

RECEIVED  
U.S. E.P.A.

2014 OCT 28 AM 11:13  
ENVIR. APPEALS BOARD

October 19, 2014

Clerk of the Board  
U.S. Environmental Protection Agency  
Environmental Appeals Board  
1200 Pennsylvania Avenue, NW  
Mail Code 1103M  
Washington, D.C. 20460-0001

Dear Clerk of the Board,

Enclosed, please find a Petition for Review of USEPA Permit Number IL-115-6A-0001, along with two copies of that document. I, Jeffrey Sprague, am the Petitioner submitting this Petition for Review.

Respectfully,



Jeffrey Sprague  
P.O. Box 442  
Argenta, Illinois 62501  
Telephone: 217-795-2131  
E-mail: [6sprague@gmail.com](mailto:6sprague@gmail.com)

RECEIVED  
U.S. E.P.A.

BEFORE THE ENVIRONMENTAL APPEALS BOARD  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C.

2014 OCT 28 AM 11:13  
ENVIR. APPEALS BOARD

IN THE MATTER OF: )  
ARCHER DANIELS MIDLAND CO. )  
*DECATUR, ILLINOIS* )  
*UIC INJECTION WELL CCS#2* )

UIC PERMIT NUMBER: IL-115-6A-0001

PETITION FOR REVIEW



Jeffrey Sprague

P.O. Box 442

Argenta, Illinois 62501

217-795-2131

6sprague@gmail.com

## **INTRODUCTION**

Pursuant to 42 U.S.C. 7607(b)(1) and 40 C.F.R. § 124.19(a), Jeffrey Sprague (“Petitioner”) petitions for review of Underground Injection Control (UIC) Class VI approval set forth in Permit Number IL-115-6A-0001, which the U.S. Environmental Protection Agency (“USEPA”) issued to Archer Daniels Midland Company (“ADM”) on September 23, 2014. The Permit authorizes ADM to construct a carbon dioxide (CO<sub>2</sub>) injection well, identified by USEPA as Well CCS#2.

Petitioner contends that USEPA’s failure to enter into consultation with the U.S. Fish and Wildlife Service (“USFWS”) on the potential impacts of this project on threatened and endangered species was clearly erroneous as a matter of law in violation of the Endangered Species Act of 1973, as amended (“ESA”). Petitioner also contends that pore space (geologic formation porosity) ownership as it relates to Illinois Real Property Law, the reasonable access to proprietary modeling software in order to assure and safeguard full public participation in the permit evaluation process, the evaluation of air quality impacts for the protection of National Ambient Air Quality Standards (NAAQS) and related air quality values, and the proposed level of injection zone rock retrieval to support a high confidence in model predictions are important policy and/or potential legal considerations that the Board should review.

## **THRESHOLD PROCEDURAL REQUIREMENTS**

Petitioner satisfies the threshold requirements for filing a petition for review under 40 C.F.R. Part 124. Petitioner has standing to petition for review of the permit decision because of participating in the public comment period by submitting written comments (May 6, 2014; May 30, 2014) on the draft permit. 40 C.F.R. § 124.19(a)(2). The issues raised by Petitioner were raised with USEPA during the public comment period (See Response to Comments for Draft Class VI Permit Issued to Archer Daniels Midland (ADM)). Consequently, the Environmental Appeals Board (EAB) has jurisdiction to consider Petitioner’s request for review.

