

[PUBLISH]

IN THE UNITED STATES COURT OF APPEALS

FOR THE ELEVENTH CIRCUIT

No. 00-10381

EPA No. 65-02889-FED.REG.

<p>FILED U.S. COURT OF APPEALS ELEVENTH CIRCUIT DECEMBER 21, 2001 THOMAS K. KAHN CLERK</p>
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LEGAL ENVIRONMENTAL ASSISTANCE
FOUNDATION, INC.,

Petitioner,

versus

UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY,

Respondent.

Petition for Review of a Final Order of the
Environmental Protection Agency

(December 21, 2001)

Before BLACK and MARCUS, Circuit Judges, and HANCOCK*, District Judge.

BLACK, Circuit Judge:

*Honorable James H. Hancock, U.S. District Judge for the Northern District
of Alabama, sitting by designation.

Petitioner, the Legal Environmental Assistance Foundation (LEAF), seeks review of the United States Environmental Protection Agency's (EPA's) approval of Alabama's revised underground injection control (UIC) program for the underground injection of hydraulic fracturing fluids to enhance the recovery of methane gas from coal beds. For the reasons discussed below, we deny in part and grant in part the petition and remand for further proceedings.

I. BACKGROUND

A. Regulation of Underground Injection under the Safe Drinking Water Act

Part C of the Safe Drinking Water Act (SDWA) is designed to protect underground drinking water sources from contamination caused by underground injection of fluids. *See* 42 U.S.C. §§ 300h to 300h-8. This program requires EPA to promulgate regulations that set forth minimum requirements for state UIC programs. *See id.* § 300h. A state must submit to EPA a proposed UIC program that satisfies these minimum requirements, and must meet EPA approval in order to obtain primary regulatory and enforcement responsibility for underground injection activities within that state. *See id.* § 300h-1. The state retains primary responsibility until EPA determines, by rule, that the state UIC program no longer meets the minimum requirements established under the SDWA. *See id.* § 300h-1(b)(3).

B. Procedural History of Alabama's UIC Program

Alabama's UIC program for Class II wells¹ was initially approved by EPA in 1982.² *See* 47 Fed. Reg. 33268 (1982); 40 C.F.R. § 147.50. The UIC program approved in 1982 did not regulate hydraulic fracturing associated with methane production.³ In 1994, LEAF petitioned EPA to withdraw approval of the Alabama

¹EPA's regulations implementing Part C of the SDWA require that states classify injection wells into one of five categories. Class II wells are defined as: Wells which inject fluids: (1) Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection; (2) For enhanced recovery of oil or natural gas; and (3) For storage of hydrocarbons which are liquid at standard temperature and pressure. 40 C.F.R. § 144.6(b).

²The Alabama UIC program was approved by EPA in two parts. On August 2, 1982, EPA approved Alabama's UIC program for Class II wells, to be administered by the State Oil and Gas Board of Alabama. *See* 40 C.F.R. § 147.50. On August 23, 1983, EPA approved Alabama's UIC program for Class I, III, IV, and V wells to be administered by the Alabama Department of Environmental Management. *See id.* § 147.51. The effective date of this program was August 25, 1983.

³Hydraulic fracturing is a technique to enhance the recovery of methane gas from coal beds. *See Legal Envtl. Assist. Found., Inc. v. United States Envt'l Protection Agency*, 118 F.3d 1467, 1470 (11th Cir. 1997) (*LEAF I*). In Alabama, hydraulic fracturing is commonly used in connection with the extraction of natural gas from coal beds. *See id.* EPA defines hydraulic fracturing as a "temporary and intermittent process in which fluids are injected underground at high pressures to create fractures in the coals seam that enhance the recovery of methane gas by creating pathways for the gas to flow to the surface." 65 Fed. Reg. 2889, 2892 (2000).

