

Response to Comments for
Draft Class VI Permit Issued to Archer Daniels Midland (ADM)

United States Environmental Protection Agency
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

TABLE OF CONTENTS

INTRODUCTION..... i

SECTION 1. GENERAL AND OUT OF SCOPE COMMENTS..... 1

SECTION 2. GENERAL COMMENTS..... 5

SECTION 3. AREA OF REVIEW (AOR) AND CORRECTIVE ACTION COMMENTS..... 16

SECTION 4. CONSTRUCTION AND PRE-INJECTION TESTING COMMENTS 26

SECTION 5. OPERATIONS COMMENTS..... 35

SECTION 6. TESTING AND MONITORING COMMENTS 46

SECTION 7. PLUGGING AND POST-INJECTION SITE CARE COMMENTS 64

SECTION 8. EMERGENCY AND REMEDIAL RESPONSE COMMENTS 76

INTRODUCTION

On April 16, 2014, the United States Environmental Protection Agency (EPA) issued a draft Class VI permit to inject carbon dioxide for the purpose of geologic sequestration (permit no. IL-115-6A-0001) to Archer Daniels Midland (ADM) for its proposed CCS#2 injection well and invited public comment.

Fourteen (14) parties submitted comments to EPA, either in writing or during a public hearing held on May 21, 2014 (or both). These commenters are presented in Table 1. This document categorizes the public comments submitted on the draft Class VI permit and includes EPA's responses to those comments, although there is some overlap between the categories and the responses.

This document is organized as follows.

- Section 1: General and Out of Scope Comments: comments including general introductory statements and comments that are “out of scope” for this permitting action.
- Section 2: General Comments: comments generally supporting or opposing the draft permit action or about the permitting process; geologic sequestration; the geology of the ADM site; and general permit conditions.
- Section 3: Area of Review (AoR) and Corrective Action Comments: comments on the modeling approach used to delineate the AoR; AoR reevaluations; wells in AoR; Part G of the draft permit; and Attachment B.
- Section 4: Construction and Pre-Injection Testing Comments: comments on the injection well components (e.g., casing/cement and tubing/packer); pre-injection logs and tests to be performed; Parts I and J of the draft permit; and Attachment G.
- Section 5: Operations Comments: comments on Part K of the draft permit (e.g., injection pressure limitations and approaches to cessation of injection) and Attachment A.
- Section 6: Testing and Monitoring Comments: comments on the testing and monitoring activities (e.g., corrosion and continuous monitoring, mechanical integrity testing (MIT), ground water monitoring, and plume and pressure front tracking) in Part M of the draft permit; Attachment C; and the quality assurance and surveillance plan for testing and monitoring activities.
- Section 7: Plugging and Post-Injection Site Care Comments: comments on post-injection monitoring; the post-injection site care timeframe; the non-endangerment demonstration; site closure activities; Part O of the draft permit; and Attachments D and E.
- Section 8: Emergency and Remedial Response Comments: comments on Part P of the draft permit; Attachment F; and induced seismicity.

Table 1: Commenters on ADM's draft Class VI permit

Anthony Samsel
Archer Daniels Midland Company (ADM)
Carbon Sequestration Council (CSC)
Clean Air Task Force (CATF)
Evelyn Carter
FutureGen Alliance
Gary Overby
Gestalt Engineering, LLC
Illinois Department of Commerce and Economic Opportunity's Office of Coal Development (IOCD)
Illinois Manufacturers' Association (IMA)
Jeffrey Sprague
Micheal Muczynski
Natural Resources Defense Council (NRDC)
US Fish and Wildlife Service

SECTION 1. GENERAL AND OUT OF SCOPE COMMENTS

EPA regulations at 40 C.F.R. Parts 144 and 146 state the requirements and standards that a permit applicant must meet to have an Underground Injection Control (UIC) permit application approved. Those regulations define the general scope of EPA's authority and review process. Federal regulations require EPA to briefly describe and respond to significant comments received on UIC permits.

EPA received numerous general comments and comments directed at matters outside the scope of the UIC Program's purview. EPA acknowledges the submittal of these comments and clarifies that because they raise matters that are not addressed by the UIC regulations and are outside the scope of the UIC permit process, EPA does not respond to them specifically in this document.

The comments falling into the "out of scope" category focus on topics including: climate change; economic benefits of the project; general support for or non-specific opposition to the project; neutral statements of fact; background information on the commenters or the project; pore space ownership; and general introductory statements to specific concerns. These general comments are listed below without response. Specific comments that address topics that are relevant to this permitting decision, with responses, follow in subsequent sections.

Although EPA is not responding to general statements of support and opposition to the permit individually, it did consider them in making the decision to issue a final permit.

#	Commenter	Comment Text
1	US Fish and Wildlife	The US Fish and Wildlife Service has not comments on the Draft
2	CATF	<p>Clean Air Task Force (“CATF”) is pleased to have the opportunity to comment on Archer Daniels Midland’s (“ADM’s”) draft Underground Injection Control (“UIC”) Class VI permit. Draft Permit IL-115-6A-0001 is issued pursuant to the Safe Drinking Water Act (“SDWA”) and the UIC regulations codified at 40 CFR parts 124, 144, 146, 147. Founded in 1996, CATF is a nonprofit organization dedicated to restoring clean air and healthy environments through scientific research, public education and legal advocacy.</p> <p>The overwhelming majority of climate scientists agree that our climate is changing due to manmade carbon dioxide (“CO2”) emissions. [FN: John Cook, et al., Quantifying the consensus on anthropogenic global warming in the scientific literature, 8 Environ. Res. Lett. 024024 (May 13, 2013), available at: http://iopscience.iop.org/1748-9326/8/2/024024/pdf/1748-9326_8_2_024024.pdf]</p> <p>For the foreseeable future, carbon capture and storage technologies will be critical to meeting global greenhouse gas reduction goals. Carbon capture and storage is highly likely to be the only technology proven and available for isolation from atmospheric release of the large amounts of CO2 emitted from these sources.</p>
4	FutureGen	I am writing to express my strong support to the ADM Underground Injection Control (UIC) Class VI permit. The implementation of the new class of wells, class VI, developed under the authority of the Safe Drinking Water Act's UIC, is specially designed to protect underground sources of drinking water (USDW). My analysis of the UIC draft permit indicates that the ADM project fully addresses the requirements to insure safe storage over short and long periods of time.
5	FutureGen	The project is part of the Midwest Geological Sequestration Consortium, one of the seven Regional Carbon Sequestration Partnerships created by the Department of Energy (DOE) and its partners have an internationally recognized technical expertise in the carbon capture and storage field. In summary, I fully encourage U.S. EPA to issue the final UIC permit approval to ADM. I do believe that the injection and the state-of-the-art-monitoring activities implemented on the sequestration site will guarantee a safe storage over time and will be protective of the USDW. The success of this first-of-its-kind project will also be a milepost in the Carbon Sequestration history and will contribute to limit climate change concerns.
6	Gestalt	The stated goal of the project is "to demonstrate the ability of the Mt. Simon geologic formation to accept and retain industrial scale volumes of CO2 for permanent geologic sequestration". Is this in anticipation of ADM being regulated in the production of green house gases? There should be transparency here. Overall, I support this project in utilizing techniques for reducing atmospheric emissions of green house gases.
7	IMA	Carbon capture and sequestration is an exciting new technology and ADMs permits will provide commercial demonstration of an integrated system to capture CO2 from an ethanol plant with geologic storage in a saline reservoir. If approved, this project will significantly reduce carbon emissions that equate to removing 200,000

#	Commenter	Comment Text
		<p>automobiles from the roads for one year. ADM’s project will have significant positive short-term and long-term economic impact both locally and across the United States. The private sector is investing \$66 million of the total \$205 million project resulting in the creation of more than 900 new good-paying jobs including 350 in the local community. Area businesses will see \$30 million in increased economic activity. Moving forward, this technology could be used in a CO2 pipeline and enhanced oil recovery project in Southern Illinois with an initial project cost of \$300 million. This new pipeline could help with production of more than 700 million barrels of oil. Approving these permits will have both a positive environmental and economic impact and the IMA encourages your quick approval.</p>
8	IOCD	<p>ADM CCS projects help support carbon emitting projects meet the next level of emission reductions by capturing carbon dioxide and permanently storing it underground. Projects like the ADM CO2 storage projects and the FutureGen project in Morgan County will help make the great strides needed to achieve an “all of the above” domestic energy portfolio strategy while meeting increasingly more stringent environmental regulations.</p>
9	Micheal Muczynski	<p>Voting in favor of permitting ADM to proceed with CO2 injection wells. Science and technology needs to try new things, and learn from them and improve "next time".</p>
10	NRDC	<p>General comments</p> <p>This permit application is significant, in that it represents one of the first efforts to permit a CO2 sequestration project using EPA’s December 2010 Safe Drinking Water Act Underground Injection Control Program (“UIC”) Class VI rules. Precedents may be set, with respect to what applicants look to in submitting in future applications. And through this review, EPA sends an important message about how it intends to implement the UIC Class VI regulations.</p> <p>At the outset, we commend Archer Daniels Midland (hereinafter “the Applicant”, or “Applicant”) for compiling an application that is clear and that attempts to address most of the requirements of Class VI in a considered manner. While we may have questions or suggestions with respect to specific parts of the application, overall we are encouraged by the approach taken in evaluating and operating the site, as well as the conciseness with which information is presented.</p> <p>We do list a number of technical points below for EPA’s consideration and resolution, and we can see a clear pathway forward for the issuance of the injection permits under consideration here, as we believe that our comments can be readily addressed by the Applicant and EPA. We support this effort, and hope that it can be the precursor to more opportunities to permanently remove carbon pollution from the atmosphere and sequester it safely in the deep subsurface.</p>
11	Anthony Samsel	<p>Underground sequestration of CO2 is a bad idea.</p>