## **ISSUES PRESENTED FOR REVIEW**

Petitioner respectfully requests Board review of the following issues:

1. Whether USEPA's failure to enter into consultation with USFWS in accordance with Section 7 of the Endangered Species Act is a clear violation of law.
2. Whether USEPA's failure to address pore space ownership concerns through permit conditions constitutes a clearly erroneous conclusion of law or an important policy consideration that the Board should review and reverse.
3. Whether USEPA's failure to provide reasonable access to proprietary modeling software from which key decisions regarding permit issuance were made constitutes an important policy consideration that the Board should review and reverse.
4. Whether USEPA's failure to require the applicant to evaluate ambient criteria pollutant concentrations, ambient hazardous air pollutant concentrations, and air deposition impacts from well construction, drilling, completion, and injection activities constitutes a clearly erroneous conclusion of law or an important policy consideration that the Board should review and reverse.
5. Whether USEPA's rejection of requiring a continuously cored and retrieved section of the injection zone rock to sufficiently characterize lithologic properties and lithofacies changes, to provide high confidence in modeling assumptions and conclusions, is an important policy consideration that the Board should review and reverse.

## **STATEMENT OF FACTS**

USEPA issued the draft Underground Injection Control Class VI permit for the CCS#2 well for CO<sub>2</sub> injection and geologic sequestration (Permit number IL-115-6A-0001) on April 16, 2014. Concurrently, USEPA notified the public of the opportunity to comment on the draft permit. On May 6, 2014 and May 30, 2014, Petitioner submitted comments to USEPA. Petitioner comments included issues raised on this appeal, as well as issues that the Petitioner has decided not to

appeal. The final Permit was issued on September 23, 2014 and the Petitioner was served with a copy of the Response to Comments for Draft Class VI Permit Issued to Archer Daniels Midland (ADM) , together with relevant regulatory text for petition for review by the EAB, by U.S. Mail on the same date. USEPA made no changes to the Permit concerning any of the issues raised in this appeal.

## **ARGUMENTS**

### **1. The EAB Must Remand the Permit Because USEPA Violated the ESA by Failing to Consult with FWS**

In accordance with the requirements of Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. § 1531 *et. seq.*, and 50 CFR § 402.01 *et. seq.*), the United States Environmental Protection Agency (USEPA) must consult with the U.S. Fish & Wildlife Service (FWS) on “any action authorized, funded, or carried out” that falls within the embrace of the ESA. The full text of the relevant portion of the statute (Section 7.(a)(2)) reads as follows:

“Each federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an “agency action”) is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected states, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to Subsection (h) of this section. In fulfilling the requirement of this paragraph each agency shall use the best scientific and commercial data available.”<sup>1</sup>

<sup>1</sup>(<http://www.nmfs.noaa.gov/pr/laws/esa/test.htm#section7>)

USEPA failed to consult with USFWS prior to issuance of the Underground Injection Control (UIC) permit to address any potential acute or chronic adverse affects to any of the threatened and endangered species or their respective critical habitats. Such adverse affects would be possible from site preparation and well construction activities associated with physical disturbance of the ground surface. Additionally, adverse affects would also be expected from direct hazardous air pollutant and

criteria air pollutant emissions and secondarily-formed pollutants associated with fuel combustion from stationary sources (e.g. diesel generators) and mobile sources (e.g. offroad equipment and onroad vehicles) from initial site preparation and continuing on through well drilling, well completion, and carbon dioxide (CO<sub>2</sub>) injection.

USEPA's *Response to Comments for Draft Class VI Permit Issued to Archer Daniels Midland (ADM)* (hereinafter, *Response to Comments*) improperly ignored, or at least did not provide a reasoned response, to this commenter's concern over the absence of an analysis addressing "impacts to threatened and endangered species" (*Response to Comments*, page 4, Comment #16).

## **2. The EAB Must Remand the Permit Because USEPA has Failed to Include Provisions Consistent with Illinois Real Property Law that Compensate Owners of Pore Space Impacted by the CO<sub>2</sub> Plume**

Illinois case law follows the American Jurisprudence treatise (63C Am. Jur. 2d Property) regarding ownership of the pore space of the geologic formation receiving the injected CO<sub>2</sub> and to pore space for which the injected fluid subsequently migrates. Quoting in pertinent part from Section 12 (regarding land):

"The word 'land' includes not only the soil, but everything attached to it . . ." It goes on to say that "the title to land extends downward from the surface to the center of the earth and upward indefinitely to the heavens, so that whatever is in a direct line between the surface of any land and the center of the earth, whether it is rock, soil, or water, belongs to the owner of the surface, who may use it for his or her own purpose."

