



Well Construction, Destruction, Mining, and Export Application/Permit User Guide

MERCED COUNTY CODE CHAPTER 9.27 and 9.28
Merced County Department of Public Health, Division of Environmental Health
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Completing the Well Construction, Destruction, Mining, and Export Permit Application

In accordance with Merced County Code, Chapter 9.27, all groundwater De Minimis, Replacement, Back-up, and New well construction and Export proposals require the applicant to complete a Merced County Department of Public Health, Division of Environmental Health (MCDEH), *Well Construction, Destruction, Mining, and Export Application/Permit*.

1. Applicants shall provide accurate information regarding: the proposed and existing locations of groundwater wells, description for the type of work proposed, construction-exploration methods, intended use, well construction details, sealing/destruction material placement methods, groundwater and land surface elevations, and land subsidence rate estimates.
2. Information pertaining to **groundwater elevation estimates** can be derived directly from on-site wells or nearby well measurements, and from other sources including the State of California, Department of Water Resources (DWR), California Statewide Groundwater Elevation Monitoring (CASGEM), <http://www.water.ca.gov/groundwater/casgem/> and the Groundwater Information Center at http://www.water.ca.gov/groundwater/groundwater_data_and_monitoring.cfm.
3. Information pertaining to **land elevation estimates** can be derived directly from on-site or nearby surveying activities, and from other sources including the United States Geological Survey (USGS) National Map site at <http://viewer.nationalmap.gov/viewer/>.
4. Information pertaining to **land subsidence rate estimates** can in some cases be derived directly from on-site or nearby monitoring activities, and from other sources including the State of California, Department of Water Resources, Groundwater Information Center at <http://www.water.ca.gov/groundwater/landsubsidence/LSmonitoring.cfm> the United States Geological Survey (USGS) at <http://water.usgs.gov/ogw/subsidence.html>, and <http://pubs.usgs.gov/sir/2013/5142/>, and the 2011-2014 Merced County Area Subsidence map at <http://www.co.merced.ca.us/DocumentCenter/View/10733>.
5. Information pertaining to the depth of the **Corcoran Clay** (confining unit), can be derived directly from borehole logs, and from other sources including USGS at http://www.water.ca.gov/pubs/groundwater/depth_to_top_of_corcoran_clay_map_1981/depth_to_the_top_of_corcoran_clay-1981.pdf, DWR at <http://www.co.merced.ca.us/DocumentCenter/View/10734> and Merced County at <http://www.co.merced.ca.us/DocumentCenter/View/10732>.
6. Information pertaining to **Merced County Assessor Parcel Numbers** (APN) and parcel maps can be found at <https://assr.parcelquest.com/Home/Disclaimer>.
7. Information pertaining to **well location coordinates** as latitude (north/south) and longitude (east/west) can in some cases be derived directly from on-site or nearby land surveys, accurate hand held or survey grade Global Positioning System (GPS) devices and from other on-line sources including USGS's Earth Explorer at <http://earthexplorer.usgs.gov/>. Merced County requires well coordinate data presented in a Geographic Information System (GIS) ready

Projected Coordinate System as NAD 1983, State Plane California III FIPS 0403 in feet, and the Geographic Coordinate System as GCS North American 1983, Datum as D North American 1983, Prime Meridian as Greenwich, and the Angular Unit in degree(s). GPS coordinates must be provided in decimal degree format (examples: latitude as 37.123456 and longitude as -120.123456). High accuracy is encouraged; provide as many digits to the right of the decimal point as possible for both latitude and longitude. Most internet based mapping tools provide options for coordinate system (Latitude/Longitude). Google Earth users can change the display settings, open the "Tools" tab, under "Options", select Decimal Degrees in the "Show Lat/Long" box.

8. Information pertaining to California's groundwater and related subbasins can be derived from *DWR Bulletin 118* at <http://www.water.ca.gov/groundwater/bulletin118/index.cfm>, several **mapped groundwater subbasins** in the in the San Joaquin River Hydrologic Region can be viewed at <http://www.co.merced.ca.us/DocumentCenter/View/10789>.
9. Helpful Conversions: One acre foot of water is equivalent to 325,851 gallons; one acre is approximately 43,560 square feet (ft²).
10. For information regarding your proposal, the *California Environmental Quality Act (CEQA)*, sensitive areas and related issues, please contact the Merced County Community and Economic Development Department at (209) 385-7654.

The *Well Construction, Destruction, Mining, and Export Application/Permit* is intended to collect information needed to evaluate De Minimis, Replacement, Back-up, and New groundwater well construction and reconstruction, exemption requests, and Export proposals in accordance with Merced County Code. In some cases additional information may be requested to validate land and water use characteristics. For more detailed information and guidance, download and open the *Well Construction, Destruction, Mining, and Export Application/Permit* as a PDF fill form from the Merced County website. Tooltips appear when the mouse pointer hovers briefly over each form field; the text displayed is helpful in filling in the form field.