UIC program. *See Legal Envt'l Assist. Found., Inc. v. United States Envt'l Protection Agency*, 118 F.3d 1467, 1471 (11th Cir. 1997) (*LEAF I*). LEAF alleged that the Alabama program was deficient because it did not regulate hydraulic fracturing activities associated with methane gas production as required under Part C of the SDWA. *See id.* EPA denied LEAF's petition because it determined that hydraulic fracturing did not fall within the regulatory definition of "underground injection." *See id.* EPA decided that methane gas production wells, which are also used for hydraulic fracturing, need not be regulated under UIC programs because the principal function of these wells is methane gas production and not the underground emplacement of fluids. *See id.* LEAF subsequently petitioned this Court for review, contending that EPA's interpretation of the regulations rendered the regulations inconsistent with the statute. *See id.* at 1472. We concluded that hydraulic fracturing activities constitute underground injection under Part C of the SDWA. *See id.* at 1478. Since EPA's contrary interpretation could not be squared with the plain language of the statute, we granted LEAF's petition for review and remanded for further proceedings. *See id.*

Thereafter, LEAF sought, and this Court issued, a writ of mandamus to enforce the Court's mandate in *LEAF I*. *See In re Legal Envtl. Assist. Found., Inc.*, No. 98-06929 (11th Cir. Feb. 18, 1999) (unpublished). EPA subsequently initiated proceedings to withdraw approval of Alabama's Class II UIC program. *See* 64 Fed.

Reg. 27744 (1999) (proposed rule). Before the withdrawal proceedings were completed, however, Alabama submitted a revised UIC program to the EPA, *see* 64 Fed. Reg. 56986 (1999) (proposed rule), seeking approval of its revised UIC program under the alternative demonstration provision in § 1425 of the SDWA, 42 U.S.C. § 300h-4(a). EPA proposed to approve Alabama's revised UIC program, *see* 64 Fed. Reg. 56986 (1999), and conducted a public hearing and received written comments thereon. LEAF objected, arguing that approval under § 300h-4(a) was improper because hydraulic fracturing did not fall within the scope of activities identified in § 1425, and approval under that section was therefore improper. *See* LEAF Comments (Nov. 26, 1999) at 3-8. EPA rejected LEAF's argument, and, on January 19, 2000, promulgated a final rule approving Alabama's revised UIC program under § 1425. *See* 65 Fed. Reg. 2889 (2000). Thereafter, LEAF timely filed this petition for review.

In this appeal, LEAF argues that EPA's approval of Alabama's UIC program should be set aside for three reasons. First, LEAF argues that the underground injection of hydraulic fracturing fluids to enhance the recovery of methane gas from coal beds is not "underground injection for the secondary or tertiary recovery of . . . natural gas" under § 1425 and, therefore, EPA's approval of Alabama's revised UIC program under that section is not "in accordance with the law." Second, LEAF contends that wells used for the injection of hydraulic fracturing fluids to enhance the

recovery of methane gas from coal beds are “Class II wells” as defined in 40 C.F.R. § 144.6(b). According to LEAF, it follows that EPA’s approval of Alabama’s revised UIC program, which regulates such hydraulic fracturing as a “Class II-like underground injection activity” is “not in accordance with law.” Third, LEAF argues that even if Alabama’s revised UIC program is covered by the alternative approval procedure pursuant to § 1425, EPA’s approval of the revised program is arbitrary and capricious. We address each argument in turn.

II. DISCUSSION

A. EPA’s Approval of Alabama’s UIC Program under Section 1425

1. Statutory Framework

The SDWA provides two statutory methods for approval of a state’s UIC program. *See* SDWA § 1422(b) (codified at 42 U.S.C. § 300h-1(b)); SDWA § 1425 (codified at 42 U.S.C. § 300h-4(a)). Approval under § 1422(b) requires a state to show that its UIC program satisfies applicable federal regulations promulgated by EPA under 42 U.S.C. § 300h and set forth in 40 C.F.R. Part 145. Approval under § 1425 requires a state to demonstrate that its UIC program meets the requirements of SDWA §§ 1421(b)(1)(A)-(D), and represents an effective program to prevent underground injection which endangers drinking water sources. Significantly, the practical difference between the two statutory methods for approval is that the

requirements for those programs covered under § 1425 are more flexible than the requirements for those programs covered under § 1422(b). Section 1425, however, only applies to specific types of UIC programs.

Section 1425 provides:

For purposes of the Administrator's approval or disapproval under section 300h-1 of this title of that portion of any State underground injection control program which relates to—

- (1) the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations, or
- (2) any underground injection for the secondary or tertiary recovery of oil or natural gas,

in lieu of the showing required under subparagraph (A) of section 300h-1(b)(1) of this title the State may demonstrate that such portion of the State program meets the requirements of subparagraphs (A) through (D) of section 300h(b)(1) of this title and represents an effective program (including adequate recordkeeping and reporting) to prevent underground injection which endangers drinking water sources.

SDWA § 1425 (codified at 42 U.S.C. § 300h-4(a)).

