

water facts

No. 7

Numbering Water Wells in California

Why a State Well Number is Necessary

A systematic and uniform procedure for numbering wells in California is necessary for the following reasons:

1. California has between one to two million wells of all shapes, sizes, and conditions. On the average, 10,000 to 15,000 more wells are added to this total each year. During droughts the number of water wells built each year increases temporarily.
2. The Department of Water Resources has more than 1 million records from water wells, monitoring wells, and cathodic protection wells on file including construction logs; measurements of depth to water; physical, chemical and bacteriological analyses; and pumping records.
3. Many state, federal, county, city, and local water agencies build and extract water from or inject water into these wells, or obtain samples for analysis and measurements of depth to water from these wells.

Water Facts are short reports on water resources issues of general interest. They are published periodically by the California Department of Water Resources and can be obtained free by contacting DWR Bulletins & Reports, P.O. Box 942836, Sacramento, CA 94236-0001; 916/653-1097.

To prevent uncoordinated numbering of wells by numerous agencies, which would result in confusion, a single agency is responsible for the assignment of well numbers. That responsibility and authority belongs to DWR because:

- DWR is the legal and prime repository for groundwater information in California.
- DWR also has responsibility and authority for surveying and mapping and related cartographic activities in California.

The Well-Numbering System

The State's well-numbering system is based on a rectangular system called the "**United States System of Surveying the Public Lands**," commonly referred to as the "**Public Lands Survey**," established by the Continental Congress in 1784. Under it all tracts of land are referenced to an initial point and identified as being in a **township**. A township is a square parcel of land six miles on each side. Its location is established as being a certain number of six-mile units east or west of a north-south line running through the initial point (called the "**principal meridian**") and a certain number of six-mile units north or south of an east-west line running through the initial point (called the "**baseline**").

In California there are three initial points and corresponding principal meridians and baselines (see the figures on page 3). They are Mount Diablo, San Bernardino, and Humboldt, and we identify them

Nomenclature and Notation Examples

Example of a State Well Number: T3S/R4E/36N04S

Ignoring the slash and the hyphen, the well number's components are:

State Well Number	T3S	R4E	36	N	04	S
Township...../	/	/	/	/	/	/
Range...../	/	/	/	/	/	/
Section...../	/	/	/	/	/	/
40-Acre Tract...../	/	/	/	/	/	/
Sequence Number...../	/	/	/	/	/	/
Base & Merid- ian...../	/	/	/	/	/	/

- Township is the third 36-square-mile parcel of land (township) south of the initial point (T3S).
- Range is the fourth 36-square-mile parcel of land (township) east of the initial point (R4E).
- Section is that parcel of land one mile square numbered 36 in T3S/R4E.
- Tract is that 40-acre parcel of land in section 36 lettered "N".
- Sequence number 4 is the number assigned to this particular well in tract N of section 36 and it indicates that three other wells in this tract have been assigned numbers in the past.
- Base & Meridian is that particular initial point, baseline and principal meridian to which this well is referenced, in this case S, the San Bernardino Base and Meridian.

by the letters M, S, and H, respectively. Longitudinal lines are east or west of the principal meridian and are called **Range Lines**. Latitudinal lines are parallel to, and north or south of the baseline and are known as **Township Lines**. Each township is described with respect to the initial point by its distance in numbers of six-mile units and direction from that point. Townships are north or south and ranges are east or west of that point.

Every township is further divided into 36 parts called **sections**. A section is a square parcel of land one mile on a side, each containing 640 acres. Numbering of these sections is illustrated on page 3. This "grid" system is very useful in locating "points on the ground," such as water wells in areas with few identifying landmarks. While this precision is customarily maintained, shortcomings in surveying techniques and the adjustments required by converging meridians (longitude lines) as they approach the north and south poles have resulted in some abbreviated or irregular sections.