#	Commenter	Comment Text
12	Evelyn Carter	And looking at those concerns that I voiced earlier of trying to get the information which was very, very good at explaining things to me and I understand this is to try to keep the carbon dioxide out of the air, which I think is a good thing but I still want it to be known that these concern still exists. Thank you.
13	Gary Overby	I don't support the experiment of carbon sequestration as an answer to pollution. I believe we can answer the problem by conserving, using green energy, and growing our local power. Ethanol is not anything more than a temporary bridge to the goal of renewable energy security. Stop the subsidies for energy dinosaurs.
14	CATF	Once this permit is approved, there will be two injection wells at the Project site: CCS #1 (the currently operating Class I well) and CCS #2. The Draft Permit is for CCS #2, a new injection well, which has a projected operational period of five years, and an expected total injection volume of 5.5 Mt of CO2. EPA also has received and is reviewing for adequacy an application to transition the initial CCS #1 well to a Class VI UIC permit. ADM has long awaited final permits -- both the application to transition CCS #1 to Class VI, and the application for the CCS #2 Class VI permit were submitted in 2011.
15	CSC	We commend EPA on the issuance of this draft permit and the draft permits for the FutureGen Project for public comment and on the work that has been undertaken to process these first of a kind permit drafts.
16	Jeffrey Sprague	<p>The following additional comments are offered in response to information in the draft permit and on the USEPA Region 5 website (www.epa.gov/Region5/water/uic/adm):</p> <p>1.) The geographical depiction provided by USEPA of the extent of the subsurface CO2 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.</p> <p>2.) No air quality impact analysis was provided evaluating criteria pollutant (NOx, PM2.5, PM10, SO2, CO, and Ozone) and toxic air contaminant emissions associated with wellsite equipment usage and increased vehicular traffic associated with well construction, well completion, and CO2 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.</p>

SECTION 2. GENERAL COMMENTS

#	Commenter	Comment Text	EPA Response
1	CATF	<p>The ADM project has already, and will continue to advance geologic storage technologies. This project therefore is critical to advancing commercial scale geologic carbon storage. The Draft Permit is associated with the Illinois Basin Decatur CCS Project (“the Project”), which involves the compression and dehydration of CO₂ separated at ADM’s corn-to- ethanol plant, and its storage in a deep saline aquifer adjacent to the producing plant. To date, 700,000 metric tons of CO₂ captured from the plant already have been successfully injected in the first onsite 7,000-foot deep saline injection well, previously permitted under UIC Class I. A vigorous monitoring program to track CO₂ in the subsurface and ensure its security in the subsurface has accompanied injection. As a result, the Draft Permit enjoys the advantage of a track record that demonstrates its ongoing success. More specifically, the Project illustrates the safe and successful use of the Mount Simon Formation for geologic carbon storage in the Illinois basin. During the 3-year injection program, 1.1 Mt of CO₂ are being captured at ADM’s ethanol plant using Alstom’s amine capture process and will be injected into the Cambrian Mt. Simon Formation.² [FN: U.S. EPA, “Public Comment Sought on Carbon Storage Draft Permit,” (Apr. 2014), available at:http://www.epa.gov/region5/water/uic/adm/pdfs/adm-fact-sheet-201404.pdf.] Monitoring tools utilized at the site include four shallow groundwater wells and soil gas measurements including soil fluxes, 3-D seismic profiling, ground deformation by satellite interferometry, open and cased-hole logging, a dedicated monitoring well with embedded geophones for walk-away vertical seismic profiling and a</p>	<p>The Mt. Simon formation, which will receive the CO₂, is thousands of feet below the ground surface (between 5,545 and 7,051 feet) at the ADM site, and contains porous spaces to accept and store the CO₂. Based on local and regional geologic study and testing, EPA has determined that the Mt. Simon is sufficiently laterally extensive and porous to allow it to safely receive the volume of CO₂ ADM plans to inject. While the performance of CCS#1 does provide site-specific evidence to support EPA’s determination about the suitability of the CCS#2 well, EPA based its determination to issue the draft permit on site-specific information that ADM submitted about the CCS#2 well site.</p>

#	Commenter	Comment Text	EPA Response
		<p>dedicated in-zone monitoring well and including Schlumberger’s Westbay system.³ [FN: U.S. EPA, “ADM Permit Application for CCS#1,” (Dec. 2011), available at: http://www.epa.gov/region5/water/uic/adm/pdfs/adm-ccs1-permit-application-201112.pdf; U.S. EPA, “ADM Permit Application for CCS#2,” (July, 2011), available at: http://www.epa.gov/region5/water/uic/adm/pdfs/adm-ccs2-permit-application-201107.pdf]</p> <p>Monitoring began in 2009 and will conclude in 2017 after a three-year post-injection monitoring period.⁴ [FN: MIT, “Decatur Fact Sheet,” https://sequestration.mit.edu/tools/projects/decatgur.html]</p> <p>After two years of pre-injection data, and one year of injection, no effects of injection have been detected outside the reservoir.⁵ [FN: See generally, Ozgur Senel, Nikita Chugunov, CO2 Injection in a Saline Formation: Pre-Injection Reservoir Modeling and Uncertainty Analysis for Illinois Basin – Decatur Project, 37 Energy Procedia 4598-4611 (2013), available at: http://ac.els-cdn.com/S1876610213006115/1-s2.0-S1876610213006115-main.pdf?_tid=68b117a2-ca31-11e3-ae0a-00000aacb35f&acdnat=1398180111_0cd7142f4524b3afb688484473f29a5a]</p>	
2	CATF	<p>We have reviewed the ADM’s Class VI Draft Permit for CCS #2, against the technical criteria of the UIC Class VI rules, which are intended to ensure that geologic sequestration is conducted in a manner that protects underground sources of drinking water (“USDWs”) from endangerment. CATF’s review finds the Draft Permit’s methodologies to be robust and in keeping with the requirements of the rules, including the Area of Review and Corrective Action plan, a comprehensive Testing and Monitoring Plan (including advanced monitoring and testing techniques in the USDWs and the zone above the</p>	<p>ADM’s permit complies with the tailored requirements in the Class VI Rule that specifically address the unique nature of CO₂ GS and focus on ensuring protection of USDWs and human health where geologic sequestration (GS) is occurring.</p> <p>To protect USDWs from endangerment, the permit includes an Emergency and Remedial Response Plan (Attachment F) that outlines the actions ADM must take if an unexpected circumstance, such as induced seismic event, were to occur.</p>

#	Commenter	Comment Text	EPA Response
		<p>confining zone) an Injection Well Plugging Plan, and a Post Injection Site Care Plan. While we anticipate that it is unlikely that this aspect of the Draft Permit will be needed, it is nevertheless consistent with the regulations and wise for the applicant to include with the Draft Permit an Emergency and Remedial Response Plan that anticipates induced seismicity and includes provisions for monitoring, response and shut down.</p> <p>CATF urges EPA to grant the final permit as expeditiously as possible.</p>	<p>EPA issued a final permit decision according to the regulations for Class VI permits.</p>
3	FutureGen	<p>Finally, before the issuance of this permit, ADM already demonstrated that the proposed site was able to successfully and safely store about 800,000 metric tons of carbon dioxide, which otherwise would have been released in the atmosphere.</p>	<p>The Mt. Simon formation, which will receive the CO₂, is thousands of feet below the ground surface (between 5,545 and 7,051 feet) at the ADM site, and contains porous spaces to accept and store the CO₂. Based on local and regional geologic study and testing, EPA has determined that the Mt. Simon is sufficiently laterally extensive and porous to allow it to safely receive the volume of CO₂ ADM plans to inject. While the performance of CCS#1 does provide site-specific evidence to support EPA's determination about the suitability of the CCS#2 well, EPA based its determination to issue the draft permit based on site-specific information that ADM submitted about the CCS#2 well site.</p>
4	IOCD	<p>Illinois offers some of the best sequestration geology anywhere. The Mt. Simon Sandstone, in this case, is a thick large-capacity porous rock layer... filled with briny water.</p>	<p>The Mt. Simon formation, which will receive the CO₂, is thousands of feet below the ground surface (between 5,545 and 7,051 feet) at the ADM site, and contains porous spaces to accept and store the CO₂. Based on local and regional geologic study and testing, EPA has determined that the Mt. Simon is sufficiently laterally extensive and porous to allow it to safely receive the volume of CO₂ ADM plans to inject.</p> <p>Suitability is based on evaluation of extensive information about the proposed site, including the geological, geomechanical, hydrogeological, and geochemical properties of the injection and</p>