In approving Alabama's revised UIC program regulating the hydraulic fracturing of coal beds under this section, EPA recognized that the language of § 1425 does not specifically mention hydraulic fracturing. *See* 65 Fed. Reg. at 2892. EPA perceived the absence of hydraulic fracturing from § 1425 as a gap in the statutory scheme. *See id.* Seeking to fill this perceived gap in the statute, EPA construed §

1425 as applying not only to specific processes used during secondary or tertiary recovery of natural gas, but also generally to techniques and processes — such as hydraulic fracturing — broadly related to secondary or tertiary recovery. *See id.* On this basis, EPA concluded that the process of hydraulic fracturing, while not technically identical to secondary or tertiary recovery of natural gas, is an “analogous” process, and therefore covered by the alternate approval method set forth in § 1425. *See id.* at 2892-93.

2. Standard of Review

LEAF challenges EPA’s construction of § 1425 as contrary to the statute’s plain meaning and therefore not in accordance with the law. The standard against which we evaluate LEAF’s argument is set forth in *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842-45, 104 S. Ct. 2778, 2781-83 (1984). The *Chevron* test has two steps. “First, always, is the question whether Congress has directly spoken to the precise question at issue. If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.” *Id.* at 842-43, 104 S. Ct. at 2781. “If, however, the court determines Congress has not directly addressed precise question at issue,” the court proceeds to step two. *Id.* at 843, 104 S. Ct. at 2781-82. There, “the question for the court is whether the agency’s answer is based on a permissible

construction of the statute.” *Id.*, 104 S. Ct. at 2782. If the agency’s interpretation is reasonable, a reviewing court may not substitute its own construction of the statutory provision for that of the agency. *See id.* at 844, 104 S. Ct. at 2782. An agency’s reasonable statutory interpretation must therefore stand even in the face of other permissible interpretations, including that which the court may have chosen had the question initially arisen in a judicial proceeding. *See id.* at 843 n.11, 104 S. Ct. at 2782 n.11. Deference is not owed to an agency interpretation, however, if it construes a statute in a way that is contrary to clear congressional intent. *See id.* at 843 n.9, 104 S. Ct. 2781 n.9.

3. Chevron Analysis

a. Chevron Step One

In this case, the question at issue is whether a state’s program for underground injection of hydraulic fracturing fluids to enhance the recovery of methane gas from coal beds may be approved under the alternative demonstration provisions of § 1425. In determining whether Congress has spoken directly to this issue, we “look to the particular statutory language at issue, as well as the language and design of the statute as a whole.” *K Mart Corp. v. Cartier, Inc.*, 486 U.S. 281, 291, 108 S. Ct. 1811, 1818 (1988). Our inquiry begins, as always, with the text of the statute. *See FMC Corp. v. Holliday*, 498 U.S. 52, 57, 111 S. Ct. 403, 407 (1990) (“We begin with the language

employed by Congress and the assumption that the ordinary meaning of that language accurately expresses the legislative purpose.”) (quoting *Park 'N Fly, Inc. v. Dollar Park & Fly, Inc.*, 469 U.S. 189, 194, 105 S. Ct. 658, 661 (1985)) (internal quotation marks omitted). Additionally, it is an elementary principle of statutory construction that, in construing a statute, we must give meaning to all the words in the statute. *See Bailey v. United States*, 516 U.S. 137, 146, 116 S. Ct. 501, 507 (1995) (noting that each word in a statute is intended to have “particular, nonsuperfluous meaning”).

The key words in § 1425 to which we must give meaning are “relates to.” These two words are central to this case because § 1425 applies not simply to “any underground injection for the secondary or tertiary recovery of oil or natural gas,” but rather to “that portion of any State underground injection control program which *relates to . . .* any underground injection for the secondary or tertiary recovery of oil or natural gas” 42 U.S.C. § 300h-4(a) (emphasis added). The parties set forth different interpretations of § 1425. While the difference between the two constructions is subtle, the effect is significant. Not surprisingly, the difference between the two interpretations of § 1425 turns largely on the meaning given to the phrase “relates to.” EPA argues that the phrase “relates to” evinces Congress’ intention to permit a portion of a state’s UIC program to fall under § 1425, provided that the activity controlled by that portion relates to “the underground injection of

brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations,” or “any underground injection for the secondary or tertiary recovery of oil or natural gas.” 65 Fed. Reg. at 2892 (quoting 42 U.S.C. § 300h-4(a)) (characterizing § 1425 as “an alternative demonstration for ‘secondary or tertiary recovery’-related injection”). EPA concludes that the process of hydraulic fracturing, while not technically identical to secondary or tertiary recovery of natural gas, is analogous to, and therefore “relates to,” secondary and tertiary recovery of gas. Accordingly, EPA asserts that hydraulic fracturing is covered by the alternate approval method set forth in SDWA § 1425.

