KERN COUNTY ENVIRONMENTAL HEALTH SERVICES

Water Program

WATER WELL PERMITS POLICY MANUAL (PROPOSED CHANGE)
(New wells, deepening, reconstruction)

SCOPE

The Kern County Ordinance Code, Chapter 14, provides for the design, construction, repair, and reconstruction of agricultural wells, domestic wells, cathodic protection wells, industrial wells, monitoring wells, observation wells, geothermal heat exchange wells, and test wells in such a manner that the groundwater of the county will not be contaminated or polluted, and that water obtained for beneficial uses will not jeopardize the health and safety or welfare of the people of this county. Any of the wells listed above must obtain a permit from the Environmental Health Services (EHS) Department prior to initiation of construction.

I. WATER WELL PERMIT APPLICATION INQUIRIES (all forms are available on line at *www.co.kern.ca.us/eh/WaterProgram.asp*)

For inquiries on how to obtain a water well permit:

1. Supply a copy of "Application for a Permit to Construct, Reconstruct, Deepen or Destroy a Well."

2. Supply the list of approved well drillers, if requested. A C-57 license is required to drill a well, and the driller must be on the current list entitled, "Well Drillers Registered with the Kern County Environmental Health Services Department."

    A. Be sure to check current memo of well drillers whose applications should not be accepted.

II. WATER WELL PERMIT APPLICATION SUBMITTALS

For water well permit application submittals:

1. Collect a completed application form, including:

    A. signature of contractor or owner (verification from drilling contractor required if only owner signature)
    B. township, range and section - if lacking, assist applicant
    C. Assessor's parcel number
    D. map of well location with distances from roads, property lines, section lines, and distances from septic tanks, seepage pits, leach lines, and water wells on adjoining properties and well site property

E. proposed depth, size, and type of casing
F. intended use and type of work done

2. Locate property information using the GIS mapping system on-line or in the Assessor's parcel books, zone map binder, and floodplain binder.
   A. If GIS information is not the same as applicant, verify legal owner using KIPS.

3. For all new domestic, industrial, and agricultural wells, review for approval of:
   A. zoning
   B. floodplain

   Using the on-line GIS mapping information
   If unsure, ask a planner from the Planning Department.

   Cathodic protection wells, monitoring wells, test holes, and well reconstructions do not require above review. If a cathodic well is in the road right-of-way, contact Roads to see if they will issue an encroachment permit for the cathodic well permit.

4. If EHS Building Plans Technician or the Planning Department cannot approve A. or B. above, do not accept fees or the application.

5. Determine if an existing well is being replaced or if any abandoned wells are located on the property site.
   A. request an application to destroy a well is submitted if any abandoned wells or old well will not be used.

4. If the application is complete and meets all requirements (including distance from the section and mid-section lines for Ag. Wells), accept the application and appropriate fee. Complete the fee information portion of the EHS Department section.

   Collect fee based on current ordinance.

7. Check on-line GIS mapping information and KIPS for correct owner information and maps. All information pages from GIS & KIPS should be attached to the application.

8. If GIS mapping information does not agree with the permit application, check KIPS. If it still does not agree, ask for a copy of the grant deed. Do not accept the application or fee.

9. If approval is necessary from the Floodplain Section, then accept both the fees and the application. Also collect an additional flood evaluation fee or a flood evaluation update fee. Note that “flood approval is required” on the

service request. Attach a copy of the receipt to the well permit application and give to Floodplain Management for review. Forward the application to the Water Program as usual.

FOR WATER WELL DESTRUCTION PERMIT APPLICATION SUBMITTALS:

1. Collect a completed application form, including:
   A. signature of contractor or owner (verification from drilling contractor required if only owner signature)
   B. township, range and section - if lacking, assist applicant
   C. Assessor's parcel number
   D. map of well location with distances from roads, property lines, section lines, and distances from septic tanks, seepage pits, leach lines, and water wells on adjoining properties and well site property
   E. depth, size, and type of casing

2. Locate property information using the GIS mapping system on-line.
   A. If GIS information is not the same as applicant, verify legal owner using KIPS.

