REQUIREMENTS FOR NEW WELLS (July 2016 Version)

Division of Drinking Water
Tehachapi District Office

1. Permit Application

Application for an amended permit must be made as required by Section 116550, Article 7, Chapter 4, Part 12, Division 104, of the California Health and Safety Code. Included with this letter is a permit application and instructions that should be used. Return the completed application, along with the information required in Items 2, 3, 4, 5, 6, 7, 8, 9, and 10 (if available) to the Tehachapi District Office of the Division of Drinking Water (hereinafter Division), State Water Resources Control Board. The completed permit amendment application (in pdf format) may be submitted electronically to the Tehachapi District Office's email box: DWPDIST19@waterboards.ca.gov.

Due to revisions in the fee regulations, effective July 1, 2016, permit application fee is no longer required.

According to Section 64560 of the CCR for New Well Siting, Construction, and Permit Application:

(a) To receive a new or amended domestic water supply permit for a proposed well, the water system shall provide the following information to the Division of Drinking Water in the technical report as part of its permit application:

(1) A source water assessment as defined in Section 63000.84 for the proposed site;
(2) Documentation demonstrating that a well site control zone with a 50-foot radius around the site can be established for protecting the source from vandalism, tampering, or other threats at the site by water system ownership, easement, zoning, lease, or an alternative approach approved by the Division based on its potential effectiveness in providing protection of the source from contamination;
(3) Design plans and specifications for the well; and
(4) Documentation required for compliance with the California Environmental Quality Act (CEQA).

(b) After the Division has provided written or oral approval of the initial permit amendment application and the water system has constructed the well, the water system shall submit the following additional materials for its permit application:

(1) A copy of the well construction permit if required by the county or local agency;
(2) Department of Water Resources well completion report;
(3) A copy of any pump tests required by the Division;
(4) Results of all required water quality analyses; and
(5) As-built plans.

(c) Each new public water supply well shall:
(1) As a minimum, be constructed in accordance with the community water system well requirements in California Department of Water Resources Bulletins 74-81 and 74-90, which are hereby incorporated by reference;
(2) Be constructed in accordance with American Water Works Association (AWWA) Standard A100-06 (Water Wells), which is hereby incorporated by reference;
(3) Be installed such that:
(A) All equipment is accessible for operation, maintenance, and removal;
(B) Protection is provided against flooding;
(C) The wellhead terminates a minimum of 18 inches above the finished grade;
(D) Wellhead and electrical controls are not installed in vaults;
(E) The well is equipped with:
1. Fittings and electrical connections to enable chlorination facilities to be readily installed;
2. A non-threaded down-turned sampling tap located on the discharge line between the wellhead and the check valve. Sampling taps used for obtaining samples for bacteriological analysis shall not have a screen, aerator, or other such appurtenance;
(F) Provisions are made to allow the well to be pumped to waste with a waste discharge line that is protected against backflow.

According to Section 64561 of Title 22 CCR, a new well must be provided with a Source Flow Meter as discussed below:

Each water system shall:
(a) Except for inactive sources, install a flow meter at a location between each water source and the entry point to the distribution system;
(b) Meter the quantity of water flow from each source, and record the total monthly production each month.

According to Section 64583 of Title 22, CCR, new wells and repaired well shall be disinfected as discussed below: A new or repaired well, or a well that has not been in operation for more than three months shall be sampled for bacteriological quality prior to use. If the results of the bacteriological sampling are positive for coliform bacteria, the well shall be disinfected in accordance with the American Water Works Association C654-03 and resampled for bacteriological quality and the test results shall be submitted to the Division for review and approval before the well is placed into service.

Well Production Capacity: A totalizer flow meter must be provided on each well to record production. Please note that recent revisions to California Waterworks Standards require installing a flow meter at a location between each water source and the entry point to the distribution system. The water system will be also required to meter the quantity of water flow from each source, and record the total monthly production each month.

Please also note that per revised Waterworks Standards, the capacity of a well shall be determined from pumping data existing prior to March 9, 2008 or in accordance with the procedure, described in Attachment B. For well capacity tests conducted pursuant to the procedure described in Attachment B, the information shall be submitted to the Division along with the permit amendment application.

2. CEQA Clearance

California Environmental Quality Act (CEQA) documentation is required. A Notice of Determination must be included with the permit application if the well is for a water system owned by a public agency. All environmental documents must be routed through the State Clearinghouse (SCH) and be assigned a SCH Number before the State Water Resources Board, Division of Drinking Water (DDW) will grant permission to put the new source online.