#	Commenter	Comment Text	EPA Response
			confining zones; local hydrogeology; geochemistry; and seismic history in the context of the planned injection operation.
5	CATF	While it is understandable that the Agency is careful with these first Class VI permit reviews, it also is critical that EPA move expeditiously to permit projects that allow companies, scientists and EPA to gain experience in commercial-scale saline geologic storage and thus carbon capture and sequestration technology.	EPA and contract geologists, geochemists, hydrogeologists, modelers, and well engineers who are familiar with the geology of Illinois and the UIC requirements performed an extensive review of the detailed geologic and operational information in ADM's permit application. Throughout this review, EPA requested and ADM provided additional information as needed to ensure that the permit determination was based on appropriate information and that the permit conditions will ensure protection of USDWs from endangerment. EPA issued a final permit decision according to the regulations for Class VI permits.
6	CSC	<p>Our interest, and our reason for commenting on this draft permit, is directed at the potential precedents being established for these draft permits and all future Class VI permits that may be issued by EPA Region 5, other EPA regions and state primacy programs. We want to make sure that the permits, the conditions contained therein, and the plans approved as part of permits are consistent with the regulatory requirements and designed to assist with full understanding of the requirements and safeguards of Class VI permits. Our comments are designed to improve the clarity and accuracy of these Class VI permits.</p> <p>To begin, we commend EPA for the very important and fundamental recognition in Section A of the draft permit that “[f]or purposes of enforcement, compliance with this permit during its term constitutes compliance with Part C of the Safe Drinking Water Act (SDWA)”. This is a fundamental tenant of virtually every EPA permitting program. Permit applicants are called upon to submit their plans and proposals for complying with the regulatory permit requirements that have been</p>	<p>EPA did not make the suggested changes. ADM must comply with both the permit requirement and the regulatory requirement upon which it is based.</p> <p>Some of the specific permit references identified by the commenter are discussed and responded to in more detail elsewhere in the response to comments document. However, as a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. In some cases, the relevant regulatory provisions for operational details can be relatively lengthy and technical, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>By issuing a final permit containing the language as presented in the draft permit, EPA approves the plans as presented. However,</p>

#	Commenter	Comment Text	EPA Response
		<p>promulgated by EPA based on the underlying legislative mandates enacted by the U.S. Congress to achieve specific statutory objectives. In this case, the permit applications provide for compliance with the UIC program requirements promulgated by EPA pursuant to the Safe Drinking Water Act (SDWA) to protect underground sources of drinking water (USDWs) from endangerment consistent with the mandate of that statute. As EPA has recognized in numerous provisions of the draft permit, the approved application, the required plans, and the individualized permit conditions provide for compliance with the promulgated regulatory requirements of the Class VI UIC program. That is why compliance with the final permit “constitutes compliance with Part C of the SDWA”.</p> <p>For example, Section M(3) of the draft permit states: “This monitoring shall be performed as described in the Testing and Monitoring Plan to meet the requirements of 40 CFR 146.90(b).” This is an excellent recognition of the process whereby, the applicant has submitted a Testing and Monitoring Plan that provides for satisfying the requirements of the UIC Class VI regulations in section 40 CFR 146.90(b) and EPA has approved the plan and the permit because it meets those requirements. Accordingly, compliance with the Testing and monitoring Plan of this permit during its term will constitute compliance with the section 146.90(b) requirements as noted by the permit condition in sections M(3) of the draft permits.</p> <p>Unfortunately, other conditions in the draft permit that also reference regulatory provisions are too loosely worded and give the inappropriate impression that the permittee must take some further steps—beyond complying with the permit and the approved incorporated plans—to meet the regulatory requirements. For example, Section G(1) of the</p>	<p>EPA also recognizes that site-specific conditions encountered during drilling, operating and monitoring may present the need to alter any of the project plans, at which time ADM may propose to the Director changes in the plan. Any such changes would result in a permit modification –which, depending on the nature of any changes, could warrant an additional public notice and comment period. EPA anticipates that the plans will be regularly reviewed and revised as required by the Class VI regulations. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p>

#	Commenter	Comment Text	EPA Response
		<p>draft permits states: “The permittee shall maintain and comply with the approved Area of Review and Corrective Action Plan (Attachment B of this permit) which is an enforceable condition of this permit and shall meet the requirements of 40 CFR 146.84.” This wording is inappropriate because maintaining and complying with “the approved Area of Review and Corrective Action Plan (Attachment B of this permit) which is an enforceable condition of this permit” will be entirely sufficient to meet the requirements of 40 CFR 146.84. EPA makes that determination when it issues the permit and approves the plan as part of that permit. No further action is necessary; therefore the inclusion of the words “and shall meet the requirements of 40 CFR 146.84” is both unnecessary and inappropriately confusing. It would be acceptable to use wording similar to that in Section M(3) and say “to meet” rather than “and shall meet”, but given the reference to the plan being an enforceable condition of the permit, that is unnecessary and may potentially be confusing. There are a number of other places in the draft permits where loose—and potentially contradictory language (that is, language that would contradict section A)—is used. The attached detailed comments identify these provisions and provide specific recommendations of alternative language.</p> <p>The problem identified with the potential conflict created by referencing both permit conditions and regulatory provisions is exacerbated by the frequent repetition of regulatory requirements throughout the draft permits. This is an unusual departure from past approaches in UIC permits. For example, Class IH permits issued by EPA Region 5 have included conditions for post-closure plans that say:</p> <p>“The permittee has submitted a plan for post-closure</p>	

#	Commenter	Comment Text	EPA Response
		<p>maintenance and monitoring, which is included in Part III(B) of this permit. This plan includes the information required by Section 146.72(a) and demonstrates how each of the applicable requirements of Section 146.72(a) will be met. The obligation to implement the post-closure plan survives the termination of this permit or the cessation of injection activities.”</p> <p>This excellent language provides a very straightforward explanation of how the submitted plan, which has been reviewed and approved by EPA, provides for compliance with the regulatory requirements and becomes an enforceable part of the permit. A similar approach could easily be used for each of the required plans included in the Class VI permits and would provide a clearer understanding of how the plans function in providing for compliance with the regulatory requirements as part of the Class VI permit.</p>	
7	CSC	<p>Provision: A Text of Draft Permit: For purposes of enforcement, compliance with this permit during its term constitutes compliance with Part C of the Safe Drinking Water Act (SDWA). References: Proposed Revision: Comment: We commend EPA for including this very important and fundamental provision. This is a fundamental tenant of virtually every EPA permitting program. Unfortunately, some of the language in other conditions appears inconsistent with this provision.</p>	<p>ADM’s permit complies with the tailored requirements in the Class VI Rule that specifically address the unique nature of CO₂ GS and focus on ensuring protection of USDWs and human health where GS is occurring.</p> <p>This comment did not request, and does not require, a change to the draft permit.</p>
8	IOCD	<p>The first ADM Carbon Capture and Storage Project is fast approaching the 1 Million Metric Ton milestone as one of the nation’s first large scale CCS projects. It has accomplished a lot in a very short time. As only the second Class VI well</p>	<p>The Mt. Simon formation, which will receive the CO₂, is thousands of feet below the ground surface (between 5,545 and 7,051 feet) at the ADM site, and contains porous spaces to accept and store the CO₂. Based on local and regional geologic study and testing,</p>

