



## **Fact Sheet: Implementation of the Safe Drinking Water Act's Existing Requirements for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuels**

The EPA has released an interpretive memorandum to clarify Underground Injection Control (UIC) program requirements under the Safe Drinking Water Act (SDWA), for underground injection of diesel fuels in hydraulic fracturing for oil and gas extraction. The agency has also released technical guidance containing recommendations for EPA permit writers to consider in implementing these UIC Class II requirements.

The EPA has developed the memorandum and technical guidance to achieve the following objectives:

- To explain that any owner or operator who injects diesel fuels in hydraulic fracturing for oil or gas extraction must obtain a UIC Class II permit before injection;
- To explain the agency's interpretation of the SDWA statutory term "diesel fuels" for permitting purposes; and,
- To describe existing UIC Class II program requirements for permitting underground injection of diesel fuels in hydraulic fracturing and to provide recommendations for the EPA's permit writers to consider in implementing these requirements to ensure protection of underground sources of drinking water (USDWs).

A key component of our nation's energy future is the safe, responsible development of oil and gas resources. If produced responsibly, natural gas has the potential to improve air quality, stabilize energy prices, and provide greater certainty about future energy reserves. The EPA is committed to working with co-regulators and other stakeholders to ensure that shale gas development occurs safely and responsibly and to encourage use of best practices.

The technical recommendations in the guidance are for EPA Regional Offices to consider when permitting diesel fuels hydraulic fracturing wells. EPA permit writers have the discretion to consider alternative approaches that are consistent with statutory and regulatory requirements. The EPA technical recommendations are consistent with best practices listed in state regulations, model guidelines and voluntary standards developed by industry and stakeholders. States and tribes responsible for issuing UIC and oil and gas well permits and/or updating regulations will find the recommendations useful in improving the protection of USDWs and public health wherever hydraulic fracturing is practiced.

The EPA recognizes that in addition to diesel fuels, other substances included in some hydraulic fracturing fluids contain chemicals of concern. The EPA will work with states and industry to explore approaches to promote voluntary use of safer alternatives in hydraulic fracturing fluids.

### **REGULATION OF HYDRAULIC FRACTURING USING DIESEL FUELS**

Underground injection of fluids through wells is subject to the requirements of the SDWA except where specifically excluded by the statute. In the 2005 Energy Policy Act, Congress revised the

SDWA definition of “underground injection” to specifically exclude hydraulic fracturing fluids from UIC regulation except where diesel fuels are used (SDWA Section 1421(d)(1)(B)). UIC regulations prohibit any underground injection except as authorized by rule or by permit. Thus, owners or operators who inject diesel fuels for hydraulic fracturing related to oil and gas operations must obtain a UIC permit before injection begins. Owners or operators injecting diesel fuels for hydraulic fracturing without a UIC permit may be subject to enforcement action under Section 1423 of the SDWA.

Hydraulic fracturing fluids are commonly a mixture of water, chemical additives and proppants. The types and concentrations of chemical additives and proppants used in hydraulic fracturing fluids vary depending on site-specific conditions and are usually tailored to needs of the project. In some instances diesel fuels have been used as an additive to achieve a variety of fluid properties. Diesel fuels may contain a number of chemicals of concern including benzene, toluene, ethylbenzene, and xylene compounds (BTEX). BTEX compounds are highly mobile in ground water and are regulated under the SDWA national primary drinking water regulations (NPDWRs) because of the risks they pose to human health.

## **WHEN DOES A HYDRAULIC FRACTURING ACTIVITY REQUIRE A UIC CLASS II PERMIT?**

Owners or operators who inject diesel fuels for hydraulic fracturing related to oil and gas operations must obtain a UIC permit before injection begins. Consistent with the SDWA, the following five Chemical Abstract Service Registry Numbers (CASRN) represent the most appropriate interpretation of the statutory term "diesel fuels" to use for permitting diesel fuels hydraulic fracturing under the UIC Program nationwide, at this time:

- **68334-30-5 Primary Name: Fuels, diesel** Common Synonyms: Automotive diesel oil; Diesel fuel; Diesel oil (petroleum); Diesel oils; Diesel test fuel; Diesel fuels; Diesel fuel No. **1**; Diesel fuel [United Nations-North America (UN/NA) number 1993]; Diesel fuel oil; European Inventory of Existing Commercial Chemical Substances (EINECS) 269-822-7.
- **68476-34-6 Primary Name: Fuels, diesel, No.2** Common Synonyms: Diesel fuel No. 2; Diesel fuels No. 2; EINECS 270-676-1 ; No. 2 Diesel fuel.
- **68476-30-2 Primary Name: Fuel oil No. 2** Common Synonyms: Diesel fuel; Gas oil or diesel fuel or heating oil, light [UN 1202] No. 2 Home heating oils; API No.2 fuel oil; EINECS 270-671-4; Fuel oil No.2; Home heating oil No. 2; No.2 burner fuel; Distillate fuel oils, light; Fuel No. 2; Fuel oil (No. 1 ,2,4,5 or 6) [NA1993].
- **68476-31-3 Primary Name: Fuel oil, No. 4** Common Synonyms: Caswell No. 2 333AB; Cat cracker feed stock; EINECS 270-673-5; EPA Pesticide Chemical Code 063514; Fuel oil No. 4; Diesel fuel No. 4.
- **8008-20-6 Primary Name: Kerosene** Common Synonyms: JP-5 navy fuel/marine diesel fuel; Deodorized kerosene; JP5 Jet fuel; AF 100 (pesticide); Caswell No. 517; EINECS 232-366-4; EPA Pesticide Chemical Code 063501; Fuel oil No. 1; Fuels,

kerosine; Shell 140; Shell sol 2046; Distillate fuel oils, light; Kerosene, straight run; Kerosine, (petroleum); Several Others. The EPA may periodically update this list if new products are identified as diesel fuels.

Diesel fuels are sometimes used in oil and gas well development and production applications other than hydraulic fracturing. In non-injection applications the use of diesel fuels is not subject to UIC Class II permitting requirements because they are considered to be part of the well construction process and not injected for purposes of hydraulic fracturing.

#### **TECHNICAL GUIDANCE:**

The revised guidance provides an overview of existing program requirements and technical recommendations pertaining to the following aspects of Diesel Fuels hydraulic fracturing permitting:

- Permit application submission and review process
- Information submitted with the permit application
- Wells authorized under permits
- Permit duration and well closure
- Area of Review
- Well construction and mechanical integrity testing
- Well operations, monitoring and reporting
- Financial responsibility
- Public notification and environmental justice

#### **FOR MORE INFORMATION:**

- The guidance and other related documents are available at **Hydraulic Fracturing Under the Safe Drinking Water Act**, <http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/hydraulic-fracturing.cfm>.
- Information on agency-wide activities is available at **Natural Gas Extraction – Hydraulic Fracturing** provides more information on agency-wide activities, [www.epa.gov/hydraulicfracturing](http://www.epa.gov/hydraulicfracturing).