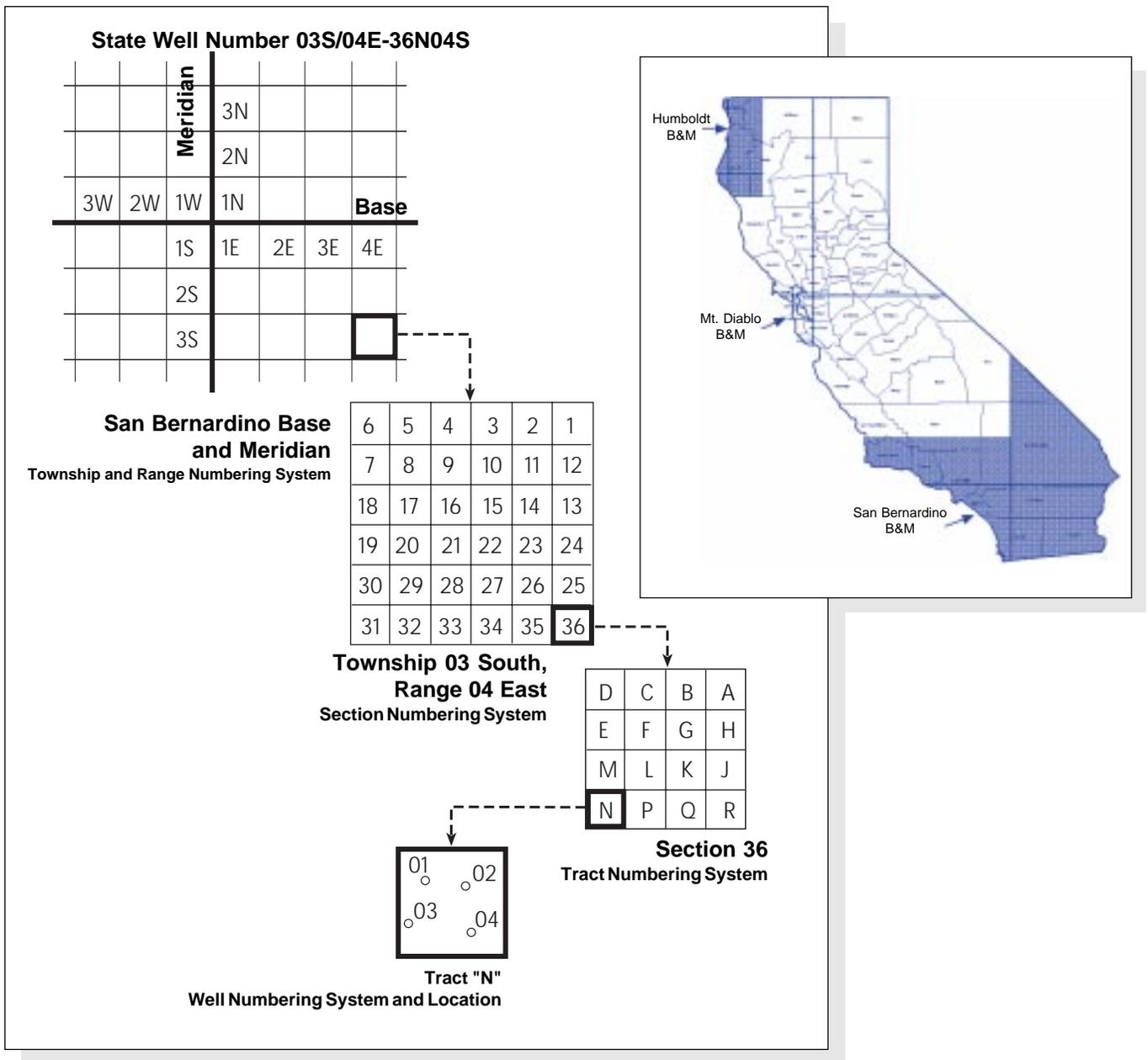
Spanish land grants which predate the public land surveys in California have not been subdivided in this manner. However, DWR in cooperation with

the USGS has extended section lines on maps on which land grant boundaries appear and many extended section lines are published. DWR maintains an official file of these lines.

The State's well-numbering system is an extension of the public land survey system and has been employed by DWR, USGS, and other agencies for over 50 years. Under this system, each well is assigned a unique number referred to as the **State Well Number**. The extension of the system involves dividing each section of land into sixteen 40-acre tracts, identified as illustrated on page 3. Once the well's location is established in the 40-acre tract it is assigned a sequence number. These sequence numbers are assigned in chronological order by DWR personnel. DWR maintains an index to prevent duplication.

How to Get Well Numbers Assigned

Agencies or anyone desiring well numbers should contact the district office of DWR in whose area the wells are situated. There are four district office locations: Red Bluff (Northern District); Sacramento (Central District); Fresno (San Joaquin District); and Glendale (Southern District). Addresses of these offices plus a list of the



counties in each district are listed on page 4. If you are uncertain about which office to contact or if you need additional assistance, contact the Statewide Well Standards Coordinator in the Division of Planning and Local Assistance in Sacramento at (916) 327-8861.

Your request should be accompanied by:

1. A map of reasonably large scale or a sketch map showing the location of the wells with respect to prominent manmade features or natural landmarks and the distance to them. A most useful map is the standard USGS 7.5-minute quadrangle topographic map with a scale of 1:24000 (a little over 2-1/2 inches equals one mile).

2. An exact description and the location of each well including:
 - address of the property that includes county, city or town, and street or highway address;
 - the name or number assigned to the well by its owner agency because agencies owning more than one well commonly identify each well by some designation;
 - the township, range, and section if known;
 - direction and distance from the nearest city or town, roads, streets, canals, powerlines, or other distinctive structure, and
 - the distance and direction to other existing wells.
3. A description of the well itself, including anything that is known about the well, such as:
 - owner;
 - date constructed, reconstructed, or modified;
 - driller;

- well depth;
- casing material and its diameter;
- pump horsepower and pump manufacturer;
- motor and serial number; and
- utility company meter number.

Although this information may not be readily available for each well, the more information there is, the less the possibility of misnumbering and confusion at a later date.

DWR uses a standard form (DWR Form 429, "Well Data") for recording information for each well.

To get more information or to get a copy of DWR's Well Data form, contact any of the DWR District Offices listed below, or see our Web site at www.dpla.water.ca.gov/cgi-bin/supply/gw/main.pl

Northern District
 2440 Main Street
 Red Bluff, CA 96080-2398
 (530) 529-7300
www.dpla.water.ca.gov/nd

Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, and Trinity

Central District
 3251 "S" Street
 Sacramento, CA 95816-7017
 (916) 227-7561
www.dpla.water.ca.gov/cd

Alameda, Alpine, Amador, Calaveras, Contra Costa, El Dorado, Marin, Mendocino, Mono (North), Napa, Nevada, Placer, Sacramento, San Francisco, San Joaquin, San Mateo, Santa Clara, Sierra, Solano, Sonoma, Sutter, Tuolumne, Yolo, and Yuba

San Joaquin District
 3374 E. Shields Avenue
 Fresno, CA 93726-6990
 (559) 230-3300
www.dpla.water.ca.gov/sjd

Fresno, Kern (San Joaquin Valley), Kings, Madera, Mariposa, Merced, Monterey, San Benito, Santa Cruz, Stanislaus, and Tulare

Southern District
 770 Fairmont Avenue
 Glendale, CA 91203-1035
 (818) 543-4611
www.dpla.water.ca.gov/sd

Imperial, Inyo, Kern (Desert), Los Angeles, Orange, Riverside, Mono (South), San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Ventura

