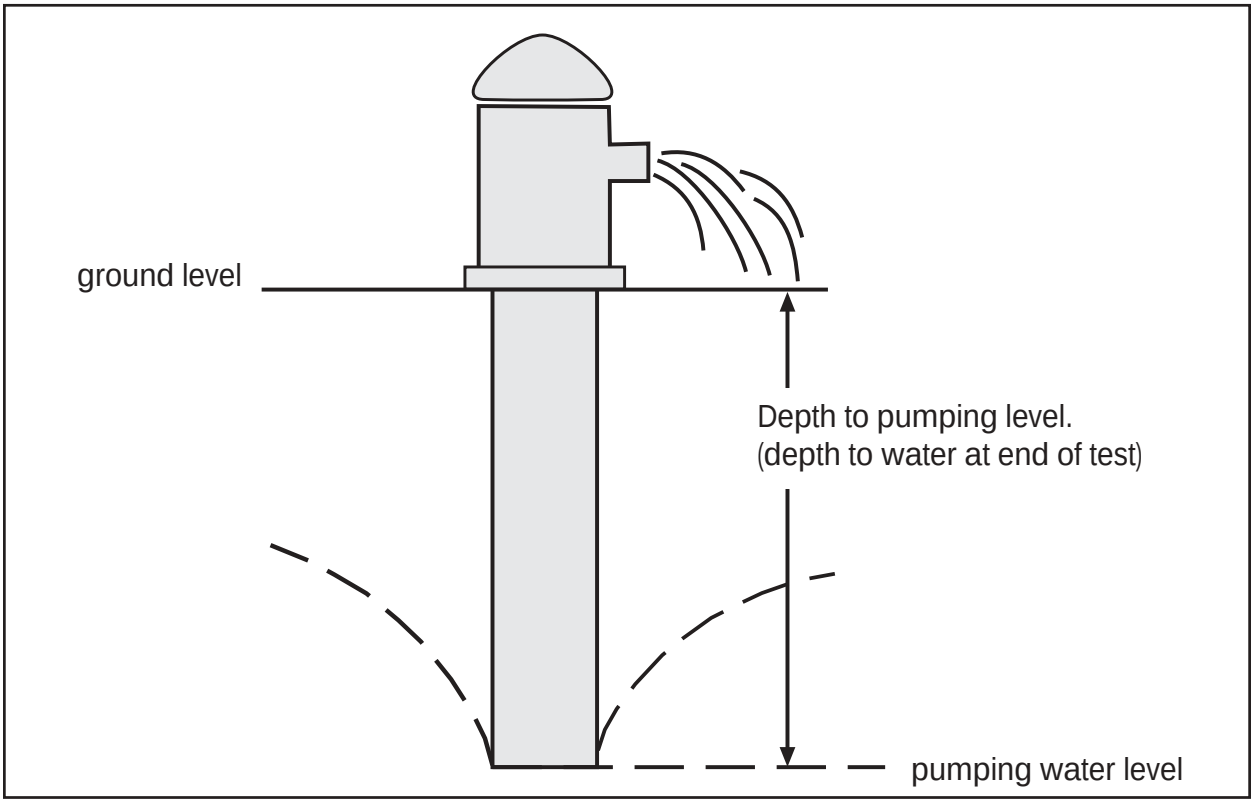






Measuring Drawdown





Wentworth Scale

Size	Wentworth Size Class	Sediment/Rock Name
256mm	Boulders	Sediment: GRAVEL Rocks: CONGLOMERATES, BRECCIAS
64mm	Cobbles	
4mm	Pebbles	
2mm	Granules	
1mm	Very Coarse Sand	Sediment: SAND Rocks: SANDSTONES
1/2mm	Coarse Sand	
1/4mm	Medium Sand	
1/8mm	Fine Sand	
1/16mm	Very Fine Sand	
1/256mm	Silt	Sediment: MUD Rocks: SHALE, CLAY STONES, MUDROCKS, MUDSTONES
	Clay	

Unified Soil Classification System

(from American Society for Testing and Materials, 1985)