3. If the application is complete and meets all requirements, accept the application and forward to Water Program.

4. A copy of the application is sent to the KCWA and the water district within which the well site is located. The Water Agency and the affected water district shall be allowed 48 hours to review the application and make contact with the property owner if either entity desire to obtain access to the well.

5. No up front fee is required. An hourly service fee is charged when destruction is completed.

III. WATER - WELL PERMIT APPLICATION REVIEW PROCESS

1. Receive completed application from counter Building Plans Technician.

2. Environmental Health Specialist reviews proposed location of the well and determines if an annular seal will be required.
   A. Factors used to determine if an annular seal will be required.

      Review maps and other information as noted on attached Exhibit A.

      Review available water quality analysis data for the specific Township/Range/Section that the well will be located in and adjacent sections if necessary.

An annular seal is required if the water quality analysis data for the following constituents indicate differences in quality between the unconfined and confined aquifers (better quality required in the confined aquifer):

TDS	500 mg/L
NITRATE	20 mg/L
EDB	Any difference, unless MCL is exceeded in the confined aquifer.
DBCP	Any difference, unless MCL is exceeded in the confined aquifer.
URANIUM	Any difference, unless MCL is exceeded in the confined aquifer.

Other constituents may be used by the Environmental Health Specialist in conjunction with the above constituents to determine if an annular seal will be required.

3 If, after reviewing the available water quality analysis data, the Environmental Health Specialist cannot make a determination that an annular seal will or will not be required, the application is submitted to the Kern County Water Agency for a recommendation and the applicant is also advised that a recommendation from a private consultant may be submitted for review. No further action is taken on the application until a recommendation from the Water Agency and a private consultant, if retained, is received.

4. If an ESS flood review is required, the application will not be approved until a recommendation from ESS flood review is received.

5. A site inspection will be conducted by an Environmental Health Specialist or Technician.

6. The application is approved/disapproved by an Environmental Health Specialist (based upon requirements found in County Ordinance) a permit number is issued and letter written to the property owner and copy of the letter is mailed to the well driller and the Kern County Water Agency advising of the approval and any conditions that may be required.

Annular seal.
E-log.
Deeper top seal.

7. If the applicant chooses to have independent review of the decision for the location of the seal, a California certified hydrogeologist must be retained for that purpose at the applicant's cost.

8. An inspection of the installation of the annular seal is conducted.

9. Final inspection of the surface features (except destruction and cathodic protection wells) must be requested by the applicant, pump company, etc., and is performed by the Environmental Health Specialist or Technician.

10. All new agricultural wells shall be equipped with an approved air gap separation or an approved chemigation check valve assembly (a list of assemblies approved by the Department is posted on the Department web page and is available for review at the Department). Prior to final approval of the agricultural water well, the air gap separation must be constructed or the approved chemigation check valve assembly must be installed.

    The Department may approve, on a case-by-case basis, an alternate backflow prevention device when the applicant or his representative demonstrates that the alternate device will be effective for preventing degradation of groundwater due to backflow.

11. The water quality (except destruction, monitoring and cathodic protection wells) is tested by the applicant and results submitted to the Kern County Environmental Health Services Department. For agricultural wells, the minimum testing shall be conducted for the following:

    A. Irrigation Water Analysis
    B. Arsenic
    C. Fluoride
    D. Organics
        1. EDB
        2. DBCP
    E. Gross Alpha

12. Upon receipt of satisfactory water quality (except destruction, monitoring and cathodic protection wells), well driller's log (except destruction), and final inspection (except destruction and cathodic protection wells), the well is issued a water supply certificate.