#	Commenter	Comment Text	EPA Response
		<p>application the US EPA has taken to a hearing, I am aware of the scrutiny that the permitting process, testimony and US EPA's responses will receive. After reviewing the criteria used by the US EPA to evaluate the technical and project specific information, I am confident that the US EPA's efforts to evaluate all available information to reach the decision to issue this draft permit was comprehensive and accountable to the citizens of Decatur and Macon County and the people of the State of Illinois.</p>	<p>EPA has determined that the Mt. Simon is sufficiently laterally extensive and porous to allow it to safely receive the volume of CO₂ ADM plans to inject. While the performance of CCS#1 does provide site-specific evidence to support EPA's determination about the suitability of the CCS#2 well, EPA based its determination to issue the draft permit based on site-specific information that ADM submitted about the CCS#2 well site.</p> <p>EPA and contract geologists, geochemists, hydrogeologists, modelers, and well engineers who are familiar with the geology of Illinois and the UIC requirements performed an extensive review of the detailed geologic and operational information in ADM's permit application. Throughout this review, EPA requested and ADM provided additional information as needed to ensure that the permit determination was based on appropriate information and that the permit conditions will ensure protection of USDWs from endangerment.</p>
9	Jeffrey Sprague	<p>Please regard this request as an initial "comment" on the ADM Carbon Sequestration Draft Permit for the proposed CCS #2 Well in Macon County, Illinois. Specifically, I'm requesting a 45 day extension of the comment period to allow USEPA time to make available the full administrative record of the proposed permitting action and to give the local citizenry the necessary time and opportunity to review and respond to that record. USEPA Region 5 has indicated that the current draft permit and fact sheet are available at the Decatur Public Library (Decatur, Illinois), and it would seem reasonable for the remaining documentation in the record to be made available at this repository as well. It is certainly unreasonable to expect that Macon County citizens should have to travel to USEPA's Region 5 office in Chicago in order to view the complete administrative record. I have personally made a FOIA request (Tracking Number EPA-R5-2014-006074)</p>	<p>The regulations at 40 C.F.R. § 124.10 "Public Notice of Permit Actions and Public Comment Period" require EPA to public notice a permit action for at least 30 days. EPA extended this comment period to 45 days to accommodate public review of this complex draft Class VI permit. The 45 day comment period is in compliance with the regulations at 40 C.F.R. § 124.10.</p> <p>EPA made the Administrative Record for its draft permit decision available to the public at its Region 5 office located in Chicago. Many of the estimated 4,000 hard copy documents and electronic files stored on 7 CDs that comprise the administrative record were also made available on the EPA web site for this permit action. A copy of the draft permit was also made available at the Decatur public library for public viewing.</p> <p>The commenter's reference to the Freedom of Information Act (FOIA) request goes beyond the scope of the Class VI regulations.</p>

#	Commenter	Comment Text	EPA Response
		<p>to obtain this information, but the estimated completion and delivery date by USEPA would leave essentially no time for review and comment within the current comment period. Your consideration of a 45 day extension to the comment period is greatly appreciated.</p>	<p>EPA has kept a complete record of this FOIA request, all correspondence with the requestor, and EPA's response to the FOIA request at the Region 5 office. The records for this FOIA request indicate that EPA responded in a timely manner. EPA received and acted on the commenter's FOIA request for the entire administrative record for this permit action in accordance with all FOIA regulations at 40 C.F.R. Part 2. Under the FOIA regulations at 40 C.F.R. 2.104, a requestor who is dissatisfied with an initial response may appeal that determination.</p>
10	Jeffrey Sprague	<p>The following series of comments are intended to modify and supplement an initial comment I submitted on May 6, 2014 on the Archer Daniels Midland Company (ADM) Draft Permit for the proposed CCS #2 Well in Macon County, Illinois. That initial comment requested a "45 day extension of the comment period to allow USEPA time to make available the full administrative record of the proposed permitting action and to give the local citizenry the necessary time and opportunity to review and respond to that record". In the interest of making the administrative record readily available to the public, it was requested that the record be made available at the Decatur Public Library (Decatur, IL), the designated repository for the draft permit and accompanying fact sheet. I wish to modify my comment period extension request from 45 days to 120 days. This is for the following reasons: 1.) The response received from USEPA to a Freedom of Information Act (FOIA) request (dated April 29, 2014) I made for a complete copy of the administrative record strongly indicated that providing the complete record could take more than 30 days. Clearly, such a slow response would not allow adequate time for review of the documents by the close of the comment period (May 30, 2014). Despite my efforts to get a response from USEPA (e-mail to Allan Batka dated May 10, 2014) regarding the cost and contents of the</p>	<p>EPA believes that it is unreasonable to set the duration of a public comment period such that a member of the public can first become proficient in and then run a complex geomechanical, geochemical and hydrogeologic simulation model.</p> <p>In compliance with 40 CFR 146.84, ADM and its consultants selected and applied ECLIPSE 300 to the geology and planned injection at the site. EPA independently evaluated ADM's approach using the STOMP-CO2 simulator including an evaluation of the project's hydrogeologic setting and the site conceptual model in comparison to the site characterization information submitted by the permit applicant. EPA staff and contractors that performed the evaluation have degrees and experience in geology, engineering, and computational and multi-phase fate and transport modeling.</p> <p>Through EPA's independent evaluation, EPA concluded that ADM appropriately developed and implemented their modeling approach and that ADM's AoR delineation based on the maximum extent of the plume and pressure front was found to be reasonable. Detailed documentation of EPA's independent evaluation can be found in the Administrative Record for this</p>

#	Commenter	Comment Text	EPA Response
		<p>"CD's containing electronic files" (e-mail from Allan Batka dated May 7, 2014), and thereby facilitate the receipt of at least some information, my communication did not receive a response, giving the appearance of USEPA just ignoring the request. 2.) Though the full administrative record is available for viewing at USEPA's offices in Chicago, a one-way travel distance of approximately 170 miles from the Decatur area to Chicago, represents an unreasonable travel burden. 3.) The time needed to familiarize oneself with the ECLIPSE 300 reservoir simulator model and then to evaluate USEPA's model inputs and to conduct independent simulations auditing USEPA's results will take at least several months.</p>	<p>permitting action in a document titled "Evaluation of Area of Review (AoR) Delineation Modeling: Archer Daniels Midland (ADM) Class VI Injection Project".</p>
11	FutureGen	<p>Extensive geological, geophysical and petrophysical characterization data were collected at the ADM site to build robust three-dimensional (3D) geological and numerical models. The 3D VSP and surface seismic survey do not show evidence of presence of faults in either the injection or the confining zone. The fracture gradients determined both in the injection and confining zones suggest that it is extremely unlikely that any fractures initiated in the injection zone could extend through the seal. Technical presentations on the reservoir and seal quality are publically available http://www.sequestratiou.org/resources/reports.html. This transparency of the existing IBDP project has built enthusiastic sequestration-community technical support of the current and proposed sequestration projects at the ADM Decatur site. Because large volumes of CO₂ (1000 metric tons/day average) have been injected in the Mount Simon sandstone at the Decatur site since November 2011 without significantly raising reservoir pressure, the applicant has an excellent understanding of the in-situ conditions and has been able to evaluate and calibrate the original 3D-geologic and numerical models. The quantity of available</p>	<p>The Mt. Simon formation, which will receive the CO₂, is thousands of feet below the ground surface (between 5,545 and 7,051 feet) at the ADM site, and contains porous spaces to accept and store the CO₂. Based on local and regional geologic study and testing, EPA has determined that the Mt. Simon is sufficiently laterally extensive and porous to allow it to safely receive the volume of CO₂ ADM plans to inject. While the performance of CCS#1 does provide site-specific evidence to support EPA's determination about the suitability of the CCS#2 well, EPA based its determination to issue the draft permit on site-specific information that ADM submitted about the CCS#2 well site.</p>

#	Commenter	Comment Text	EPA Response
		<p>characterization data, the current comprehension of in-situ conditions and the feedback from the on-going injection process, as presented in a transparent manner to the global sequestration community, support that the reservoir quality and seals are excellent and that the site is safe in regard to the protection of underground sources of drinking water.</p>	
12	FutureGen	<p>The ADM site is located in a central position within the Illinois basin, and exhibits excellent geological conditions for CO₂ storage. The Cambrian Mt Simon sandstone at the ADM site is greater than 1,500 ft. thick, with a large, proven storage capacity, and the well-developed Eau Claire regional seal (>700ft.) has well-documented low permeability values.</p>	<p>The Mt. Simon formation, which will receive the CO₂, is thousands of feet below the ground surface (between 5,545 and 7,051 feet) at the ADM site, and contains porous spaces to accept and store the CO₂. Based on local and regional geologic study and testing, EPA has determined that the Mt. Simon is sufficiently laterally extensive and porous to allow it to safely receive the volume of CO₂ ADM plans to inject.</p> <p>Suitability is based on evaluation of extensive information about the proposed site, including the geological, geomechanical, hydrogeological, and geochemical properties of the injection and confining zones; local hydrogeology; geochemistry; and seismic history in the context of the planned injection operation.</p>