LEAF, on the other hand, argues that the phrase “relates to” evinces Congress’ intent to permit a portion of a state’s UIC program to fall under § 1425 only if there is a direct relationship between “that portion” of a State’s program and one of two specific activities: “the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations,” and “underground injection for the secondary or tertiary recovery of oil or natural gas.” *Id.* LEAF asserts that where Congress has been so specific in identifying the activities for which an alternate UIC program can be approved, it is inappropriate for EPA to assume that any other activities are included. Therefore, LEAF asserts that because the injection of hydraulic fracturing fluids to enhance the

recovery of methane gas from coal beds is not one of the two specifically identified activities, it cannot qualify for approval under § 1425.⁴ *Cf., United States v. Anderson*, 200 F.3d 1344, 1348 (11th Cir. 2000) (sentencing guideline provision which expressly applies to specified offenses should be construed to exclude application to other offenses).

Of the two interpretations of § 1425 offered by the parties, we find EPA’s interpretation more compelling. By focusing only on whether hydraulic fracturing is the same as “secondary or tertiary recovery of oil or natural gas,” LEAF’s construction of § 1425 fails to give full weight to the phrase “relates to.” Since “relates to” injects ambiguity and interpretative breadth into this statutory provision, we cannot accept LEAF’s construction. We conclude, therefore, as a threshold matter that the statutory provision at issue, read in its entirety, *i.e.*, “that portion of any State underground injection control program which relates to . . . any underground injection for the secondary or tertiary recovery of oil or natural gas,” does not “directly” and

⁴Neither party argues that hydraulic fracturing is “the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations” 42 U.S.C. § 300h-4. Additionally, neither party argues that hydraulic fracturing is identical to secondary and tertiary recovery. We therefore do not assume either of these propositions are true for purposes of this appeal.

“unambiguously” speak to whether a state’s program regulating hydraulic fracturing may be approved under § 1425.

b. *Chevron* Step Two

According requisite deference to the EPA’s interpretation of § 1425, we review EPA’s conclusion that the process of hydraulic fracturing, while not technically identical to secondary or tertiary recovery of natural gas, is “analogous” to secondary and tertiary recovery and therefore covered by the alternate approval method set forth in SDWA § 1425. Under the second step of the *Chevron* analysis, the question we must answer “is whether the agency’s answer is based on a permissible construction of the statute.” *Chevron*, 467 U.S. at 843, 104 S. Ct. at 2782. We have little trouble concluding that EPA’s decision to subject hydraulic fracturing to approval under § 1425 rests upon a permissible construction of the statute.

EPA bases its interpretation of § 1425 primarily on two grounds.⁵ First, EPA asserts that hydraulic fracturing is a gas production enhancement process that is technically analogous to secondary and tertiary recovery techniques, and therefore

⁵In addition to the reasons discussed below, EPA relies on legislative history in construing § 1425 broadly. Since we conclude that the two reasons discussed below provide sufficient support for EPA’s interpretation of § 1425, we need not examine the legislative history cited by EPA.

covered by the alternate approval method set forth in § 1425.⁶ EPA determined that both procedures generally enhance oil or gas production through the underground injection of fluids (gas or liquid) through an injection well to increase reservoir pressure and to drive oil or gas to a production well. *See* 65 Fed. Reg. at 2892. EPA

⁶The phrase “secondary or tertiary recovery of oil or natural gas” is not defined in the SDWA. The phrase is a technical phrase well-understood in the oil and gas industry. Where Congress has used technical words or terms of art, it is appropriate to explain them by reference to the art or science to which they apply. *See, e.g., Corning Glass Works v. Brennan*, 417 U.S. 188, 201, 94 S. Ct. 2223, 2231 (1974); *United States v. Rodriguez*, 980 F.2d 1375, 1378 (11th Cir. 1992). Within the oil and gas industry, secondary recovery is understood as a technique that augments or replaces depleted natural reservoir pressure that would otherwise drive the oil or gas from the reservoir to the wellbore of the production well.