Plot Plan

Each groundwater well construction/destruction and export application proposal shall include a scaled plot plan; the scale will be contingent upon the scope of the proposal. A plot plan, consisting of a representational, detailed drawing of the subject parcel (or portion thereof), to a scale no larger than one (1) inch equals fifty (50) feet, shall be submitted for MCDEH review and approval. Larger projects may require multiple scaled drawings. The plot plan shall be on a minimum of 8.5-inch by 11-inch paper, and shall clearly show all relevant features of the parcel, including:

1. The property owner's name, address, and telephone number.
2. The name and telephone number of the person preparing the plot plan.
3. The top of the map pointing north, with a north arrow indicator.
4. The scale of the drawing.
5. A diagram of the parcel showing all property lines and parcel dimensions.
6. The assessor's parcel number(s) and assigned address (es).
7. Roads bordering the property, and any internal roads or driveways.
8. Existing and proposed buildings.
9. Existing wells on the parcel and on any adjacent parcels within 300 feet of the property line.

10. Existing or proposed sewage disposal systems and the designated leach field replacement area for each.
11. Any other prominent features on the property such as right of ways, elevation changes, canals, creeks, lagoons, large trees, hardscape features, crop areas, and landscaped areas, etc.
12. All existing and proposed Domestic, Public, Agricultural, Industrial, and Cathodic protection wells on the parcel with two relevant distances per well (north or south *and* east or west; use feet if short, tenths of mile if long, to and from selected property lines). For wells in remote areas, an aerial photo with distances and coordinates indicated (latitude-longitude) is recommended.
13. All existing and proposed site assessment and remediation related test holes, including but not limited to: Cone Penetration Test holes (CPT), soil borings, monitoring wells, extraction wells, and injection wells on the parcel. Two relevant distances to property lines per site assessment and remediation related test holes/monitor wells are not required where an accurate drawing scale is provided.
14. All conveyances proposed to be utilized in groundwater exports.
15. If any of the above information is not provided on the plot plan, approval may be delayed pending submission of the necessary information.

General

Applications for proposed boreholes, test wells (temporary casing), cathodic protection wells, monitor wells and related site assessment and remediation installations are common examples of non-production wells. At a minimum applicants must complete pages one (1) and two (2) of the *Well Construction, Destruction, Mining, and Export Application/Permit* form.

De Minimis Well

De Minimis groundwater wells are water wells in aggregate on a single parcel delivering two acre-feet of groundwater per year or less for domestic use on property under the same ownership as the parcel on which the well is located. To estimate indoor and outdoor water use, see USGS's water use calculator at <http://water.usgs.gov/edu/sq3.html> and the National Ground Water Association's water use estimator at <http://info.ngwa.org/WaterUseCalc/WaterUseCalc.html>.

1. Complete Section A of the *Well Construction, Destruction, Mining, and Export Application/Permit*.
2. Surface areas can be estimated and converted to acres using the following computation – Example for hardscape areas (concrete, structures/roof areas, etc.); an area with dimensions of 175' long x 415' wide = 72,625 ft² (72,625 square feet), $72,625 \text{ ft}^2 \div 43,560 \text{ ft}^2/\text{acre} = 1.66 \text{ acres}$.
3. Applicants must identify and report land and water uses, including irrigation activities and alternative sources of water, if any, for any parcel intended to be served by the proposed De Minimis well.
4. If anticipated domestic (potable) water use as groundwater extraction on the parcel exceeds two acre-feet of groundwater per year, the well will be reclassified as a New well.

Replacement Well

If a well is proposed to be constructed as a result of the failure of an existing well, mandatory destruction of the existing well will be a condition for issuance of a permit for the replacement well construction.

1. Complete Section B of the *Well Construction, Destruction, Mining, and Export Application/Permit*.
2. Applicants must provide information related to existing and proposed well location and construction details, recent groundwater elevation (GWE), document and report historic use as volume extracted prior to failure and describe potential future intended uses (known or anticipated changes in land use, cropping, other vegetation, or other water-reliant uses) aligning the proposed replacement well location, construction, and use detail with the existing well location, construction, and use detail. In the event water level cannot be obtained directly from the existing failed well, provide an alternative source for GWE nearby, describing the well nearby, and the source of GWE data provided as an attachment.
3. Information provided must clearly indicate the proposed replacement well groundwater extraction potential will not be greater than documented historical use including the owner's description of historic domestic, industrial, and agricultural/irrigation groundwater use activities, other land uses, and anticipated or planned land use and or cropping changes.
4. Proposed increases in well diameter, depth, and pump size, or change in perforated/screened intervals may result in well reclassification as a New well. Deeper wells can be reclassified as New wells as well deepening, in and of itself, can be indicative of groundwater mining. Wells proposed in different areas of the parcel may be reclassified as New wells dependent upon potential impacts.

Back-Up Well

A proposal for groundwater wells serving as redundant support to an existing groundwater well may be classified as a back-up well.

