

**PUBLIC NOTICE OF PROPOSED DETERMINATION TO ISSUE A CLASS IID  
UNDERGROUND INJECTION CONTROL (UIC) PERMIT TO RESOLUTE NATURAL  
RESOURCES COMPANY (RESOLUTE)**

**Purpose of Public Notice**

The U.S. Environmental Protection Agency Region IX (EPA) is soliciting public comments on its proposal to issue a Class IID permit to Resolute for the injection of produced water into the Aneth Unit E-221 SE (horizontal) Class II Disposal Well in the Mississippian Leadville formation. The well is located on the surface at 2,520 feet from the south line and 1,640 feet from the west line of Section 21, Township 40 South, Range 24 East (S21, T40S, R24E), San Juan County, Utah. The four lateral boreholes will be located entirely under Navajo Nation trust land. Three of the four lateral wellbores will be located in S21, T40S, R24E and the fourth lateral will be located in the west half of S21, 40S, R24E and the east half of S20, T40S, R24E in San Juan County, Utah. The company has submitted a complete permit application and EPA has completed the technical review of this application. This permit will be issued for a period of ten (10) years and will be reviewed by EPA every five (5) years.

The address of the applicant is:

**Patrick E. Flynn  
Environmental Health & Safety Manager  
Resolute Natural Resources Company  
1675 Broadway, Suite 1950  
Denver, Colorado 80202  
Phone (303) 534-4600, ext. 145**

**Background**

EPA has completed its review of the application for a UIC permit for the construction and operation of the proposed Aneth Unit E-221 SE Class IID injection well, submitted by Resolute. The applicant has applied for a permit to operate the well with a maximum average injection rate of 40,000 barrels of water per day (BPD) in combination with the Aneth Unit C-113 LDVL Class IID injection, or 1,240,000 barrels per month (BPM), and a maximum injection rate of 35,000 BPD on a daily basis at a maximum allowable injection pressure of 4,000 psig (pounds per square inch gauge) in the E-221 SE well. The proposed maximum cumulative injected volume over the ten-year term of the permits for the two wells combined is 70,210,000 barrels.

The purpose of the well is to inject produced water, which is directly associated with the production of oil and natural gas from the Greater Aneth Field oil wells, into the Leadville Formation within the subsurface interval at depths of approximately 6,555 to 7,100 feet. All of the Resolute oil wells in the Greater Aneth Field are completed in the Paradox Formation and are operated by Resolute. The maximum average permitted injection rate for the E-221 SE and C-113 LDVL wells combined will be 40,000 BPD (1,240,000 BPM) and the maximum injection rate in the E-221 SE well shall not exceed 35,000 BPD on a daily basis, subject to a maximum allowable injection pressure (MAIP) of 3,500 psig and a maximum cumulative injection volume of 70,201,000 barrels from both wells over

the ten-year terms of the two permits. The initial MAIP is based on a field-wide average fracture gradient of 1.0 psi per foot of depth or greater to the injection interval at 6,555 feet. The MAIP can be increased only after a valid step-rate injectivity test is conducted by the operator and evaluated by EPA for determination of the actual formation fracture pressure in the Leadville Formation, which cannot be exceeded except during stimulation treatments of the well. The maximum cumulative injection volume cannot be exceeded without EPA approval of a major permit modification, including the opportunity for public review, comment, and appeal.

The zone of endangering influence extends radially to an average distance of 8.0 miles from the surface location of the well, based on a computer simulation of proposed injection rates and the resulting reservoir pressure increase in the Leadville Formation over the ten-year term of the permit. The shape of the AOR is approximately circular and is based on an overlay of four computer simulations, including the pressure effects of simultaneous injection in the two Leadville disposal wells and the presence of near vertical faults in the Leadville Formation that are believed to be sealing faults. Simulations were run with and without the assumption of sealing faults and both results were included in the determination of the AOR, which provides the most conservative approach to its determination. The faults terminate in the overlying impermeable 600 foot-thick salt layer, which is located approximately 400 feet above the injection zone and provides a barrier to fluid migration out of the injection zone in the unlikely event that the faults are not sealing.

Corrective action considerations were applied to the AOR and to the thirteen (13) well penetrations within the AOR. We reviewed the well construction and plugging records for those wells and determined that all were constructed and/or plugged and abandoned in accordance with UIC requirements and are protective of underground sources of drinking water (USDWs). There are no drinking water wells in the expanded AOR that will be impacted by injection in the Aneth Unit C-113 LDVL and E-221 SE wells. The extent of reservoir pressure increases will be monitored annually during the term of the permit and corrective actions will be required if USDWs are endangered by future pressure increases. We believe therefore that the possibility of fluid movement into USDWs resulting from injection and pressure increases in the Leadville injection zone is extremely remote.

EPA has made a preliminary determination to approve this application. This action is being taken as provided by Part C of the Safe Drinking Water Act and pursuant to the UIC Regulations, found in Title 40 of the Code of Federal Regulations (CFR) Parts 124, 144, 146, and 147.

## **Public Comments**

All non-proprietary data submitted by the applicant and the Draft Permit prepared by EPA are contained in the administrative record for this injection well. EPA's Statement of Basis and Draft Permit are available for public inspection online at:

<http://www.epa.gov/region9/water/groundwater/uic-permits.html>, as well as at the locations listed below:

**Farmington Public Library**  
**2101 Farmington Ave**  
**Farmington, NM 87401**  
**Phone 505-599-1270**

**United States Environmental Protection Agency, Region IX**  
**Ground Water Office, Mail Code WTR-9**  
**75 Hawthorne Street**  
**San Francisco, CA 94105-3901**  
**Phone 415-972-3541 or e-mail: [harper.jim@epa.gov](mailto:harper.jim@epa.gov)**

Public comments are encouraged and accepted, in writing, through July 22, 2008.

A request for a public hearing may be made during the thirty (30)-day comment period. It should be in writing and should state the nature of the issues proposed to be raised at the hearing. A public hearing will be held only if significant interest is shown.

## **Final Permit Decision and Appeal Process**

After the close of the public comment period, EPA will issue a Final Permit decision, and will notify all participants regarding this decision. The final decision will be to: issue or deny the permit. The final decision shall become effective thirty (30) days after the Final Permit is issued, unless no participant requests a change and no changes are made to the Draft Permit, in which case the Draft Permit shall become the Final Permit, effective immediately upon issuance.

Within thirty (30) days after the Final Permit decision has been issued, any person who has filed comments on the Draft Permit, participated in a public hearing, or takes issue with any changes in the Draft Permit, may petition the Environmental Appeals Board to review any condition of the permit decision. Participants are referred to 40 CFR Part 124.19 for procedural requirements of the appeal process.