The process has been described as follows:

When oil production declines because of hydrocarbon production from the formation, the secondary oil recovery process is employed to increase the pressure required to drive the oil to the production wells. The mechanism of secondary oil recovery is similar to that of the primary oil recovery except that more than one wellbore is involved, and the pressure of the petroleum reservoir is augmented or maintained artificially to force oil to the production wells.

Enhanced Oil Recovery, II (Erle C. Donaldson, et al. eds., 1989) 3, appearing at LEAF Comments (Nov. 26, 1999), Exh. Z. Common secondary recovery techniques employed with oil reserves include waterflooding (or water injection) and gas injection. *See* Bill D. Berger & Kenneth E. Anderson, *Modern Petroleum* (3d ed. 1992) 236, appearing at LEAF Comments (Nov. 26, 1999), Exh. E. Common secondary recovery techniques employed with gas reservoirs include water injection and gas cycling. *See* Introduction to Oil and Gas Technology (Francis A. Guiliano ed., 3d ed. 1989) 137, appearing at LEAF Comments (Nov. 26, 1999), Exh. F.

further notes that one of LEAF's own exhibits confirms that hydraulic fracturing has traditionally been used to "aid in secondary recovery operations." *See* Information on Well-Stimulation Processes, U.S. Env't'l Protection Agency (1998 Draft), appearing at LEAF Comments, Exh. C § 2.1. Second, EPA determined that a finding that hydraulic fracturing is not "related to" a state's UIC program governing methods to enhance oil and gas production would require states "to seek approval for similar parts of their oil- and gas-related UIC program under *both* section 1425 *and* 1422." 65 Fed. Reg. at 2892 (emphasis added). Such a result, EPA concluded, "would be both inefficient and inconsistent with Congress' expressed admonition that EPA not prescribe unnecessary requirements related to oil- and gas-related injection[.]" *Id.* (citing 42 U.S.C. § 300h(b)(2))."⁷ We conclude these reasons are sufficient to support EPA's construction of the SDWA, and therefore hold that EPA's decision to subject hydraulic fracturing to § 1425 approval is based on a permissible construction of the statute.⁸

⁷The SDWA provides that EPA may not establish requirements "which interfere with or impede . . . any underground injection for the secondary or tertiary recovery of oil or natural gas, unless such requirements are essential to assure that underground sources of drinking water will not be endangered by such injection." 42 U.S.C. § 300h(b)(2)(B).

⁸LEAF's argument to the contrary misses the mark. LEAF acknowledges that the purpose of the injection is the same, *i.e.*, the recovery of the gas. However, LEAF asserts that the means of achieving that purpose and the implications for

B. EPA’s Classification of Hydraulic Fracturing of Coal Beds to Produce Methane Gas as a “Class II-like underground injection activity”

1. Regulatory Framework

The original promulgation of UIC regulations in 1979 established a classification system for underground injection wells. Under this classification system, all underground injection wells subject to the SDWA fit within the five well classes in EPA’s well-classification scheme. *See* 40 C.F.R. §§ 144.6 & 146.5; *see also LEAF I*, 118 F.3d at 1470.⁹ Classes differ from each other according to the purpose and function of the well and the substance to be injected into it. We summarized the five categories in *LEAF I*:

Class I wells are wells used to dispose of hazardous, industrial, or municipal wastes beneath underground sources of drinking water. 40 C.F.R. § 144.6(a). Class II wells are “[w]ells which inject fluids: (1) [w]hich are brought to the surface in connection with . . . conventional oil or natural gas production . . .; (2) [f]or enhanced recovery of oil or

contamination of underground sources of drinking water are different. Based on these differences, *LEAF* concludes that the injection of hydraulic fracturing fluids to enhance the recovery of methane gas from coal beds is not analogous to secondary or tertiary recovery of natural gas. We agree that certain distinctions exist between hydraulic fracturing and secondary and tertiary recovery, and that these distinctions would prevent EPA from treating hydraulic fracturing as identical to secondary and tertiary recovery of natural gas. We do not agree, however, that the distinctions necessarily foreclose EPA from concluding that the two activities are analogous or related activities.

