**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:

1. The rationale for the selected well test method and the results;
2. The geological environment of the well;
3. The historical use of the aquifer;
4. Data from monitoring of other local wells;
5. 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;
6. Impacts on the quantity and quality of the groundwater;
7. 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
8. 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, which ever 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.