EXHIBIT A

KERN COUNTY WATER SUPPLY SYSTEMS ORDINANCE

Guidelines for Kern County Water Agency Review of Kern County Water Well Ordinance Permits

Water well permit applications submitted to the Kern County Environmental Health Services Department (KCEHSD) should be sent to the Kern County Water Agency (Agency) for review when the permits meet any of the following conditions:

- Proposed well site falls within the northern extent of the Corcoran Clay as described by Metz, et al, 1991 (Figure 1).
- Proposed well site falls within the extent of the shallow groundwater conditions (Figure 1).
- Proposed well site is within 1 mile radius of a public drinking water supply well.
- Proposed well site is within 1 mile radius of the sphere of influence of any Kern County municipality (Figure 2).
- Proposed well site is within 1 mile radius of an established or proposed groundwater recharge/recovery facility (figure 3).
- Proposed well site is within 1 mile radius of an active or proposed dairy or feedlot operation (Figure 4).
- Proposed well site is within 1 mile radius of a biosolids composting, disposal, or land application area (Figure 4).
- Proposed well site is within 1 mile radius of a known or suspected hazardous waste site, active or inactive sanitary landfill, burn dump, hazardous materials facility.
- Proposed well site is within 1 mile radius of a known area of poor water quality (refer to Groundwater Quality Report San Joaquin Valley Kern County, California; March 1982).
- Proposed well site is within 1 mile radius of an active or proposed fruit or vegetable processing facility.
- All water well destruction permit applications should be reviewed by the Agency and water district having jurisdiction for the site.

EXHIBIT B

KERN COUNTY WATER SUPPLY SYSTEMS ORDINANCE

Well Construction
Approved Sealing Material

Sealing material shall consist of neat cement, sand cement, concrete, or bentonite. Cuttings from drilling, or drilling mud, shall not be used for any part of the sealing material.

1. Cement-based Sealing Material:

a. **Neat Cement.** For Types I or II Portland cement, neat cement shall be mixed at a ratio of one 94-pound sack of Portland cement 5 to 6 gallons of clean water.

b. **Sand Cement**. Sand-cement shall be mixed at a ratio of not more than 188 pounds of sand to one 94-pound sack of Portland cement (2 parts sand to 1 part cement, by weight) and about 7 gallons of clean water, where Type I or Type II Portland cement is used. This is equivalent to a '10.3 sack mix.' Less water shall be used if less sand than 2 parts sand per one part cement by weight is used.

c. **Concrete.** Concrete shall consist of Portland cement and aggregate mixed at a ratio of at least six-94 pound sacks of Portland cement per cubic yard of aggregate. A popular concrete mix consists of eight-94 pound sacks of Type I or Type II Portland cement per cubic yard of uniform 3/8-inch aggregate.

2. Bentonite Sealing Material

Bentonite used for annular seals shall be commercially prepared, powdered, granulated, pelletized, or chipped/crushed sodium montmorillonite clay. The largest dimension of pellets or chips shall be less than 1/5 the radial thickness of the annular space into which they are placed.

Bentonite clay mixtures shall be thoroughly mixed with clean water prior to placement. A sufficient amount of water shall be added to bentonite to allow proper hydration. Depending on the bentonite sealing mixture used, 1 gallon of water should be added to about every 2 pounds of bentonite. Water added to bentonite for hydration shall be of suitable quality and free of pollutants and contaminants.

Bentonite preparations normally require ½ to 1 hour to adequately hydrate. Actual hydration time is a function of site conditions and the form

of bentonite used. Finely divided forms of bentonite generally require less time for hydration, if properly mixed.

Dry bentonite pellets or chips may be placed directly into the annular space below water, where a short section of annular space, up to 10 feet in length, is to be sealed. Care shall be taken to prevent bridging during the placement of bentonite seal material.

Unamended bentonite clay seals should not be used where structural strength of the seal is required, or where it will dry. Bentonite seals may have a tendency to dry, shrink and crack in arid and semi-arid areas of California where subsurface moisture levels can be low. Bentonite clay seals can be adversely affected by subsurface chemical conditions, as can cement-based materials.