SECTION 3. AREA OF REVIEW (AOR) AND CORRECTIVE ACTION COMMENTS

#	Commenter	Comment Text	EPA Response
1	ADM	<p>Provision: G(1) Text of Draft Permit: The permittee shall maintain and comply with the approved Area of Review and Corrective Action Plan (Attachment B of this permit) which is an enforceable condition of this permit and shall meet the requirements of 40 CFR 146.84. Proposed Revision: The permittee shall maintain and comply with the approved Area of Review and Corrective Action Plan (Attachment B of this permit) which is an enforceable condition of this permit. and shall meet the requirements of 40 CFR 146.84. Comment: Complying with the approved Area of Review and Corrective Action Plan does ipso facto meet the requirements of 40 CFR 146.84. There is not a requirement to comply with the approved plan and –in addition—comply with some other interpretation of the requirements of 146.84. By issuing this permit, EPA has determined that compliance with the Area of Review and Corrective Action Plan during the term of the permit constitutes compliance with 146.84.</p>	<p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions for delineating the AoR are relatively lengthy and technical, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.84(b) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the AoR must be reevaluated periodically during the lifetime of the GS project [40 §146.84(b) and (e) and Section G of the permit]. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>By issuing a final permit containing the language as presented in the draft permit, EPA approves the AoR and Corrective Action Plan as presented. However, EPA also recognizes that site-specific conditions encountered during drilling, or monitoring and operational conditions, may present the need to alter the AoR and Corrective Action Plan, at which time ADM may propose to the Director changes in the plan. Any such changes would result in a permit modification—which, depending on the nature of any changes, could warrant an additional public notice and comment</p>

#	Commenter	Comment Text	EPA Response
			<p>period, as provided in 40 C.F.R. Part 144. Therefore, EPA did not make the suggested changes to the permit.</p>
2	CSC	<p>Provision: G(1) Text of Draft Permit: The permittee shall maintain and comply with the approved Area of Review and Corrective Action Plan (Attachment B of this permit) which is an enforceable condition of this permit and shall meet the requirements of 40 CFR 146.84. Proposed Revision: The permittee shall maintain and comply with the approved Area of Review and Corrective Action Plan (Attachment B of this permit) which is an enforceable condition of this permit. and shall meets the requirements of 40 CFR 146.84. --OR-- The permittee has submitted an Area of Review and Corrective Action Plan, which is included in Attachment B of this permit. This plan includes the information required by Section 146.84 and demonstrates how each of the applicable requirements of Section 146.84 will be met. Comment: Complying with the approved Area of Review and Corrective Action Plan does ipso facto meet the requirements of 40 CFR 146.84. There is not a requirement to comply with the approved plan and –in addition—comply with some other interpretation of the requirements of 146.84. By issuing this permit, EPA has determined that compliance with the Area of Review and Corrective Action Plan during the term of the permit constitutes compliance with 146.84.</p>	<p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions for delineating the AoR are relatively lengthy and technical, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.84(b) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the AoR must be reevaluated periodically during the lifetime of the GS project [40 C.F.R. § 146.84(b) and (e) and Section G of the Permit]. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>By issuing a final permit containing the language as presented in the draft permit, EPA approves the AoR and Corrective Action Plan as presented. However, EPA also recognizes that site-specific conditions encountered during drilling, or monitoring and operational conditions, may present the need to alter the AoR and Corrective Action Plan, at which time ADM may propose to the Director changes in the plan. Any such changes would result in a permit modification—which, depending on the nature of any changes, could warrant an additional public notice and comment</p>

#	Commenter	Comment Text	EPA Response
			<p>period, as provided in 40 C.F.R. Part 144. Therefore, EPA did not make the suggested changes to the permit.</p>
3	ADM	<p>Provision: G(2) Text of Draft Permit: 2. At the fixed frequency specified in the Area of Review and Corrective Action Plan, or more frequently when monitoring and operational conditions warrant, the permittee must reevaluate the area of review and perform corrective action in the manner specified in 40 CFR 146.84 and update the Area of Review and Corrective Action Plan or demonstrate to the Director that no update is needed. References: 146.84(b) The owner or operator of a Class VI well must prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic sequestration project, periodically reevaluate the delineation, and perform corrective action that meets the requirements of this section and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. As a part of the permit application for approval by the Director, the owner or operator must submit an area of review and corrective action plan that includes the following information: (2) A description of: (i) The minimum fixed frequency, not to exceed five years, at which the owner or operator proposes to reevaluate the area of review; (ii) The monitoring and operational conditions that would warrant a reevaluation of the area of review prior to the next scheduled reevaluation as determined by the minimum fixed frequency established paragraph (b)(2)(i) of this section.</p>	<p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. EPA believes that incorporating additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.84(b) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based.</p> <p>EPA has not made any change to the permit based on this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>Proposed Revision: 2. The permittee has submitted an Area of Review and Corrective Action Plan, which is included in Attachment B of this permit. This plan describes how the permittee must reevaluate the area of review and perform corrective action in the manner specified in 40 CFR 146.84, demonstrates how each of the applicable requirements of Section 146.84 will be met, and is an enforceable condition of the permit.</p> <p>Comment: The permittee has submitted the Area of Review and Corrective Action Plan. Complying with the approved Area of Review and Corrective Action Plan does ipso facto meet the requirements of 40 CFR 146.84.</p>	
4	CSC	<p>Provision: G(2) Text of Draft Permit: 2. At the fixed frequency specified in the Area of Review and Corrective Action Plan, or more frequently when monitoring and operational conditions warrant, the permittee must reevaluate the area of review and perform corrective action in the manner specified in 40 CFR 146.84 and update the Area of Review and Corrective Action Plan or demonstrate to the Director that no update is needed.</p> <p>References: 146.84(b) The owner or operator of a Class VI well must prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic sequestration project, periodically reevaluate the delineation, and perform corrective action that meets the requirements of this section and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. As a part of the permit application for approval by the Director, the owner or operator must submit an area of review and corrective action plan that</p>	<p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. EPA believes that incorporating additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.84(b) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based.</p> <p>EPA has not made any change to the permit based on this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>includes the following information: * * * *</p> <p>(2) A description of: (i) The minimum fixed frequency, not to exceed five years, at which the owner or operator proposes to reevaluate the area of review; (ii) The monitoring and operational conditions that would warrant a reevaluation of the area of review prior to the next scheduled reevaluation as determined by the minimum fixed frequency</p> <p>Proposed Revision: 2. At the fixed frequency specified in the approved Area of Review and Corrective Action Plan (Attachment B of this permit), or more frequently when monitoring and operational conditions warrant as described in that plan, the permittee must reevaluate the area of review and perform corrective action in the manner specified in 40 CFR 146.84 and update the Area of Review and Corrective Action Plan or demonstrate to the Director that no update is needed.</p> <p>Comment: The plan itself is intended to spell out the frequency of review and the conditions that will trigger an earlier review. It is better to specify the fixed frequency or to use the same formula of “approved Area of Review and Corrective Action Plan (Attachment B of this permit)”.</p>	
5	ADM	<p>Provision: G(3) Text of Draft Permit: 3. Following each AoR reevaluation or a demonstration that no evaluation is needed, the permittee shall submit the resultant information in an electronic format to the Director for review and approval of the AoR results. References: 146.84(e)(4) Submit an amended area of review and corrective action plan or demonstrate to the Director</p>	<p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. EPA believes that incorporating additional</p>

#	Commenter	Comment Text	EPA Response
		<p>through monitoring data and modeling results that no amendment to the area of review and corrective action plan is needed. Any amendments to the area of review and corrective action plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at §§ 144.39 or 144.41 of this chapter, as appropriate.</p> <p>Proposed Revision: G.3. Following each AoR reevaluation or a demonstration that no evaluation is needed, the permittee shall submit either the resultant information updated area of review and corrective action plan in an electronic format to the Director for review and approval of the AoR results, or a demonstration that no update is needed.</p> <p>Comment: The language in the draft permit is awkwardly worded and the reference to “resultant information” is potentially open-ended. The regulation requires the permittee to submit either an amended plan or a demonstration that amendment is unnecessary.</p>	<p>details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.84(b) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based.</p> <p>EPA has not made any change to the permit based on this comment.</p>
6	CSC	<p>Provision: G(3)</p> <p>Text of Draft Permit: 3. Following each AoR reevaluation or a demonstration that no evaluation is needed, the permittee shall submit the resultant information in an electronic format to the Director for review and approval of the AoR results.</p> <p>References: 146.84(e)(4) Submit an amended area of review and corrective action plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the area of review and corrective action plan is needed. Any amendments to the area of review and corrective action plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at §§ 144.39 or 144.41 of this chapter, as appropriate.</p>	<p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. EPA believes that incorporating additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.84(b) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based.</p>