⁹EPA acknowledges that “[a]ll underground injection wells subject to the SDWA fit within the five well classes in EPA’s well classification scheme.” *See* Brief for Respondent at 27.

natural gas; and (3) [f]or storage of hydrocarbons.” *Id.* § 144.6(b). Class III wells are wells which inject for extraction of minerals. Class IV wells are wells used to dispose of hazardous or radioactive wastes into or above underground sources of drinking water. *Id.* § 144.6(c) and (d). Class V wells are “[i]njection wells not included in Classes I, II, III, or IV.” *Id.* § 144.6(e).

Id.

After this Court determined that EPA must regulate hydraulic fracturing of coal bed seams as underground injection under the SDWA, EPA reviewed its well classification definitions to determine how to incorporate hydraulic fracturing into its existing regulations. *See* 65 Fed. Reg. at 2891-92. EPA noted, at the outset, that of the five well classes, hydraulic fracturing of coal beds to produce methane “appeared most closely related to Class II, especially that part of the Class II definition covering wells which inject fluids ‘for enhanced recovery of oil or natural gas.’” *Id.* at 2892 (citation omitted). EPA further noted that “[i]t is certainly possible to view the emplacement of fracturing fluids through these methane production wells as designed to enhance the recovery of natural gas by creating fractures through which the methane might flow to the well and up to the surface.” *Id.* Ultimately, however, EPA decided against classifying these wells as Class II wells. EPA explained:

[S]ince the injection of fracture fluids through these wells is often a one-time exercise of extremely limited duration (fracture injections generally last no more than two hours) ancillary to the well’s principal function of producing methane, it did not seem entirely appropriate to ascribe Class

II status to such wells, for all regulatory purposes, merely due to the fact that, prior to commencing production, they had been fractured.

Id. Instead, EPA concluded that “it is reasonable to view hydraulic fracturing of these production wells as a Class II-like underground activity which, by itself, does not turn these methane production wells into Class II injection wells for purposes of complying with all of the Class II regulatory requirements in Parts 144 and 146.” *Id.* Doing so, explained EPA, was “consistent with the Court’s mandate that [it] treat hydraulic fracturing of coal beds for methane production as underground injection, while at the same time allowing Alabama the flexibility to fashion an approvable regulatory program addressing hydraulic fracturing which need not mirror all existing requirements in Parts 144 and 146 for Class II wells.” *Id.*

2. Standard of Review

LEAF argues that EPA’s classification of hydraulic fracturing of coal beds as a “Class II-like underground injection activity” is plainly erroneous and inconsistent with the language of 40 C.F.R. § 144.6. According to LEAF, wells used for hydraulic fracturing are Class II wells and should be regulated as such. In construing administrative regulations, we must give “controlling weight” to the agency interpretation “unless it is plainly erroneous or inconsistent with the regulation.” *Bowles v. Seminole Rock & Sand Co.*, 325 U.S. 410, 414, 65 S. Ct. 1215, 1217 (1945); *see also Wright v. Director, Fed. Emergency Mgmt. Agency*, 913 F.2d 1566, 1571-72

(11th Cir. 1990). Thus, we will give effect to the agency's interpretation so long as it is “reasonable,” *Ehlert v. United States*, 402 U.S. 99, 105, 91 S. Ct. 1319, 1323 (1971), that is, so long as the interpretation “sensibly conforms to the purpose and wording of the regulations.” *N. Indiana Pub. Serv. Co. v. Porter County Chapter of Izaak Walton League of Am., Inc.*, 423 U.S. 12, 15, 96 S. Ct. 172, 174 (1975). We will afford the agency interpretation such deference even if this interpretation is not “the best or most natural one by grammatical or other standards.” *Pauley v. BethEnergy Mines, Inc.*, 501 U.S. 680, 702, 111 S. Ct. 2524, 2537 (1991) (citation omitted).

3. Classifying Hydraulic Fracturing of Coal Beds

An “injection well” is defined as “a ‘well’ into which ‘fluids’ are being injected.” 40 C.F.R. § 144.3. As we noted in *LEAF I*, “[t]here is no dispute that methane gas production wells, which are initially used for hydraulic fracturing, are ‘wells’ within the meaning of the statute and regulations. Similarly, there is no dispute that the materials used in hydraulic fracturing are ‘fluids’ within the meaning of the statute and regulations.” *LEAF I*, 118 F.3d at 1474 n.9. It follows that wells used for the injection of hydraulic fracturing fluids must fall into one of the five classes set forth in 40 C.F.R. § 144.6. *See LEAF I*, 118 F.3d at 1470 (“The state also

must classify injection wells in conformance with the classification system promulgated by EPA in 40 C.F.R. § 144.6.”).