MAJOR DIVISIONS			GROUP SYMBOL	CONSTITUENTS
Coarse Grained Soils More than 50% Retained on No. 200 Sieve	Gravel—more than 50% of coarse fraction retained on No. 4 Sieve	Clean Gravel	GW	Well-Graded Gravel, Fine to Coarse Gravel
			GP	Poorly-Graded Gravel
		Gravel with Fines	GM	Silty Gravel
			GC	Clayey Gravel
	Sand—more than 50% of coarse fraction passes No. 4 Sieve	Clean Sand	SW	Well-Graded Sand, Fine to Coarse Sand
			SP	Poorly-Graded Sand
		Sands with Fines	SM	Silty Sand
			SC	Clayey Sand
Fine Grained Soils More than 50% Passes No. 200 Sieve	Silt and Clay—liquid limit less than 50	Inorganic	ML	Silt
			CL	Clay
		Organic	OL	Organic Silt, Organic Clay
	Silt and Clay—liquid limit 50 or more	Inorganic	MH	Silt of High Plasticity, Elastic Silt
			CH	Clay of High Plasticity, Fat Clay
		Organic	OH	Organic Clay, Organic Silt
Highly Organic Soils			PT	Peat

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

DAILY DRILLING REPORT

Hole No. _____

Project _____

Feature _____

Location _____

Date Hole Started _____

Hole Size _____

Casing Record —Size _____ Footage _____

Depth of Hole —end of shift _____ft.

Depth of Hole—start of shift _____ft.

TOTAL FOOTAGE THIS SHIFT _____ft.

Percent Core Recovered _____%

Standby Time _____hrs.

Down Time _____hrs.

Date _____

Shift _____ A.M. P.M. _____ A.M. P.M.

Vertical _____ Angle _____

Overburden Drilled _____ft.

Reamed Interval _____ft. to _____ft.

Cemented Interval _____ft. to _____ft.

Drilling Cement _____hrs. _____ft.

Water Testing _____hrs. _____ft.

Estimated Completion Date _____

Completed Date _____

Estimated Total Depth of Hole _____ft.

Total Depth _____ft.

SUMMARY OF DAILY EVENTS

GENERAL REMARKS

Geologist _____

Hole No. _____

DWR 115 (Rev. 10/64)

References

California Department of Water Resources, 1999, *California Laws: Water Wells, Monitoring Wells, Cathodic Protection Wells, Geothermal Heat Exchange Wells*.

California Department of Water Resources, 1991, *Water Well Standards: State of California, Bulletin 74-90*.

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California Groundwater Association, 1992, *Standard Practice Manual*. Periodic additions of recommended standard practices for the groundwater industry.

Driscoll, Fletcher G., 1986, *Ground Water and Wells*, 2nd edition, Johnson Division.

Roscoe Moss Company, 1990, *Handbook of Ground Water Development*, John Wiley & Son.

United States Environmental Protection Agency, Office of Water Supply, *Manual of Water Well Construction Practices*, EPA-570/9-75-001, September 1976.

United States Geological Survey, 1983, reprinted 1993, *Basic Ground Water Hydrology, USGS Water Supply Paper 2220*.

California Well Standards

Standards to construct, alter, abandon or destroy water wells, monitoring wells, cathodic protection wells and geothermal heat exchange wells are explained in Bulletin 74, *California Well Standards* and updates, published by the California Department of Water Resources.

In accordance with the *California Water Code*, every county in the State has adopted an ordinance that establishes minimum standards for these types of wells. These standards must meet the minimum level of protection for groundwater quality described in *California Well Standards*.

Counties or other authorized enforcing agencies may adopt more stringent standards and may include additional requirements either within the ordinance or by reference. Drilling contractors and landowners planning to work on a well should contact the Department of Environmental Health or other designated permit agency in the county in which the work will take place. In some counties, the Department of Environmental Health will direct the applicant to a water district or other agency that is authorized to oversee standards for wells.

To request a copy of *California Well Standards* contact DWR's Bulletins and Reports, Division of Records Management, at (916) 653-1097.

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Printed on recycled paper.

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