

US EPA ARCHIVE DOCUMENT

## FACT SHEET

### U.S. Environmental Protection Agency, Region 9 Draft Class I Nonhazardous Underground Injection Control Permit # CA10600002 To Imperial Irrigation District

**Location:**

El Centro Generating Station  
485 East Villa Road  
El Centro, CA 92243

**Permittee Contact:**

Mr. Henryk Olstowski  
Assistant Manager, Energy  
Imperial Irrigation District  
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Imperial, CA 92251  
Telephone: (760) 482-9600

**Regulatory Contact:**

Dave Basinger, Environmental Engineer  
U.S. Environmental Protection Agency, Region 9  
Ground Water Office, Mail Code WTR-9  
75 Hawthorne Street  
San Francisco, CA 94105-3901  
Telephone: (415) 972-3506  
Fax: (415) 972-3545 (include name and mail code from above)  
Email: [basinger.david@epa.gov](mailto:basinger.david@epa.gov)

## I. Purpose of the Fact Sheet

Pursuant to the Underground Injection Control (UIC) regulations in Title 40 of the Code of Federal Regulations (CFR), §124.8, the purpose of this fact sheet is to briefly describe the principal facts and the considerations that went into preparing the draft permit. To meet these objectives, this fact sheet contains background information on the permit process, a description of the facility, a brief discussion of the permit conditions, and the reasons for these permit conditions.

## II. Permit Process

### *Application and Review Period*

The U.S. Environmental Protection Agency, Region 9 (EPA) Director has authority to issue permits for underground injection activities under 40 CFR §144.31. Imperial Irrigation District (IID) is applying for new UIC permit # CA10600002 to operate a Class I injection well facility to dispose of industrial non-hazardous fluids produced during electrical generation at the El Centro Generating Station (ECGS) facility in Imperial

County. EPA received an individual permit application dated October 26, 2006, for the construction and operation of three (3) Class I non-hazardous UIC wells from IID. In a letter to IID dated December 1, 2006, EPA stated that the application was administratively incomplete and requested specific additional information or clarification. IID placed the project on hold for awhile, but eventually provided all of the additional information requested. After completing a thorough technical review of all submitted information, EPA has determined that information is now sufficient to complete a draft UIC permit. Accordingly, EPA has completed a draft Class I nonhazardous UIC permit that would authorize construction and operation of up to three (3) injection wells. The draft permit contains numerous construction, operation, maintenance, monitoring, reporting, and abandonment requirements.

Based on our review of the proposed well construction, operation standards, monitoring requirements, and the existing geologic setting, EPA believes the activities allowed under the proposed draft permit are protective of Underground Sources of Drinking Water as required under the Safe Drinking Water Act.

#### *Public Participation*

The public has thirty (30) days to review and comment on the Class I UIC draft permit (40 CFR §124.10). The draft permit and this fact sheet are available at the following locations:

City of El Centro Library  
539 State Street  
El Centro, CA 92243  
760-337-4565

U.S. Environmental Protection Agency, Region 9  
Ground Water Office  
Attn: Dave Basinger, Mail Code WTR-9  
75 Hawthorne Street  
San Francisco, CA 94105-3901

The draft permit and fact sheet are also available at the EPA Region 9 web page:  
<http://www.epa.gov/region09/water/groundwater/uic-permits.html>

The public comment period begins on May 30, 2010 and ends on June 29, 2010. During this period, all written comments on the draft permit can be sent, faxed, or e-mailed to Dave Basinger (see the contact information listed on the first page of this fact sheet), who is also available by phone for any questions regarding the draft permit.

All persons, including the applicant, who object to any condition of the draft permit or EPA's decision to prepare a draft permit must raise all reasonably ascertainable issues and submit all reasonable arguments supporting their position by the close of the comment period (40 CFR §124.13). A public hearing may be held only if there is a significant degree of public interest in the draft permit (40 CFR §§124.11 and 124.12).

### *Final Decision Making Process*

After the close of the public comment period, EPA will review and consider all comments relevant to the UIC permit and application. EPA will send a response to comments to the applicant and each person who has submitted written comments or requested notice of the final permit decision. EPA will also post the response to comments document on our website. The response to comments will contain: a response to all significant comments on the draft permit; EPA's final permitting decision; any permit conditions that are changed and the reasons for the changes; and procedures for appealing the decision. The final decision shall be to either issue or deny the permit. The final decision shall become effective no sooner than thirty (30) days after the service of the notice of decision. Within thirty (30) days after the final permit decision has been issued, any person who filed comments on the draft permit, participated in any Public Hearing on this matter, or takes issue with any changes in the draft permit, may petition the Environmental Appeals Board to review any condition of the permit decision. Commenters are referred to 40 CFR §124.19 for procedural requirements of the appeal process. If no comments request a change in the draft permit, the permit shall become effective immediately upon issuance (40 CFR §124.15).