In addition, LEAF argues that the plain language of the regulations demands that wells used for the injection hydraulic fracturing fluids be classified as Class II wells. LEAF notes that 40 C.F.R. § 144.6 classifies as Class II injection wells “wells which inject fluids . . . for enhanced recovery of oil and natural gas[,]” and EPA acknowledges that “[h]ydraulic fracturing of coal beds is a temporary and intermittent process in which *fluids are injected underground* at high pressures to create fractures in the coals seam that *enhance the recovery* of methane gas by creating pathways for the gas to flow to the surface.” 65 Fed. Reg. at 2892 (emphasis added). LEAF thus concludes that these wells cannot be classified as anything but Class II wells.

In considering LEAF’s argument, we do not take lightly our obligation to defer to an agency’s reasonable interpretation of its own regulations, particularly when, as here, the statute “has produced a complex and highly technical regulatory program.” *Pauley*, 501 U.S. at 697, 111 S. Ct. at 2534. In this case, however, we cannot avoid the conclusion that EPA’s construction of its classification scheme runs afoul of the plain language of the regulations and is therefore contrary to law. Where the classification system sets forth five classes, one of which serves as a catch-all for any well not covered by the first four, EPA must classify hydraulic fracturing into one of

those categories. Moreover, as LEAF correctly notes, wells used for the injection of hydraulic fracturing fluids fit squarely within the definition of Class II wells. Accordingly, they must be regulated as such.¹⁰

EPA's arguments to the contrary are unpersuasive. First, EPA's focus on the duration of the underground injection is misplaced. The fact that hydraulic fracturing is of limited duration and ancillary to the principal function of the well does not exempt it from the well five-class well classification system.¹¹ Nor is the duration of the underground injection a factor addressed by the definition of Class II wells in 40 C.F.R. § 144.6. Second, EPA's argument that LEAF has failed to provide any evidence, either in the text or legislative history of the SDWA, that Congress intended to apply its well classification scheme rigidly turns traditional notions of statutory construction on their head. Where, as here, the plain language of the regulation does not permit the construction imposed on it by EPA, EPA cannot justify its

¹⁰At no point has EPA argued to this Court that wells used for the injection of hydraulic fracturing fluids could properly be categorized as Class V wells. We thus do not consider this possibility.

¹¹In *LEAF I*, we recognized the limited duration of hydraulic fracturing and stated that EPA “may elect to subject methane gas to regulation . . . only during the process of hydraulic fracturing and not during gas production.” 118 F.3d at 1475 n.11. EPA, however, chose not to do so, and instead elected to exempt the wells from certain Class II regulatory requirements by not properly classifying the wells at all. Nothing in our opinion in *LEAF I* supports EPA's action in this regard.

interpretation by pointing to the absence of a statutory command to enforce the regulations rigidly. Nor can EPA salvage such an inconsistent interpretation by references to legislative history.¹²

In sum, we conclude that EPA’s decision to classify hydraulic fracturing of coal beds to produce methane as a “Class II-like underground injection activity” is inconsistent with the plain language of 40 C.F.R. § 144.6. Therefore, EPA’s classification must be set aside. *See Mullins Coal Co., Inc. of Virginia v. Director*, 484 U.S. 135, 170, 108 S. Ct. 427, 445 (1987) (Marshall, J., dissenting) (“[D]eference has its bounds. It is not a license for an agency effectively to rewrite a regulation

¹²In addition to the arguments advanced above, EPA asserts that “full” Class II status for hydraulic fracturing would unnecessarily impede gas production in Alabama in contravention of 42 U.S.C. § 300(b)(2). EPA explains that, in Alabama, hydraulic fracturing of coal beds to enhance methane production occurs in the Pottsville aquifer, which qualifies as an underground source of drinking water (USDW). EPA argues that because Class II wells are prohibited from injecting in USDWs, the application of full Class II status to wells used to inject hydraulic fluids could stop or substantially delay coal bed methane gas production in Alabama.

