FACT SHEET

U.S. Environmental Protection Agency, Region 9 Draft Class I Underground Injection Control Permit # CA10910003
To Northern California Power Agency

Location:
Northern California Power Agency
12745 North Thornton Road
Lodi, CA 95242-1478

Permittee Contact:
Mr. Michael DeBortoli, Engineer
Northern California Power Agency
651 Commerce Drive
Roseville, CA 95678-6420
Phone: (916) 781-4258

Regulatory Contact:
Adam Freedman, Environmental Scientist
U.S. Environmental Protection Agency, Region 9
Ground Water Office, Mail Code WTR-9
75 Hawthorne Street
San Francisco, CA 94105-3901
Telephone: (415) 972-3845
Fax: (415) 972-3545 (include name and mail code from above)
Email: freedman.adam@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. Northern California Power Agency (NCPA) is applying for a UIC permit renewal (of permit #CA194000002) to operate a Class I injection well facility to dispose of non-hazardous wastewater from the Steam Injected Gas Turbine-Lodi Energy Center (STIG-LEC) facility. EPA received an individual permit application dated October 10, 2008, for the

renewal of one (1) Class I non-hazardous UIC well and two (2) new Class I nonhazardous UIC wells from NCPA. In a letter to NCPA dated November 17, 2008, EPA confirmed that the application was administratively complete. Following this, EPA began the technical review. Following a thorough technical review, EPA determined that the information provided was sufficient to complete a draft UIC permit. EPA has now completed a draft Class I nonhazardous UIC permit that would authorize the continued operation of one (1) injection well and the construction of two (2) additional 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:

Lodi Public Library
201 W. Locust Street
Lodi, CA 95240
209-333-5566

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

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 September 5, 2009 and ends on October 5, 2009. During this period, all written comments on the draft permit can be sent, faxed, or e-mailed to Adam Freedman using the contact information listed on the first page of this fact sheet. Adam Freedman 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 and posted on the EPA website. The response to comments will contain: a response to all significant comments on the draft permit; EPA's final 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

NCPA's Combustion Turbine Project No. 2 began commercial operation in April 1995. The facility consists of a 49.9 MW steam-injected gas turbine (STIG) electrical generation power plant in the city of Lodi, California. NCPA intends to begin construction on a second power plant, the Lodi Energy Center (LEC), in 2010, with operations commencing in 2012. LEC is to be located immediately adjacent to the STIG plant. The two power plants are located in a complex that also includes the City of Lodi's White Slough Water Pollution Control Facility (WPCF).

NCPA intends to install and test the LEC-1 well prior to commencing construction of the LEC power plant. After completion of the LEC facility, NCPA will operate STIG-1 and LEC-1 as dedicated wells for each of their respective plants. However, each well would serve as a back up well for the other in case of operational or mechanical interruptions. NCPA will consider constructing well LEC-2 as a back up well to both STIG-1 and LEC-1 if the capacity of the two other wells does not enable both plants to be fully-functional.

The process water supply for both power plants is tertiary-treated wastewater from the White Slough WPCF. NCPA receives treated wastewater as part of its lease agreement with the City of Lodi. NCPA is required by the lease agreement to inject at least 20 percent of the wastewater received for use at the STIG plant yearly, the remainder of which is returned to the WPCF. In addition, the lease agreement will require the LEC facility to inject 100 percent of the water it receives from the White Slough WPCF.

Wastewater injected from the STIG facility consists primarily of blowdown from the cooling towers, but also includes brine reject from the ultrafiltration units, and brine from the reverse osmosis units. The other two percent of the liquid wastes intended for injection consists of both continuous and intermittent blowdowns from the Heat

Recovery Boilers. NCPA does not inject any other waste streams; storm water, service water, condensate and other liquids in the plant drains are collected separately, passed through an oil-water separator, and pumped to the White Slough WPCF industrial system.

Wastewater to be injected from the LEC facility consists of circulating water system blowdown and other recovered process wastewater streams that have been concentrated by evaporative losses in the cooling tower, as well as chemicals added to the circulating water to control scaling and biofouling of the cooling tower and to control corrosion of the circulating water piping and intercooler.

NCPA has applied for a permit to allow continued operation of STIG-1 at an injection rate of 200 gallons per minute (gpm). The Maximum Available Injection Pressure (MAIP) as measured at the STIG-1 wellhead is 975 pounds per square inch (psi), as established while injecting under the authority of the original permit. In addition, NCPA has applied for a permit to allow well construction and operation of LEC-1 and LEC-2 at an injection rate of 225 gpm. Maximum Available Injection Pressure as measured at the wellhead for wells LEC-1 and LEC-2 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 NCPA Draft Class I UIC Permit:

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

NCPA may not commence any injection well drilling, testing, construction, or operation of proposed wells LEC-1 and LEC-2 without prior written approval from EPA. Well design specifications for wells STIG-1, LEC-1 and LEC-2 are almost identical. The specifications include surface casing (10-3/4 inch diameter) to approximately 611 feet below ground surface (bgs), long string casing (7 inch diameter) from ground surface to approximately 3,660 ft bgs to the target Domengine Formation sand injection zone, and tubing (4-1/2 inch diameter) from the surface to a packer set at approximately 4,155 ft bgs in STIG-1 and 3,342 ft bgs in LEC-1 and LEC-2. The surface and long string casing are all cemented to the surface. The injection apparatus additionally includes the installation of a 5 inch liner in STIG-1 and a 4-1/2 inch liner in LEC-1 and LEC-2. The injection interval in well STIG-1 is perforated from 4,234 to 4,573 ft bgs. The injection intervals in proposed wells LEC-1 and LEC-2 will be perforated from approximately 4,450 to 4,550 feet bgs. Complete well schematics are included in Appendix B of the draft permit.

EPA is proposing to require that NCPA conduct logs and other tests to be conducted during drilling and construction that shall include, at a minimum, deviation checks, casing logs, and injection formation tests. Before surface and long string casings are set, NCPA 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 complete, NCPA 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 require NCPA to characterize the porosity, permeability, static formation pressure, and effective thickness of the injection zone. NCPA will conduct a fall-off pressure test (FOT) annually to monitor formation characteristics. In addition, NCPA will conduct a step-rate test (SRT) on at least one representative well (LEC-1 or LEC-2) before injection is authorized in LEC-1 or LEC-2, to establish maximum injection pressure.

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

Annually, the Permittee shall review their ZEI calculation based on any new data obtained from the FOT and static reservoir pressure tests. If the recalculated ZEI extends beyond the 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 all wells within the Area of Review were plugged and abandoned in accordance with CDOGGR review and oversight.

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

Prior to receiving authorization to inject in LEC-1 or LEC-2, NCPA will conduct mechanical integrity (MI) testing, step-rate testing, injection zone parameter testing, and a hazardous waste determination of the injectate. NCPA shall not inject any hazardous waste into any of the proposed and currently operating 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. NCPA 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. NCPA will operate their injection wells in such a manner as to not initiate or propagate fractures in the injection formation.

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

NCPA is required to continuously monitor injection rate, total injection volume, injection pressure, annular pressure, and injection fluid temperature. NCPA is required to sample the injectate on a quarterly basis to determine the 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. NCPA 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, NCPA would be required to abandon the injection well according to the Plugging and Abandonment Plans in Appendix E 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 the Permitee 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 $314,400 per well, to guarantee closure. The Permitee 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.