### **III. Description of the Facility**

The El Centro Generating Station (ECGS) is owned and operated by Imperial Irrigation District, or IID. IID is a publicly-owned utility providing irrigation water, farm drainage services, and electrical power to customers in Imperial County and parts of San Diego and Riverside counties. The ECGS provides immediate and base load electrical power to serve the Imperial Valley region. The ECGS is comprised of three electrical generating units, Units 2, 3, and 4. IID repowered Unit 2 in the early 1990s and is currently permitting the repowering of unit 3. Ultimately, IID plans to repower Unit 4. The ECGS currently generates and discharges process wastewater in compliance with a National Pollutant Discharge Elimination System permit (CA01014248) to Central Drain No. 5, which leads to the Alamo River and ultimately the Salton Sea. IID has determined that the most feasible method of addressing California Toxic Rule requirements is to eliminate this wastewater discharge by disposing of the wastewater through new Class I deep injection wells, as permitted by the U.S. Environmental Protection Agency's (USEPA) Underground Injection Control (UIC) program.

All three proposed deep injection wells will be located within the existing 100-acre ECGS property. The injection system will be designed for full redundancy, with each well designed to handle full flow. Only two wells will be drilled initially, but the permit will allow a third well to be completed to serve as a backup if either of the other two wells is unable to operate at the intended design rate.

Wastewater streams proposed for injection include cooling tower and steam cycle blowdown from Units 2, 3, and 4; evaporative cooler blowdown from repowered units; reject water from the common water system, general process drainage from turbine

buildings and outdoor equipment, and intermittent stormwater from outdoor equipment area known as “Drainage Area D”.

IID has applied for a permit to allow full operation (24 hours per day, 7 days per week) at peak flow of Units 2, 3, and 4. Well injection rates are expected to range from approximately 100 to 450 gallons per minute (“gpm”), with a minimum operating flow of approximately 50 gpm. For operating flows under 50 gpm, all wells will be temporarily shutdown and the wastewater would be stored in storage tanks until a well can be started and run at 100 gpm. Maximum peak well injection rate is expected to be about 850 gpm.

Maximum Available Injection Pressure as measured at the wellhead for wells IW-1, 2, or 3 shall be based on the Step-Rate Test conducted after the draft permit has been finalized and in advance of having received authorization to inject by EPA.

#### **IV. Brief Summary of Specific Permit Conditions**

In order to protect public health and the environment, EPA is proposing the following conditions for injection well construction, corrective action, operation, monitoring and reporting, plugging and abandonment, and financial responsibility in the IID Draft Class I UIC Permit:

##### *Well Construction (Part II, Section A of the Draft Permit)*

IID may not commence any injection well drilling, testing, construction, or operation of proposed wells IW-1, 2, or 3 without prior written approval from EPA. Well design specifications for wells IW-1, 2, or 3 are almost identical, including surface conductor casing (20 inch diameter) to approximately 40 feet below ground surface (bgs), surface casing (13 and 3/8 inch diameter) to approximately 990 feet (ft) bgs, long string casing (9 and 5/8 inch diameter) from ground surface to approximately 2,280 ft bgs to the target Pliocene Palm Spring Formation sands, with a slotted liner or single wire wrapped screen (6 to 8 inch nominal diameter) from 2280 ft to approximately 2,740 ft bgs, and tubing (between 6 and 7 inch diameter) from the surface to a packer set at approximately 2,270 ft bgs. Surface and long string casings are cemented to the surface. Final depths will be determined by field conditions, sieve analysis, well logs, and input from the drilling consultant and hydrogeologist. Screened injection intervals will be located entirely beneath approximately 500 feet of confining shale that will serve as an aquitard. IID anticipates final bore length may extend to approximately 3,660 feet, if the sand sequences between 2,280 and 2,740 feet do not support necessary operating conditions. Complete well schematics are included in Appendix B of the draft permit.