As identified by USEPA in the *Response to Comments* (Page 4, Comment #16), this Commenter stated the following:

"The geographical depiction provided by USEPA of the extent of the subsurface CO<sub>2</sub> plume and pressure front (see Fact Sheet) indicates that over time the plume will extend to areas for which ADM does not have surface land ownership rights. USEPA has not addressed in the draft permit the fundamental legal question of whether ADM

has the mineral rights (“pore rights”) that would allow them to conduct subsurface injection when the CO2 plume and pressure front extends to areas directly below the ground surface where ADM doesn’t have surface land ownership. In the absence of mineral rights, a permit cannot be issued.”

USEPA chose to ignore, or at least dodge, providing a well-reasoned response to this comment as otherwise required for permit issuance. The absence of conditions in the UIC permit that would require notification to potentially impacted landowners, negotiated fair compensation to these landowners prior to CO2 injection, and recordkeeping that documents these transactions (and which is readily available for public viewing), is an “exercise of discretion or an important policy consideration that the Environmental Appeals Board should, in its discretion, review” (40 CFR Ch. I §124.19 (a)(4)(i)(B)).

### **3. The EAB Must Remand the Permit Because USEPA has not Provided the General Public with Reasonable Access to Proprietary Software in Order to Independently Verify and Provide Comment Upon Modeling Results**

Regrettably, USEPA has failed in its obligation to provide members of the public with reasonable opportunity to provide comment on all aspects of the administrative record and decision-making elements that have resulted in permit issuance. Most notably, USEPA has asked the public to accept on faith their modeling conclusions, as well as those of the applicant, without providing reasonable accommodation for access to the proprietary software that forms the basis for these conclusions. This stands in stark contrast to the publicly available USEPA guideline model (AERMOD modeling system) and ozone-related software (CMAQ, CAMx) for use in Prevention of Significant Deterioration (PSD) permit application reviews and State Implementation Plan (SIP) development.

This Commenter, with a Bachelor of Science in Geology (Western Washington University, 1979) and graduate level training in Hydrogeology (University of Illinois), along with years of oil and gas industry experience in making well completion recommendations, and over 25 years of computer modeling experience, provided the following comment (*Response to Comments*, Page 23, Comment #8):

“The ECLIPSE 300 (v2011.2) reservoir simulator model with CO2STORE module is proprietary software available to the public only at considerable cost. It is unreasonable to expect the general public to incur such cost in order to evaluate model assumptions, model implementation, and modeling results generated by USEPA. Moreover, USEPA has not made available the raw inputs and output for public review and comment. USEPA should make available a temporary license for the software, as well as all model input files, in order to provide opportunity for conducting model simulations for evaluating reservoir behavior and plume development.”

USEPA’s Area of Review (AoR) delineation modeling relies upon additional proprietary software (STOMP, with STOMP-CO2 and STOMP-CO2e simulators) developed by the Pacific Northwest National Laboratory (PNNL), and which is also only available to the public at considerable cost. It is disingenuous by USEPA to claim that they are providing opportunity for public comment, while rejecting a request for making temporarily available to the public the software--- ECLIPSE 300 and STOMP---on which critical components of the permit decision-making were based.