Privately owned water companies, including mutual water companies and homeowners associations, must use DDW as the lead agency for CEQA clearance. The District office will provide the utility with an Environmental Information Form that must be completed and returned to the Tehachapi District Office for projects that DDW is the lead agency.

Failure to comply with the CEQA requirements will cause a delay in DDW granting permission to use the new source in the water system.

3. Plans and Specifications

Plans and specifications must be submitted to DDW. All new wells are to be drilled and constructed in accordance with the California Department of Water Resources (DWR) Bulletins 74-81 and 74-90 and the American Water Works Association (AWWA) Standard A100-06 for Water Wells. The California Water Well Standards Bulletin 74-90 requires a

separation of domestic water supply wells from potential sources of contamination as follows:

Potential Pollution or Contamination Source	***Minimum Horizontal Separation Distance Between Well and Known or Potential Source**
Any sewer line (sanitary, industrial, or storm; main or lateral)	50 feet
Watertight septic tank or subsurface sewage leaching field	100 feet
Cesspool or seepage pit	150 feet
Recycled Water Use Area	50-150 feet depending on level of treatment of recycled water
Animal or fowl enclosure	100 feet

*The above separation distances are for wells with adequate annular seals drilled in dry upper unconsolidated formations that are less permeable than sand. Wells drilled in fractured rock formations need to have much greater separation distances.

The AWWA Well Standard specifies a minimum annular seal thickness of 3 inches. **Bentonite slurries are not allowed as a sealing material. Bentonite slurries can shrink and crack when they dry out, and they do not adequately hydrate and swell once water is reintroduced to the seal.**

All wells shall be plumbed and equipped with proper electrical hookups at the well site to allow for the installation of emergency disinfection equipment in case of a bacteriological water quality failure. In addition, all wells must be equipped with a production meter and flush to waste facilities.

4. Drinking Water Source Assessment Requirements

As of April 1, 1999, all new sources must have an assessment completed as part of the permitting process. This assessment must be conducted in accordance with the Division's Drinking Water Source Assessment and Protection Program (DWSAP). The assessment must include the following:

- A ***Delineation*** of protection areas/zones around the well (2 year, 5 year and 10 year time of travel).
- An ***Inventory*** of Possible Contaminating Activities (PCAs) within the identified protection areas/zones.
- A ***Vulnerability Assessment*** to identify the PCAs to which the source is most vulnerable.

To obtain detailed information on the procedures to complete a source assessment, you may contact the Tehachapi District Office or access the DDW's website at:

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/DWSAPGuidance.shtml

On March 9, 2008, revisions to the California Waterworks Standards became effective that require water systems to provide documentation demonstrating that a well site control zone with a 50-foot radius around the site can be established for protecting the source from vandalism, tampering, or other threats at the site by water system ownership, easement, zoning, lease, or an alternative approach approved by DDW based on its potential effectiveness in providing protection of the source from contamination.

5. Well Topographic Coordinates

Determine the topographic coordinates for each source and submit the information to the Division. The coordinates (latitude and longitude) in degrees, minutes and seconds may be determined from a Global Positioning System (GPS) or other methods, such as Google Earth, U.S. Geological Survey Quad sheet, etc..

6. DWR Well Completion Report

Section 13751 of Chapter 10 of Division 7 of the Water Code requires that any person who digs, bores, or drills a water well, cathodic protection well, or a monitoring well, or abandons or destroys any such well, or who deepens or re-perforates any such well shall file with the DWR a report of completion (Well Completion Report) of such well within 30 days after its construction or alteration has been completed. The report shall be made on forms furnished by DWR. A Well Completion Report is a document completed by the well driller at the time of construction. The Report includes the following information: owner, location, proposed use, equipment employed in the construction of the well, gravel pack, casing material and diameter, perforations, well seal, water levels, well tests, well log, date drilled and the name of the well driller.

A copy of the Well Completion Report must also be submitted to the Division after the well has been drilled.

7. Water Quality Reports

Prior to placing a new well into service, it must be determined whether the well water meets the State's drinking water quality standards. To make this determination the water must be analyzed for:

(a) ***Bacteriological Quality*** - See Attachment F for guidelines for the disinfection of a well prior to collection of a bacteriological sample.