#	Commenter	Comment Text	EPA Response
		<p>Proposed Revision: G.3. Following each AoR reevaluation of a demonstration that no evaluation is needed, the permittee shall submit either the resultant information updated area of review and corrective action plan in an electronic format to the Director for review and approval of the AoR results, or a demonstration that no update is needed.</p> <p>Comment: The language in the draft permit is awkwardly worded and the reference to “resultant information” is potentially open-ended. The regulation requires the permittee to submit either an amended plan or a demonstration that amendment is unnecessary.</p>	<p>EPA has not made any change to the permit based on this comment.</p>
7	ADM	<p>Provision: Appendix B, Boundary Conditions Text of Draft Permit: Boundary Conditions No-flow boundary conditions were applied to the upper and lower boundaries of the model, with the assumption that the reservoir and the caprock are continuous throughout the region. A pore volume multiplier of 1,000 was applied to each cell in the horizontal boundaries of the ECLIPSE model in order to simulate an extensive reservoir. The horizontal boundaries were selected as: hydrostatic initial conditions for the aqueous phase, no-flow conditions for the gas phase, and initial conditions for salt.</p> <p>Proposed Revision: Boundary Conditions No-flow boundary conditions were applied to the upper and lower boundaries of the model, with the assumption that the reservoir and the caprock are continuous throughout the region. A pore volume multiplier of 10,000 was applied to each cell in the horizontal boundaries of the ECLIPSE model in order to simulate an extensive reservoir. The horizontal boundaries were selected as: hydrostatic initial conditions for the aqueous phase, no-flow conditions for the gas phase, and initial conditions for salt.</p>	<p>It appears that the value of 1,000 was a typographical error in ADM’s submittal via the Input Advisor. EPA has evaluated the proposed change. EPA performed an independent evaluation of ADM’s modeling using STOMP, a multi-fluid subsurface flow and transport simulator developed by the Pacific Northwest National Laboratory (PNNL). STOMP does not rely on the pore volume multiplier, therefore EPA has determined that accepting this change would not affect the results of EPA’s independent evaluation of the modeling used to delineate the AoR or alter the determination that the project, as proposed, is protective and meets the requirements of 40 C.F.R. §146.84.</p> <p>Therefore, EPA has made the change as suggested in Attachment B.</p>

#	Commenter	Comment Text	EPA Response
		Comment: Boundary condition multiplier = 1,000. Should be 10,000	
8	Jeffrey Sprague	3.) 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.	<p>EPA conducted an independent evaluation of the AoR modeling effort using STOMP, a multi-fluid subsurface flow and transport simulator developed by the Pacific Northwest National Laboratory (PNNL). The STOMP-CO2 and STOMP-CO2e simulators were designed specifically to investigate GS of CO₂ in deep saline reservoirs such as the Mt. Simon.</p> <p>In its evaluation, EPA assessed ADM’s conceptual model, inputs, model domain, etc. to ensure that the modeling effort meets the requirements of the Class VI Rule and that the model accurately reflects the available site characterization data. The report “Evaluation of Area of Review (AoR) Delineation Modeling: Archer Daniels Midland (ADM) Class VI Injection Project” documents this evaluation, including the model inputs and the results of EPA’s independent modeling. The report is part of the administrative record for the permitting decision and is available upon request. EPA adds that it is not required to provide a temporary license for the software or the input files or provide members of the public an opportunity to conduct their own simulations.</p>
9	ADM	<p>Provision: Appendix B, Triggers</p> <p>Text of Draft Permit:</p> <ul style="list-style-type: none"> • Pressure: Changes in pressure that are unexpected and outside three (3) standard deviations from the average will trigger a new evaluation of the AoR. • Temperature: Changes in temperature that are unexpected and outside three (3) standard deviations from the average will trigger a new evaluation of the AoR. <p>Proposed Revision: • Pressure: Changes in pressure during normal operations that are unexpected and outside three (3) standard deviations from the average will trigger a new</p>	<p>The phrasing of Attachment B specifies that excursions that are unexpected and outside three standard deviations will trigger an AoR revision. Pressure and temperature changes during shutdown and startup of injection operations are not unexpected, and therefore would not trigger an AoR reevaluation.</p> <p>Therefore the suggested revision is unnecessary and was not made.</p>

#	Commenter	Comment Text	EPA Response
		<p>evaluation of the AoR.</p> <ul style="list-style-type: none"> • Temperature: Changes in temperature during normal operation that are unexpected and outside three (3) standard deviations from the average will trigger a new evaluation of the AoR. <p>Comment: During periods of start up and shutdown the temperature and pressure may fluctuate outside three (3) standard deviations and should not trigger an AoR revision.</p>	
10	NRDC	<p>2. Given that injection will only occur for five years, and an alternate Post-Injection Site Care (PISC) timeframe of ten years is proposed, the requirement to re-evaluate the AOR every five years may not be sufficient. <u>EPA should consider requiring a more frequent re-evaluation of the AOR, given the short timeframe of the project.</u></p>	<p>In addition to the formal 5-year AoR reevaluation cycle, ADM will periodically review monitoring and operational data during the injection and post-injection phases, e.g., on an annual basis, as stated in the AoR and Corrective Action Plan (Attachment B to the permit). In addition, if at any time data suggest that a significant change in the size or shape of the actual CO₂ plume as compared to the predicted CO₂ plume is occurring, or that there are deviations from modeled predictions such that the actual plume may extend vertically or horizontally beyond the modeled plume, ADM will initiate an AoR reevaluation according to the procedures in the AoR and Corrective Action Plan. Based on this, EPA believes that the 5-year AoR reevaluation timeframe is sufficient to protect USDWs. Therefore, the permit language has not been modified based upon this comment.</p>
11	FutureGen	<p>In regard to potential CO₂ leakage paths in the Area of Review, only three wells penetrate the confining zone and all of them were drilled and used for the needs of the Illinois Basin- Decatur Project (IBDP). There is a clear knowledge of the state of construction of these wells and none requires corrective action prior the initiation of injection. It is also important to note that the existing domestic water wells have a depth of less than 200 ft.</p>	<p>EPA agrees that only three wells penetrate the confining zone within the AoR and that no wells within the AoR require corrective action at this time. In addition to evaluating ADM's review of the area wells, EPA completed its own independent review of well records at the Illinois State Geological Survey and the Illinois State Water Survey. EPA did not find any improperly constructed artificial penetrations that reach the confining zone.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
12	NRDC	<p>Area of Review ("AOR") and Corrective Action</p> <p>1. It appears that the Applicant relied on well records reviews to identify possible penetrations of the confining zone. <u>The Applicant should provide additional details as to the exact methods that were used to identify existing wells, including a more extensive discussion of the history of the site and any past uses to aid in determining whether other undocumented wells are likely to exist in the AOR. The Applicant must justify a decision to not deploy more advanced methods of locating undocumented wells, such as aeromagnetic surveys.</u> Improperly constructed, maintained, and/or abandoned wells are one of the most likely pathways by which injected fluids may reach USDWs, as has been evidenced by surface leakage of CO₂ at oil fields such as Salt Creek in Wyoming. <u>EPA must require the use of such methods prior to injection if the current sources of information are not sufficiently trustworthy.</u></p>	<p>In addition to evaluating ADM's review of the area wells, EPA completed its own independent review of well records at the Illinois State Geological Survey and the Illinois State Water Survey, including evaluating the locations and depths of each well. EPA reviewed the Illinois well records to identify wells penetrating the confining zone within the AoR, and did not find any wells or artificial penetrations that reach the confining zone, and therefore did not need to evaluate the conditions of the wells in the data base, as all wells in the area are approximately 5,000 feet shallower than the top of the confining zone.</p> <p>In addition, the permit includes a regular monitoring program designed to identify any unknown or unanticipated pathways. See Part M of the permit and Attachment C.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>