Bentonite clay shall not be used as a sealing material if roots from trees and other deep rooted plants might invade and disrupt the seal, and/or damage the well casing. Roots may grow in an interval containing a bentonite seal depending on surrounding soil conditions and vegetation.

Bentonite-based sealing material shall not be used for sealing intervals of fractured rock or sealing intervals of highly unstable, unconsolidated material that could collapse and displace the sealing material, unless otherwise approved by the enforcing agency. Bentonite clay shall not be used as a sealing material where flowing water might erode it.

3. Other Approved Sealing Material

Well proportioned mixes of silts, sands, and clays (or cement), and native soils that have a coefficient of permeability of less than 10 feet per year.

EXHIBIT C

KERN COUNTY WATER SUPPLY SYSTEMS ORDINANCE

Well Destruction
Approved Sealing Material

Sealing material shall consist of neat cement, sand cement, concrete, or bentonite. Cuttings from drilling, or drilling mud, shall not be used for any part of the sealing material.

1. **Cement-based Sealing Material**:

    a. **Neat Cement.** For Types I or II Portland cement, neat cement shall be mixed at a ratio of one 94-pound sack of Portland cement 5 to 6 gallons of clean water.

    b. **Sand Cement**. Sand-cement shall be mixed at a ratio of not more than 188 pounds of sand to one 94-pound sack of Portland cement (2 parts sand to 1 part cement, by weight) and about 7 gallons of clean water, where Type I or Type II Portland cement is used. This is equivalent to a '10.3 sack mix.' Less water shall be used if less sand than 2 parts sand per one part cement by weight is used.

    c. **Concrete.** Concrete shall consist of Portland cement and aggregate mixed at a ratio of at least six-94 pound sacks of Portland cement per cubic yard of aggregate. A popular concrete mix consists of eight-94 pound sacks of Type I or Type II Portland cement per cubic yard of uniform 3/8-inch aggregate.

2. **Bentonite Sealing Material**

    Bentonite used for annular seals shall be commercially prepared, powdered, granulated, pelletized, or chipped/crushed sodium montmorillonite clay. The largest dimension of pellets or chips shall be less than 1/5 the radial thickness of the annular space into which they are placed.

    Bentonite clay mixtures shall be thoroughly mixed with clean water prior to placement. A sufficient amount of water shall be added to bentonite to allow proper hydration. Depending on the bentonite sealing mixture used, 1 gallon of water should be added to about every 2 pounds of bentonite. Water added to bentonite for hydration shall be of suitable quality and free of pollutants and contaminants.

    Bentonite preparations normally require ½ to 1 hour to adequately hydrate. Actual hydration time is a function of site conditions and the form

of bentonite used. Finely divided forms of bentonite generally require less time for hydration, if properly mixed.

Dry bentonite pellets or chips may be placed directly into the annular space below water, where a short section of annular space, up to 10 feet in length, is to be sealed. Care shall be taken to prevent bridging during the placement of bentonite seal material.

Unamended bentonite clay seals should not be used where structural strength of the seal is required, or where it will dry. Bentonite seals may have a tendency to dry, shrink and crack in arid and semi-arid areas of California where subsurface moisture levels can be low. Bentonite clay seals can be adversely affected by subsurface chemical conditions, as can cement-based materials.

Bentonite clay shall not be used as a sealing material if roots from trees and other deep rooted plants might invade and disrupt the seal, and/or damage the well casing. Roots may grow in an interval containing a bentonite seal depending on surrounding soil conditions and vegetation.

Bentonite-based sealing material shall not be used for sealing intervals of fractured rock or sealing intervals of highly unstable, unconsolidated material that could collapse and displace the sealing material, unless otherwise approved by the enforcing agency. Bentonite clay shall not be used as a sealing material where flowing water might erode it.

3. Other Approved Sealing Material

Well proportioned mixes of silts, sands, and clays (or cement), and native soils that have a coefficient of permeability of less than 10 feet per year.