(b) ***General Mineral, General Physical, and Inorganic Chemicals*** - See the attached Water Quality Monitoring Schedule (Attachment G). All community and nontransient noncommunity water systems must now monitor new wells for perchlorate to determine compliance with the perchlorate MCL of 6 ug/L (effective

October 18, 2007) and hexavalent chromium MCL of 0.010 mg/L (effective July 1, 2014). To complete initial monitoring for perchlorate, two rounds five to seven months are needed and one of the two samples must be collected between May and September. To determine compliance with the hexavalent chromium MCL, collect a sample from the well and analyze for hexavalent chromium by EPA method 218.6 or 218.8. If total chromium is to be used as a screening tool for hexavalent chromium (chromium VI), the analytical method used must be capable of detection at the 1 ug/L reporting limit.

(c) ***Volatile Organic Chemicals*** – See the attached Water Quality Monitoring Schedule (Attachment G).

(d) ***Synthetic Organic Chemicals*** - See the attached Water Quality Monitoring Schedule (Attachment G). In addition, please sample the new well for 1,2,3-TCP, considering that the State Board is in the process of proposing a new primary MCL for 1,2,3-TCP.

(d) ***First of four consecutive quarters of radiochemical monitoring*** - Sample for gross alpha activity. Uranium shall be analyzed for if the gross alpha activity exceeds 5 picoCuries per liter (pCi/L). Community Water Systems must also conduct four consecutive quarters of monitoring for radium 228. If first two quarters of radium 228 show non-detect (below the detection limit of 1 pCi/L results, monitoring for the remaining two quarters may be waived. *See* the attached Water Quality Monitoring Schedule (Attachment G).

8. Source Capacity Information

Sufficient pump test information must be submitted that demonstrates the capacity of the source on a sustained basis. Information must also be provided that evaluates any potential impacts to nearby wells and surface water sources as required as part of the CEQA documentation.

9. Well Data Sheet

The Well Data Sheet is provided as **Attachment H**, and needs to include information about the pump and motor, as well as a summary of the Well Completion Report and location of the well.

10. Treatment

If a treatment (including chlorination) is installed on the well, then information about the treatment must also be provided along with the permit amendment application for the new well. If chlorination treatment is installed on the well, a completed *Chlorination Data Sheet* must also be submitted (blank Chlorination Data Sheet provided as Attachment I. If any additional treatment is installed, contact the Division to find out requirements to use the treatment.

11. Inspections

(a) **Site Inspection:** Once a site has been selected for the proposed well, contact the Tehachapi District Office of the Division so that a site inspection can be performed to determine if the location will be suitable.

(b) **Well Inspection:** After the well has been drilled, the pump and other equipment installed, and before the well is added to the system, a member of the Division staff must complete a field inspection of the well.

A well is not to discharge into the water distribution system until the above documents have been submitted to the Division and a field inspection of the well installation has been made.

If a water system has any questions regarding any of the above requirements, the Tehachapi District Office of the Division may be contacted at (661) 335-7315 or via email at DWPDIST19@waterboards.ca.gov.

Attachments

Attachment A - Permit Amendment Application Form
Attachment B – Environmental Information Form
Attachment C: - Procedure to Determine Source Capacity
Attachment D - Surface Features of a Domestic Water Well
Attachment E - Drinking Water Source Assessment Program (DWSAP) Summary
Attachment F - DWR, Bulletin 74-81: Appendix C, Suggested Procedures for Disinfecting Wells
Attachment G - Water Quality Monitoring Schedule for New Wells
Attachment H – Well Data Sheet
Attachment I – Chlorination Data Sheet

Attachment A

Permit Amendment Application

Attachment B

Environmental Information Form

Attachment C

Procedure To Determine Source Capacity

WELLS LOCATED IN ALLUVIAL SOILS

To determine the capacity of a well drilled in alluvial soils when there is no existing data to determine the capacity, a water system shall complete a constant discharge (pumping rate) well capacity test and determine the capacity as follows:

(1) Take an initial water level measurement (static water level) and then pump the well continuously for a minimum of eight hours, maintaining the pump discharge rate proposed in subsection (2);

(2) While pumping the well, take measurements of the water level drawdown and pump discharge rates for a minimum of eight hours at a frequency no less than every hour;

(3) Plot the drawdown data versus the time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithm axis and the drawdown data on the vertical axis;

(4) Steady-state is indicated if the last four hours of drawdown measurements and the elapsed time yield a straight line in the plot developed pursuant to subsection (3). If steady-state is not achieved, the pump discharge rate shall be continued for a longer period of time or adjusted, with paragraphs (2) and (3) above repeated, until steady-state is achieved.