**4. The EAB must Remand the Permit Because USEPA has not Addressed the Air Quality Impacts of the Proposed UIC Well Through the Air Pollution Permitting Process nor in Providing an Analysis and Well-Reasoned Response to Reviewer Comments**

The Archer Daniels Midland Company (ADM) facility in Decatur, Illinois is a major pollutant-emitting source as defined under the Clean Air Act Amendments of 1990 (CAAA). Under no condition is a permitted facility allowed to cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS). Construction or operational changes that will result in increases in the rate of emissions or the total amount of emissions from the facility requires notification to the permitting authority and the submittal of changes to the facility’s operating permit. USEPA has not provided any documentation in the administrative record that ADM has submitted and secured the necessary permit revisions that reflect the emissions increase associated with construction and operation of the CCS#2 Well. USEPA has not quantified the criteria pollutant and hazardous air pollutant emissions increases associated with well site construction, drilling, completion,

and injection associated with onsite fuel combustion equipment and both off-road and on-road vehicular emissions, nor has ADM or USEPA evaluated the air quality impacts and ecosystem impacts associated with these emissions. In the absence of required permit revisions, ADM is in violation of federal statute and state regulations. In the absence of a comprehensive evaluation of air emission impacts, ADM is potentially in violation of the federal Prevention of Significant Deterioration (PSD) regulations and the Illinois Environmental Protection Act (415 ILCS 5/1 *et seq.*) Under Title II, Section 9 of the Illinois Environmental Protection Act, "No person shall: a. Cause or threaten or allow the discharge or emission of any contaminant into the environment in any State so as to cause or tend to cause air pollution in Illinois . . .", and under Title I, Section 3.02, air pollution is defined as ". . . the presence in the atmosphere of one or more contaminants in sufficient quantities and of such characteristics and duration as to be injurious to human, plant, or animal life, to health, or to property, or to unreasonably interfere with the enjoyment of life or property."

As appearing in the *Response to Comments* (Page 4, Comment #16), this Commenter stated:

"No air quality impact analysis was provided evaluating criteria pollutant (NO<sub>x</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, CO, and Ozone) and toxic air contaminant emissions associated with well site equipment usage and increased vehicular traffic associated with well construction, well completion, and CO<sub>2</sub> injection activities. Such an analysis must include dispersion modeling (photochemical modeling for ozone) results for both ambient air concentrations and depositional loading with regard to the National Ambient Air Quality Standards, impacts to threatened and endangered species, soil acidification, and additional cancer and non-cancer human health risk."

By considering this comment "Out of Scope", USEPA has chosen to ignore, or at least evade, providing the well-reasoned response required before the permit can be issued.

**5. The EAB must Remand the Permit Because the Proposed Extent and Type of Collection of Injection Zone Rock Samples, for Lithologic and Petrophysical Characterization, will not Support a High Level of Confidence in Model Predictions**

Appropriately, Part J(1)(b) of the permit requires that ADM submit core samples of the injection zone for analysis and evaluation prior to CO2 injection. Unfortunately, short sections of rock from vertical coring or from sidewall coring have severely limited utility in characterizing lithofacies changes that can dramatically affect formation (geologic) petrophysical characteristics. Such variability could significantly impact plume behavior. To maximize the potential for understanding injection zone characteristics, and for greater certainty in the modeling predictions regarding plume behavior, the Permit should be revised to require retrieval of continuous core (6 inch diameter) for the entire section in which injection is proposed.

As specifically stated by this Commenter in the *Response to Comments* (Pages 32 and 33, Comment #9):

“The need for a more thorough understanding of the lithologic properties and lithofacies characteristics of the Mt. Simon reservoir, for improved predictive capabilities regarding CO2 plume development and migration, necessitates the acquisition of a complete cored sequence through the injection zone and stratigraphically higher (or lower) intervals into which plume migration is anticipated. Only from the direct analysis of intact injection zone rock can the public have high confidence of USEPA’s modeling results and expected plume behavior. The permit should contain a requirement for recovery of a complete section of continuous core for the CO2 injection zone and adjacent intervals.”

### **CONCLUSION**

Petitioner has raised in this appeal erroneous conclusions of law by USEPA and/or important policy considerations that the Environmental Appeals Board should review and reverse regarding the final Underground Injection Control permit (Permit Number IL-115-6A-0001) for the Archer Daniels Midland Company SSC#2 Well in Macon County, Illinois. The Petitioner respectfully requests that this Permit be remanded to USEPA for change consistent with the arguments presented in this petition.