URS

DOCKET
06-AFC-5
DATE MAY 0 3 2007
RECD. MAY 0 7 2007

May 3, 2007

Mr. George Robin
US Environmental Protection Agency – Region 9
Water Division, WTR-9
75 Hawthorne Street
San Francisco, CA 94105-3901

Re: Updates to Underground Injection Control Permit Application
Panoche Energy Center, LLC
Submitted to the US Environmental Protection Agency September 2006

Dear Mr. Robin:

On behalf of Panoche Energy Center, LLC (PEC), URS Corporation respectfully submits this update to the subject permit application. Revisions to the permit application are required based on evolution of the drilling and testing programs for the initial proposed injection well. The revisions also consider the recommendations you provided in our meeting on March 27, 2007. Additional revisions are expected during the permit review process as required based on changes to well design recommended by you, other entities [e.g., Division of Oil, Gas & Geothermal Resources (DOGGR), Regional Water Quality Control Board (RWQCB)], or the drilling contractor selected to install the well.

The total number of wells requested in the permit application is increased from four to six. Increasing the number of permitted wells is expected to increase flexibility during operation of the wells in case of well failures or lower than anticipated injection rates. Anticipated wastewater volumes and injection rates have not increased from the estimates provided in the permit application.

The Area of Review (AOR) stated in the permit application is increased from 0.25 miles (mi.) to 0.5 mi. The AOR is a radius of 0.5 mi. or the radius of the area of influence, whichever is greater. No deep wells or, geological structures that extend to the depth of the proposed injection zone have been identified within 0.5 mi. of the PEC site. As stated in the permit application, the maximum radius of influence based on volumetric calculations is less than 0.5 mi. and the pressure increase after 30 years of injection at a radius of 0.5 mi. would be approximately 50 pounds per square inch (psi) based on modified Theis equation calculations. Three water wells described in the permit application are within the 0.5 mi. AOR. Water wells shown as numbers 8, 9, and 10 on the AOR map provided as Figure A1 are located at the northeast edge of the 0.5 mi. AOR. These wells are a cluster of US Geological Survey monitoring wells that are completed above the Corcoran Clay which is estimated to be 666 feet (ft) below ground surface (bgs) at that location. The wells are numbers 15S/13E-5F2, -5F3, and -5F4 and are completed at total depths of 630, 633, and 209 ft bgs, respectively based on water well drillers reports filed with the California Department of Water Resources.

URS Corporation
2020 East First Street, Suite 400
Santa Ana, California 92705
Tel: 714.835.6886
Fax: 714.433.7701
www.urscorp.com

Drilling, work-over, and plugging procedures will comply with the DOGGR "Onshore Well Regulations" of the CCR Title 14, Natural Resources, Division 2, Department of Conservation, Chapter 4, Article 3, Section 1722-1723. The proposed well testing program, expected mud engineering parameters, and the depth of the surface casing will be submitted to DOGGR for review prior to drilling. Changes to the drilling and testing program provided in the permit application include extending the proposed depth of the open hole logging program from the confining and injection zones to the entire open hole sequence. Testing of the initial well will include step rate tests (SRT) and pressure fall off tests (FOT).

A SRT will be conducted to establish maximum injection pressure. The design and analysis of the test will be based on the guidance of Society of Petroleum Engineers paper number 16798. Estimated injection pressures are provided in Section 2.14.2 of the permit application. However, the actual allowable maximum injection pressure for each well will be determined based on the SRT and will be documented in written notification by the US Environmental Protection Agency (US EPA).

A FOT will be conducted after a radial flow regime has been established to determine and monitor formation characteristics. FOTs will be performed in accordance with guidance provided in the final US EPA Underground Injection Control Program (UIC) permit. The initial FOT will be performed after one year of well operation and on an annual basis thereafter based on the anticipated injection rate and volume as well as the expected formation characteristics. The static reservoir pressure of the injection zone will be determined and reported to the US EPA with the results of the FOT. Any new data obtained from FOTs and static reservoir pressure tests will be included in an annual review of the ZEI calculation. A copy of modified ZEI calculations, along with associated assumptions and justifications, will be provided to the US EPA on an annual basis. Mechanical integrity testing (MIT) is described in Section 2.15.1.1 of the permit application. Mechanical integrity of the wells will be demonstrated in conformance with CFR S 146.8 and with the final UIC permit.

Processes for removal of suspended solids are being evaluated based on your past experience with potential plugging or damage of the injection zone by particulate matter entrained in the injectate by cooling towers. Typical processes for removal of suspended solids are not expected to be incompatible with the proposed wastewater injection system. Filter specifications including particle size will be provided in a Final Well Construction Report submitted for each well.

Training requirements for personnel responsible for operation and monitoring of the wells will be developed and implemented prior to operation of the wells. Injection procedures are addressed in Appendix K of the permit application. All monitoring and recording equipment will be calibrated and maintained on a regular basis to ensure proper working order of the equipment.

Based on discussions at our March 27, 2007 meeting with EPA, it is our understanding that the modifications contained herein will expedite the processing of our September 2006 permit application. Please let us know if we can provide additional information that will assist you in the review of the application. We look forward to continue working with you on this project.

Sincerely,

URS Corporation

Margaret M. Fitzgerald
Program Manager

cc: James W. Reede, Jr., Ed.D., California Energy Commission
Glen W. Muggelberg, Division of Oil, Gas & Geothermal Resources
Shelton R. Gray, Central Valley Regional Water Quality Control Board

URS

James W. Reede, Jr., Ed.D.
Energy Facility Siting Project Manager
California Energy Commission
1516 – 9th Street
Sacramento, CA 95814-5512

Glenn W. Muggelberg
Division of Oil, Gas & Geothermal Resources – District 5
466 N. Fifth Street
Coalinga, CA 93210-1793

Shelton R. Gray
Central Valley Regional Water Quality Control Board
1685 "E" Street
Fresno, CA 93706-2007

URS Corporation
2020 East First Street, Suite 400
Santa Ana, California 92705
Tel: 714.835.6886
Fax: 714.433.7701
www.urscorp.com

URS

May 7, 2007

James W. Reede, Jr., Ed.D.
Energy Facility Siting Project Manager
California Energy Commission
1516 - 9th Street
Sacramento, CA 95814

Re: Copies of *Panoche Substation Expansion* Letter and *Updates to Underground Injection Control Permit Application* Letter
Panoche Energy Center, LLC

Dear Dr. Reede:

Per your request, enclosed are 13 hard copies and 1 electronic copy (on CD) of the *Panoche Substation Expansion* letter dated May 3, 2007. Also enclosed are 13 hard copies and 1 electronic copy (on CD) of the *Updates to Underground Injection Control Permit Application* letter dated May 3, 2007. The original of the *Panoche Substation Expansion* letter and a copy of the *Updates to Underground Injection Control Permit Application* were sent to you on May 3, 2007.

If you have any questions or require additional information, please do not hesitate to call me at 714-648-2759.

Sincerely,

Margaret M. Fitzgerald
Program Manager

URS Corporation
2020 East First Street, Suite 400
Santa Ana, California 92705
Tel: 7146.835.6886
Fax: 714.433.7701