(5) Discontinue pumping and take measurements of the water level drawdown no less frequently than every 15 minutes for the first two hours and every hour thereafter for at least six hours or until the test is complete; and

(6) To complete the test, the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent.

(7) The capacity of the well shall be the pump discharge rate determined by a completed test.

WELLS LOCATED IN FRACTURED ROCK (HARD ROCK WELLS)

The capacity of a well whose primary production is from a bedrock formation, such that the water produced is yielded by secondary permeability features (e.g. fractures or cracks), shall be determined pursuant to either paragraph (1) or (2) below.

(1) The public water system shall submit a report, for Department review and approval, proposing a well capacity based on well tests and the evaluation and management of the aquifer from which the well draws water. The report shall be prepared and signed by a California registered geologist with at least three years of experience with groundwater hydrology, a California licensed engineer with at least five years of experience with groundwater hydrology, or a California certified hydrogeologist. Acceptance of the proposed well capacity by the Department shall, at a minimum, be based on the Department's review and

approval of the following information presented in the report in support of the proposed well capacity:

(A) The rationale for the selected well test method and the results;

(B) The geological environment of the well;

(C) The historical use of the aquifer;

(D) Data from monitoring of other local wells;

(E) A description of the health risks of contaminants identified in a Source Water Assessment, as defined in section 63000.84 of Title 22, and the likelihood of such contaminants being present in the well's discharge;

(F) Impacts on the quantity and quality of the groundwater;

(G) How adjustments were made to the estimated capacity based on drawdown, length of the well test, results of the wells test, discharge options, and seasonal variations and expected use of the well; and

(H) The well test(s) results and capacity analysis.

(2) During the months of August, September, or October, conduct either a 72-hour well capacity test or a 10-day well capacity test, and determine the well capacity using the following procedures:

(A) **Procedures for a 72 hour well capacity test:**

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (e)(2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 72 hours starting at the pump discharge rate proposed in (e)(2);

3. Measure and record water drawdown levels and pump discharge rate:

   a. Every thirty minutes during the first four hours of pumping,

   b. Every hour for the next four hours, and

   c. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(B) **Procedures for a 10 day well capacity test:**

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection ((2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 10 days starting at the pump discharge rate proposed in (2);

3. Measure and record water drawdown levels and pumping rate:

    a. Every thirty minutes during the first four hours of pumping,

    b. Every hour for the next four hours,

    c. Every eight hours for the remainder of the first four days,

    d. Every 24 hours for the next five days, and

    e. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(C) To complete either the 72-hour or 10-day well capacity test the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the well capacity test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent. If the well recovery does not meet these criteria, the well capacity cannot be determined pursuant to subsection (g)(2) using the proposed pump rate. To demonstrate meeting the recovery criteria, the following water level data in the well shall be measured, recorded, and compared with the criteria:

    1. Every 30 minutes during the first four hours after pumping stops,

    2. Hourly for the next eight hours, and

    3. Every 12 hours until either the water level in the well recovers to within two feet of the static water level measured at the beginning of the well capacity test or to a at least ninety-five percent of the total drawdown measured during the test, whichever occurs first.

(D) Following completion of a 72-hour or 10-day well capacity test, the well shall be assigned a capacity no more than:

1. For a 72-hour test, 25 percent of the pumping rate at the end of a completed test's pumping.

2. For a 10-day test, 50 percent of the pumping rate at the end a completed test's pumping.

The public water system shall submit a report to the Department that includes all data and observations associated with a well capacity test conducted pursuant to the procedure(s) described above, as well as the estimated capacity determination methods and calculations. The data collected during pumping and recovery phases of the well capacity tests shall be submitted in an electronic spreadsheet format in both tabular and graphic files.

Attachment D

Surface Features of a Domestic Water Well

Attachment E

Drinking Water Source Assessment Program (DWSAP) Summary

Attachment F

DWR, Bulletin 74-81: Appendix C
Suggested Procedures for Disinfecting Wells

Attachment G

Water Quality Monitoring Schedule for New Wells

Attachment H

Well Data Sheet

Attachment I

Chlorination Data Sheet