1. Complete Section B of the *Well Construction, Destruction, Mining, and Export Permit/Application*.
2. The data collection and reporting requirements are similar to Replacement well proposals. Backup wells must be located nearby existing wells where feasible to utilize the existing infrastructure.
3. Applicants must describe current methods for dealing with presumed unreliable existing groundwater supplies and describe the necessity of the Backup well by explaining how needs are currently met.
4. Information provided must clearly indicate the proposed Backup well groundwater extraction potential is not collectively and cumulatively greater than documented historical use including an owner description of historic domestic, and industrial, agricultural/irrigation groundwater use activities, other land uses, and anticipated or planned land use and or cropping changes.
5. Backup wells proposed with increases in well diameter, depth, and pump size, or changes in perforated/screened intervals different than the existing well may result in reclassification as a New well.

New Well

Other wells extracting groundwater not previously described above may be classified as New wells.

1. Complete Section C of the *Well Construction, Destruction, Mining, and Export Permit Application*.
2. Applicants must consider the groundwater extraction impacts, if any, for the proposed New well.
3. Current and future cropping patterns, in some cases irrigation techniques, and other land uses of extracted groundwater must be provided to validate claimed/proposed pumping rates. A five year historic and projected description of groundwater use is required. Use calendar year periods and partition seasonal periods into Spring, Summer, Fall-Winter or other periods as defined by the applicant. Attach additional detail as needed.
4. Alternative water supply uses in addition to groundwater supplies must be described in order to assess use patterns of all available water supplies and the potential for groundwater to substitute for reduced surface water, if available, through utilization of the proposed New well.
5. Applicants must identify the location(s) of all wells existing on-site; describe the land use and or types of irrigated land including crop and other vegetation types that may receive groundwater from the proposed New well, existing wells, and alternative water supplies.
6. Applicants will be required to describe current local GWE conditions, using on-site derived data, local/regional models, or other approved sources of GWE.
7. Applicants must list all parcels that may receive groundwater from the proposed New well.
8. Applicants must provide distances to nearby existing wells (within 300 feet of the proposed New well).
9. A well interference assessment, regional and cumulative impact and streamflow depletion assessment of groundwater impacts will be required to estimate potential impacts from the proposed New well(s).
10. Applicants must correlate the proposed New well location with respect to recent subsidence rate reports, if any.
11. Applicants with New well proposals potentially contributing to subsidence, well interference, streamflow depletion, regional and or cumulative impacts will be referred to the Preliminary Application and Review (PAR) and California Environmental Quality Act (CEQA) processes.

Export Proposals

"Export of groundwater" means the extraction of groundwater from any well for other than municipal use within the boundaries of Merced County and located on or under parcels subject to this chapter (Ordinance #1930) and conveyed to, or used directly or indirectly on parcels which are outside of the boundaries of the Merced County groundwater basin from which the water is extracted. Export of groundwater includes activities by which groundwater may, through one or more exchanges or transactions, be directly or indirectly conveyed or transferred for use out of the same basin from which it is extracted. Export of groundwater that is reasonably necessary to support existing agricultural operations on immediately contiguous parcels outside the basin under common ownership, where some parcels, or parts of some parcels, straddle the basin boundary, and export of groundwater that is necessary to support Federal, State, and County approved public works projects and maintenance activities may consider an exemption claim; see Section 9.27.050 of Ordinance #1930 for all exemptions.

1. Complete Section D of the *Well Construction, Destruction, Mining, and Export Application/Permit*.
2. Applicants must provide location details for all existing and proposed groundwater wells, including latitude, longitude, surrounding land surface elevation (ft, msl), well construction details, describing and displaying borehole diameters, total depths, casing materials, casing diameters, conductor casings, perforated intervals, filter packs, annular seals, subsurface lithology encountered, borehole logs, depth to confining units (Corcoran Clay), local well permit numbers, date constructed, Well Completion Reports, pump horsepower ratings, maximum instantaneous flows, discharge data, pumping test data, E-Logs, and any other aquifer characterization information available.
3. Applicants must provide groundwater level (depth to water) data for each existing well proposed to be used to export groundwater for the last five years. At a minimum, include Spring and Fall groundwater levels each year expressed as feet below grade surface (ft, bgs) and referenced to mean sea level (ft, msl).
4. Applicants must describe how wells proposed for groundwater export are used to replace exported alternate supply sources.
5. Applicants must describe the impact to previous use of the proposed groundwater export (acres fallowed, crop change, etc.).
6. Applicants must describe the operational periods for use of the proposed groundwater export.
7. Applicants must provide the sale price of proposed groundwater export; express in US dollars (\$) per acre-foot.
8. Applicants must describe the conveyance method for the proposed groundwater export. Identify the groundwater subbasin(s) where groundwater proposed to be exported is derived. Attach an appropriately scaled plot plan displaying final/terminal disposition for exported groundwater, all wells, and conveyances proposed; label each.
9. Applicants must describe in detail the historical and future use of existing water supplies on the primary parcel listed above and any contiguous parcels.
10. Applicants must describe in detail the historical and future use of alternative water supplies on the primary parcel listed above and any contiguous parcels.
11. Applicants must analyze and report the potential impact to groundwater related to the proposed export, both for regional groundwater conditions and well interference with nearby wells.