LEAF challenges this argument as both an impermissible, *post hoc* rationalization, *see Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 50, 103 S. Ct. 2856, 2870 (1983), and incorrect as a matter of law. We need not determine whether this rationale is indeed *post hoc* because, even assuming it were not, this rationale does not defeat the plain language and structure of the regulations, which require that all injection wells be classified as Class I, II, III, IV, or V wells. Additionally we note that, as EPA recognizes, well operators may apply for an aquifer exemption, *see* 40 C.F.R. §§ 144.7, 146.3, which, if granted, would permit hydraulic fracturing of coal beds in the Pottsville Formation.

through interpretation. An agency must abide by its regulations as written until it rescinds or amends them.”). Accordingly, we remand to EPA to determine whether Alabama’s revised UIC program complies with the requirements for Class II wells.

C. Alabama’s Revised UIC Program and the SDWA Requirements

Under the alternative method for program approval set forth in § 1425, a state must show that its UIC program meets the requirements of SDWA §§ 1421(b)(1)(A)-(D) and “represents an effective program (including adequate recordkeeping and reporting) to prevent underground injection which endangers drinking water sources.” 42 U.S.C. § 300h-4(a). Accordingly, in order to receive approval for its Class II program under the optional demonstration, a state must make a successful showing that its program meets the following five conditions: (1) the program prohibits any underground injection in such State which is not authorized by permit or rule, *see* SDWA § 1421(b)(1)(A) (codified at 42 U.S.C. § 300h(b)(1)(A)); (2) the program requires that (i) the applicant for a permit “must satisfy the State that the underground injection will not endanger drinking water sources,” and (ii) “no rule may be promulgated which authorizes any underground injection which endangers drinking water sources[.]” *id.* § 1421(b)(1)(B) (codified at 42 U.S.C. § 300h(b)(1)(B)); (3) the program “include[s] inspection, monitoring, recordkeeping, and reporting requirements[.]” *id.* § 1421(b)(1)(C) (codified at 42 U.S.C. § 300h(b)(1)(C)); (4) the

program applies to (i) “underground injections by Federal agencies, and (ii) to underground injections by any other person whether or not occurring on property owned or leased by the United States[,]” *id.* § 1421(b)(1)(D) (codified at 42 U.S.C. § 300h(b)(1)(D)); and (5) the program represents an “effective program . . . to prevent underground injection which endangers drinking water sources[,]” *id.* § 1425(a) (codified at 42 U.S.C. § 300h-4(a)).

LEAF contends that, even if EPA properly approved Alabama’s revised UIC program under SDWA § 1425, EPA’s conclusion that the program meets the statutory criteria in that section is arbitrary and capricious. In reviewing the reasonableness of an agency’s decision-making process under the arbitrary and capricious standard of the Administrative Procedure Act (APA), *see* 5 U.S.C. § 706(2)(A), we are mindful that a party seeking to have a court declare an agency action to be arbitrary and capricious carries “a heavy burden indeed.” *Transmission Access Policy Study Group v. FERC*, 225 F.3d 667, 714 (D.C. Cir. 2000). As a reviewing court, we “may not substitute [our] judgment for that of the agency and can set aside an agency’s decision only if the agency relied on improper factors, failed to consider important relevant factors, or committed a clear error of judgment that lacks a rational connection between the facts found and the choice made.” *Arango v. U.S. Dep’t of the Treasury*, 115 F.3d 922, 928 (11th Cir. 1997) (internal quotation marks and citations omitted).

Applying this deferential standard, we reject LEAF's argument that EPA's rule arbitrarily determines that Alabama's UIC program complies with the statutory requirements.¹³

III. CONCLUSION

For the reasons discussed above, we DENY IN PART and GRANT IN PART the petition for review and REMAND for proceedings consistent with this opinion.

¹³LEAF advances four arguments to support its contention. First, LEAF acknowledges that Alabama's revised UIC program provides for "written approval of the Supervisor," Ala. Admin. Code R. 400-4-5-.04(4), but argues that the "written approval of the Supervisor" is not the functional equivalent of a permit and therefore fails to meet the requirement of 42 U.S.C. § 300h(b)(1)(A). Second, LEAF argues that Alabama's revised UIC program fails to require that a permit applicant satisfy the state that underground injection will not endanger underground sources of drinking water, as required by 42 U.S.C. § 300h(b)(1)(B). Third, LEAF argues that Alabama's revised UIC program does not apply to all persons, as required by 42 U.S.C. § 300h(b)(1)(D). Fourth, LEAF argues that Alabama's revised UIC control program does not represent an effective program to prevent underground injection which endangers drinking water sources, as required by 42 U.S.C. § 300h-4(a)(2). We have carefully considered each argument and conclude that none of these arguments would support setting aside the agency's determination in this case.