SECTION 4. CONSTRUCTION AND PRE-INJECTION TESTING COMMENTS

#	Commenter	Comment Text	EPA Response
1	ADM	<p>Provision: I(2) Text of Draft Permit: 2. Casing and Cementing – Casing and cement or other materials used in the construction of the well must have sufficient structural strength for the life of the geologic sequestration project. All well materials must be compatible with all fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director. The casing and cementing program must prevent the movement of fluids into or between USDWs for the expected life of the well in accordance with 40 CFR 146.86. The casing and cement used in the construction of this well are shown in Attachment G of this permit and in the administrative record for this permit. Any change must be submitted in an electronic format for approval by the Director before installation.</p> <p>Proposed Revision: 2. Casing and Cementing – The permittee has demonstrated to the satisfaction of the Director that the casing and cement or and other materials to be used in the construction of the well must have sufficient structural strength for the life of the geologic sequestration project, . All well materials must be are compatible with all fluids with which the materials may be expected to come into contact, and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director,. The casing and cementing program must prevent the movement of fluids into or between USDWs for the</p>	<p>By issuing a final permit with the same language used in the draft permit, EPA approves the casing and cementing plans submitted by ADM. However, EPA also recognizes that site-specific conditions or new information may present the need to alter the casing and cementing plan. To the extent new information indicates that the casing and/or cementing plans need to be revised, the permit language emphasizes the need to assure compliance with 40 C.F.R. § 146.86 and makes clear the standards against which any necessary revisions would be judged. At that time, ADM may propose to the Director changes in the casing and cementing plan. If any changes to the casing and cementing plans are required, those changes can be made through the permit modification process. Further, as stated in the response to General Comments above, ADM must comply with both its permit and the applicable regulations. Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>expected life of the well in accordance with 40 CFR 146.86. The casing and cement used in the construction of this well are shown in Attachment G of this permit and in administrative record for this permit. Any change must be submitted in an electronic format for approval by the Director before installation.</p> <p>Comment: Condition is written in a way that suggests that compliance requires something beyond following the approved construction plan.</p>	
2	CSC	<p>Provision: I(2)</p> <p>Text of Draft Permit: 2. Casing and Cementing – Casing and cement or other materials used in the construction of the well must have sufficient structural strength for the life of the geologic sequestration project. All well materials must be compatible with all fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director. The casing and cementing program must prevent the movement of fluids into or between USDWs for the expected life of the well in accordance with 40 CFR 146.86. The casing and cement used in the construction of this well are shown in Attachment G of this permit and in the administrative record for this permit. Any change must be submitted in an electronic format for approval by the Director before installation.</p> <p>Proposed Revision: 2. Casing and Cementing – The permittee has demonstrated to the satisfaction of the Director that the casing and cement or and other materials to be used in the construction of the well must have sufficient structural strength for the life of the geologic sequestration project, . All well materials must be are compatible with all fluids with</p>	<p>By issuing a final permit with the same language used in the draft permit, EPA approves the casing and cementing plans submitted by ADM. However, EPA also recognizes that site-specific conditions or new information may present the need to alter the casing and cementing plan. To the extent new information indicates that the casing and/or cementing plans need to be revised, the permit language emphasizes the need to assure compliance with 40 C.F.R. § 146.86 and makes clear the standards against which any necessary revisions would be judged. At that time, ADM may propose to the Director changes in the casing and cementing plan. If any changes to the casing and cementing plans are required, those changes can be made through the permit modification process. Further, as stated in the response to General Comments above, ADM must comply with both its permit and the applicable regulations. Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>which the materials may be expected to come into contact, and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director,. The casing and cementing program must prevent the movement of fluids into or between USDWs for the expected life of the well in accordance with 40 CFR 146.86. The casing and cement used in the construction of this well are shown in Attachment G of this permit</p> <p>Comment: Once again, this condition is written in a way that suggests that compliance requires something beyond following the approved construction plan. That is not the case. It is sufficient for the permittee to follow the construction plan submitted with the permit application and approved in the permit.</p>	
3	CSC	<p>Provision: I(3) Text of Draft Permit: 3. Tubing and Packer Specifications – Tubing and packer materials used in the construction of the well must be compatible with fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director. The permittee shall inject only through tubing with a packer set within the long string casing at a point within or below the confining zone immediately above the injection zone. The tubing and packer used in the well are represented in engineering drawings contained in Attachment G of this permit. Any change must be submitted in an electronic format for approval by the Director before installation. Proposed Revision: 3. Tubing and Packer Specifications – Tubing and packer materials used in the construction of the</p>	<p>By issuing a final permit containing the language as presented in the draft permit, EPA approves the tubing and packer plans submitted by ADM. However, EPA also recognizes that site-specific conditions or new information may present the need to alter the tubing and packer plan. To the extent new information indicates that the Well Construction Plan needs to be revised, ADM will propose to the Director a new plan that complies with 40 C.F.R. § 146.86, and makes clear the standards against which any necessary revisions would be judged. If any changes to the casing and cementing plans are required, those changes can be made through the permit modification process. Further, ADM must comply with both its permit and the regulations. Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>well must be compatible with fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director. The permittee shall inject only through tubing with a packer set within the long string casing at a point within or below the confining zone immediately above the injection zone. The tubing and packer used in the well are as represented in engineering drawings contained in Attachment G of this permit. Any change must be submitted in an electronic format for approval by the Director before installation.</p> <p>Comment: Once again, this condition is written in a way that suggests that compliance requires something beyond following the approved engineering drawings, which is not the case. It is sufficient for the permittee to follow the engineering drawings submitted with the permit application and approved in the permit.</p>	
4	ADM	<p>Provision: Appendix G, Tubing Specification Text of Draft Permit: Outside Diameter (inches) 4 1/2 References: Proposed Revision: Outside Diameter (inches) 5 1/2 Comment: Tubing size is incorrectly stated as 4 1/2". Tubing size is 5 1/2 " 17#.</p>	<p>EPA has reviewed the proposed change and determined that the well, as proposed and with 5 1/2-inch tubing, will be constructed in a manner that meets the goals of 40 C.F.R. § 146.86. Therefore, EPA has revised Attachment G to correct the typographical error.</p>
5	CSC	<p>Section J(1)(d) of the draft permits appears to require that "tests" be conducted to determine "fracture pressure and the physical and chemical characteristics of the injection and confining zones". Yet, the applicable provision of section 146.87(d) only requires that "the owner or operator must determine or calculate" these items. As we understand the situation, in the case of this particular permit, testing has already been conducted in well CCS #1 that should be sufficient. Accordingly, further testing should be completely</p>	<p>Fracture pressures and physical and chemical characteristics can vary between geologic formations, even when they are of comparable depths and/or rock types. Therefore, determining fracture pressures and other formation characteristics accurately requires some testing as part of an analysis. Information collected from tests of nearby wells may be confidently used without the need to collect data from the well being drilled. In those cases, the required test may collect the necessary information in a nearby well and be applied to the subject well via a corresponding</p>

#	Commenter	Comment Text	EPA Response
		<p>optional if sufficient information is already available. Our attached detailed comments provide alternative language to achieve this result.</p>	<p>calculation. In the case of ADM, actual testing of the formation is necessary to accurately determine fracture pressures, physical and chemical characterization and hence safe operating limits. Since this information may be applicable to the immediate area, this testing is not required at every well but still needs to be gathered.</p> <p>To the extent this provision goes beyond the specific language of the regulation, EPA may add permit requirements beyond those laid out specifically in the UIC regulations on a case-by-case basis under 40 C.F.R. § 144.52(a)(9) (case-by-case conditions as necessary to prevent migration) and § 144.52(b) (case-by-case conditions as required to provide for and assure compliance with all applicable requirements of the SDWA and regulations). This provision is a rational extension of the regulatory language, and is in place to assure protection of the well, the USDWs, and ADM. Protective language is especially important here, as this is one of the first Class VI wells operated at this scale in the United States and accurate characterization of the injection and confining zones is a central part of the Class VI regulatory provisions.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>
6	ADM	<p>Provision: J(1)(b) & J(1)(d) Text of Draft Permit: Whole cores or sidewall cores of the injection zone and confining system and formation fluid samples from the injection zone that meet the requirements of 40 CFR 146.87(b); References: 40 CFR 146.87(b) The owner or operator must take whole cores or sidewall cores of the injection zone and confining system and formation fluid samples from the injection zone(s), 40 CFR 146.87(d) At a minimum, the owner or operator must determine or calculate the following</p>	<p>EPA agrees that the fluid samples need not be taken at the injection well if information from nearby wells will provide representative information that can validate the assumptions on which the permit conditions are based and serve as a baseline against which future monitoring results can be compared.</p> <p>However, EPA understands, as documented in Table 9 of the Testing and Monitoring Plan, that baseline fluid sampling of the Mt. Simon will be done at VW#1, not VW#2. Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>information concerning the injection and confining zone(s): (3) Physical and chemical characteristics of the formation fluids in the injection zone(s). Proposed Revision: Clarification Only Comment: The regulations state that fluid samples must be taken from the injection zone but do not require that these samples be taken from the injection well itself. The draft condition uses essentially similar language, meaning that the fluid samples need not be taken directly from the injection zone. The permittee plans to collect the requisite injection zone fluid samples from VW#2.</p>	
7	ADM	<p>Provision: J(1)(d) Text of Draft Permit: (d) Tests to provide information about the injection and confining zones, including calculated fracture pressure and the physical and chemical characteristics of the injection and confining zones and the formation fluids in the injection zone that meet the requirements of 40 CFR 146.87(d); and References: 146.87(d) At a minimum, the owner or operator must determine or calculate the following information concerning the injection and confining zone(s): (1) Fracture pressure; (2) Other physical and chemical characteristics of the injection and confining zone(s); and (3) Physical and chemical characteristics of the formation fluids in the injection zone(s). Proposed Revision: (d) Tests as necessary to provide information about the injection and confining zones, including to allow determination or calculation of fracture pressure and the physical and chemical characteristics of the injection and confining zones and the formation fluids in the injection zone that meet the requirements of 40 CFR 146.87(d); and</p>	<p>Information collected from tests of nearby wells may be confidently used without the need to collect data from the well being drilled. In those cases, the required test may collect the necessary information in a nearby well and be applied to the subject well via a corresponding calculation. In the case of ADM, actual testing of the formation is necessary to accurately determine fracture pressures, physical and chemical characterization and hence safe operating limits. Since this information may be applicable to the immediate area, this testing is not required at every well but still needs to be gathered. The proposed change follows the regulatory requirements, which point out that collection of some data may be unnecessary when data collected nearby meets that need. The suggested change is incorporated into the final permit.</p>