EPA is proposing to require that IID conduct logs and other tests during drilling and construction to include, at a minimum, deviation checks, casing logs, and injection formation tests. Before surface and long string casings are set, IID will run dual induction/spontaneous potential/gamma ray/caliper logs over the course of the entire open hole sequence after the wells are drilled to their respective terminal depths. After each casing is set and cementing is complete, IID will run a spherically focused cement

bond evaluation log over the course of the entire cased hole sequence. EPA will require mechanical integrity testing after completion and regularly while operating, to ensure that injection fluid is properly contained.

EPA will require injection formation information to be determined through well logs and tests and will require IID to characterize the porosity, permeability, static formation pressure, and effective thickness of the injection zone. IID will conduct a fall-off pressure test (FOT) annually to monitor formation characteristics. In addition, IID will conduct a step-rate test (SRT) on at least one representative well before injection into any well is authorized, to establish maximum available injection pressure.

*Corrective Action (Part II, Section B of the Draft Permit)*

Annually, the Permittee shall review the Zone of Endangering Influence (ZEI) calculation based on any new data obtained from the FOT and static reservoir pressure tests. If the recalculated ZEI extends beyond the Area of Review (AOR), corrective action may be required. Corrective action may include, but is not limited to, reentering, plugging, and abandoning any production or exploratory wells which penetrate the injection zone and are located within the permit's AOR. No corrective action plan is currently required as existing geothermal wells within the Area of Review were plugged and abandoned in accordance with California Division of Oil, Gas, and Geothermal review and oversight, and calculations provided in the application indicate that the pressure increase resulting from injection will not compromise the integrity of these wells.

*Well Operation (Part II, Section C of the Draft Permit)*

Prior to receiving authorization to inject in IW-1, 2, or 3, IID will conduct mechanical integrity (MI) testing, step-rate testing, injection zone parameter testing, and a hazardous waste determination of the injectate. IID shall not inject any hazardous waste into any of the proposed injection wells. Maximum allowable injectate volume and pressure limitations are subject to results of testing required under the permit. The permit requires annual mechanical integrity and pressure transient testing to ensure protection of underground sources of drinking water. IID must demonstrate mechanical integrity by means of an annular pressure test in the tubing/casing annulus, an evaluation of cement integrity in the casing/borehole annulus and sufficient results from temperature logs and radioactive tracer testing. Permittee will be responsible for measuring and monitoring formation pressure data annually to ensure that pressure buildup is limited to the AOR. IID will operate their injection wells in such a manner as to not initiate or propagate fractures in the injection formation or the confining zone (aquitard).

*Monitoring, Record Keeping, and Reporting (Part II, Section D of the Draft Permit)*

IID is required to continuously monitor injection rate, total injection volume, injection pressure, annular pressure, and injection fluid temperature. IID is required to sample the injectate on a quarterly basis to determine the quantities/values of following: Inorganics (Major Anions and Cations); Solids (Total Dissolved Solids and for Total Suspended

Solids); General and Physical Parameters (Turbidity, pH, Conductivity, Hardness, Specific Gravity, Alkalinity, Biological Oxygen Demand (BOD), Density and Viscosity); Trace Metals; Volatile Organic Compounds (VOCs); and Semi-VOCs.

All sampling analyses must be performed at a certified laboratory. IID is required to maintain all operational and monitoring records, and to submit quarterly summary reports to EPA.

Well Plugging and Abandonment (Part II, Section E of the Draft Permit)

Upon determination that any injection well regulated by this permit is to be permanently abandoned, IID is required to abandon the injection well according to the Plugging and Abandonment Plans in Appendix F of the draft permit. EPA reserves the right to change the manner in which a well will be plugged if the well is modified during its permitted life or if the well is not consistent with EPA requirements for construction or mechanical integrity.

Financial Responsibility (Part II, Section F of the Draft Permit)

The Permittee shall maintain a bond rating within the four highest categories of Standard and Poor's, Moody's, or Fitch. If the most recent bond rating does not fall within the four highest categories, the Permittee shall post a financial instrument such as a surety bond with a standby trust agreement or arrange other financial assurance for each well constructed in the amount of \$281,000 per well, to guarantee closure. The Permittee must provide proof to EPA of its bond rating or renewal annually.

The financial responsibility mechanism and amount shall be reviewed and updated periodically, upon request of EPA. EPA may require the Permittee to change to an alternate method of demonstrating financial responsibility.

Duration of Permit (Part II, Section G of the Draft Permit)

EPA proposes to issue the permit and the authorization to inject for a period of up to ten (10) years unless terminated under the conditions set forth in Part III, Section B.1 of the draft permit.