#	Commenter	Comment Text	EPA Response
		<p>Comment: The applicable provision here is to make a determination or calculation. This may not require any additional testing.</p>	
8	CSC	<p>Provision: J(1)(d) Text of Draft Permit: (d) Tests to provide information about the injection and confining zones, including calculated fracture pressure and the physical and chemical characteristics of the injection and confining zones and the formation fluids in the injection zone that meet the requirements of 40 CFR 146.87(d); and References: 146.87(d) At a minimum, the owner or operator must determine or calculate the following information concerning the injection and confining zone(s): (1) Fracture pressure; (2) Other physical and chemical characteristics of the injection and confining zone(s); and (3) Physical and chemical characteristics of the formation fluids in the injection zone(s). Proposed Revision: (d) Tests as necessary to provide information about the injection and confining zones, including to allow determination or calculation of characteristics of the injection and confining zones and the formation fluids in the injection zone that meet the requirements of 40 CFR 146.87(d); and fracture pressure and the physical and chemical Comment: The applicable provision here is to make a determination or calculation. It may not be necessary to conduct any additional testing if the information already available is sufficient to support the determination or calculation.</p>	<p>Information collected from tests of nearby wells may be confidently used without the need to collect data from the well being drilled. In those cases, the required test may collect the necessary information in a nearby well and be applied to the subject well via a corresponding calculation. In the case of ADM, actual testing of the formation is necessary to accurately determine fracture pressures, physical and chemical characterization and hence safe operating limits. Since this information may be applicable to the immediate area, this testing is not required at every well but still needs to be gathered. The proposed change follows the regulatory requirements, which point out that collection of some data may be unnecessary when data collected nearby meets that need. The suggested change is incorporated into the final permit.</p>
9	Jeffrey Sprague	4.) The need for a more thorough understanding of the lithologic properties and lithofacies characteristics of the Mt.	EPA notes that ADM is required to submit core samples of the injection zone, per Part J(1)(b) of the permit, which is consistent

#	Commenter	Comment Text	EPA Response
		<p>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.</p>	<p>with the requirements of the Class VI rule. These additional data will be evaluated before injection may begin, under Part Q of the permit. Therefore, the permit language has not been modified based upon this comment.</p> <p>EPA believes that the information that ADM will collect as part of the pre-injection testing required at 40 C.F.R. § 146.87, combined with information on the confining zone submitted with ADM's permit application and reviewed by EPA, provide sufficient information on which to validate the modeling inputs and support its determination that the CO₂ injection will not endanger USDWs.</p>
10	NRDC	<p>Logging, Sampling, & Testing</p> <p>1. The logging, sampling, and testing provisions at 40 CFR 146.87 require owners or operators of Class VI wells to collect various data during and after drilling of the injection well. The permit application does not appear to include provisions to perform some of these tests and/or obtain samples as required by the following sections:</p> <p>a. 40 CFR 146.87(c): The owner or operator must record the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the injection zone(s).</p> <p>b. 40 CFR 146.87(d)(1)-(3): At a minimum, the owner or operator must determine or calculate the following information concerning the injection and confining zone(s): Fracture pressure; Other physical and chemical characteristics of the injection and confining zone(s); and Physical and chemical characteristics of the formation fluids in the injection zone(s).</p> <p>Such site-specific data is necessary to accurately calculate the AOR and determine appropriate operating conditions such as the maximum allowable injection pressure. EPA must require</p>	<p>EPA notes that the requirements at 40 C.F.R. § 146.87(c) are incorporated in the permit in Part J(1)(c). The requirements in 40 C.F.R. § 146.87(d)(1)-(3) are incorporated into the permit at Part J(1)(d). Therefore, the permit language has not been modified based upon this comment.</p> <p>The results of these tests will be evaluated before injection may begin, under Part Q of the permit.</p>

#	Commenter	Comment Text	EPA Response
		the Applicant to perform these tests and/or obtain samples as required by Class VI rules.	

SECTION 5. OPERATIONS COMMENTS

#	Commenter	Comment Text	EPA Response
1	ADM	<p>Provision: K(1) Text of Draft Permit: 1. Injection Pressure Limitation – Except during stimulation, the permittee must ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case shall injection pressure initiate fractures or propagate existing fractures in the confining zone or cause the movement of injection or formation fluids into a USDW. The maximum injection pressure limit is listed in Attachment A.</p> <p>Proposed Revision: 1. Injection Pressure Limitation – Except during stimulation, the permittee must ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case shall injection pressure initiate fractures or propagate existing fractures in the confining zone or cause the movement of injection or formation fluids into a USDW. the maximum injection pressure limit is listed in Attachment A.</p> <p>Comment: The applicable requirement is to comply with the maximum pressure limitation in the permit. The rest of what is specified in this condition has already been accomplished as a basis for setting that limit.</p>	<p>Although the maximum injection pressure listed in Attachment A is calculated to set a limit at 90 percent of the fracture pressure of the injection zone(s) based on the information currently available, as additional information becomes available, that calculated value may change. To the extent new information indicates that the current value in Attachment A exceeds 90 percent of the fracture pressure of the injection zone(s), the maximum injection pressure should be reduced even before any conforming change is made to the permit. This ensures compliance with the regulatory standard in 40 C.F.R. § 146.88(a) and protection of USDWs. Similarly, although it is very unlikely, it may be possible for ADM to initiate new fractures or propagate existing fractures in the injection or confining zones, or cause the movement of injection or formation fluid into a USDW, even if they comply with the maximum injection pressure limitation. In that case, injection pressure would also need to be reduced to protect USDWs and to comply with 40 C.F.R. § 146.88(a).</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
2	CSC	<p>Provision: K(1) Text of Draft Permit: 1. Injection Pressure Limitation – Except during stimulation, the permittee must ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case shall injection pressure initiate fractures or propagate existing fractures in the confining zone or cause the movement of injection or formation fluids into a USDW. The maximum injection pressure limit is listed in Attachment A.</p> <p>References: Attachment A states: The maximum injection pressure, which serves to prevent confining-formation fracturing, was determined using the following formula/methodology: · For maximum injection pressure using a downhole pressure gauge, the maximum pressure is calculated as follows: 90% of fracture pressure of the injection zone. Therefore, the maximum injection pressure using downhole pressure gauge is 2,252 psia or $2,252 - 14.7 = 2,237$ psig. · For surface maximum wellhead injection pressure, this limitation was calculated using the following formula: $\{90\% \text{ of fracture gradient} - (0.433 \text{ psi/ft})(\text{specific gravity})\} \times \text{upper depth of perforated interval} - \text{atmospheric pressure}$. The maximum wellhead injection pressure is: $\{0.585 - (0.433)(0.64)\}3850 - 14.7 = 1,171$ psig.</p> <p>Proposed Revision: 1. Injection Pressure Limitation – Except during stimulation, the permittee must ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case shall injection pressure</p>	<p>Although the maximum injection pressure listed in Attachment A is calculated to set a limit at 90 percent of the fracture pressure of the injection zone(s) based on the information currently available, as additional information becomes available, that calculated value may change. To the extent new information indicates that the current value in Attachment A exceeds 90 percent of the fracture pressure of the injection zone(s), the maximum injection pressure should be reduced even before any conforming change is made to the permit. This ensures compliance with the regulatory standard in 40 C.F.R. § 146.88(a) and protection of USDWs. Similarly, although it is very unlikely, it may be possible for ADM to initiate new fractures or propagate existing fractures in the injection or confining zones, or cause the movement of injection or formation fluid into a USDW, even if they comply with the maximum injection pressure limitation. In that case, injection pressure would also need to be reduced to protect USDWs and to comply with 40 C.F.R. § 146.88(a).</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>initiate fractures or propagate existing fractures in the confining zone or cause the movement of injection or formation fluids into a USDW. the maximum injection pressure limit is listed in Attachment A.</p> <p>Comment: The applicable requirement is to comply with the maximum pressure limitation in the permit. The rest of what is specified in this condition has already been accomplished as a basis for setting that limit.</p>	
3	CSC	<p>Section K(1) of the draft permits inappropriately recites the regulatory requirements for determining the maximum injection pressure as if those requirements constitute additional permit conditions and, only after doing so, then states that “[t]he maximum injection pressure limit is listed in Attachment A”. Referring to Attachment A confirms that the stated maximum injection pressure has been approved as properly calculated in accordance with the regulatory provisions. It can only be confusing to state this permit condition as if it constitutes a number of different requirements that must also be met. Compliance with the maximum injection pressures in Attachment A constitutes compliance with the regulatory requirement, which does not need to be restated in the condition in addition to being fully stated and explained in Attachment A.</p>	<p>Although the maximum injection pressure listed in Attachment A is calculated to set a limit at 90 percent of the fracture pressure of the injection zone(s) based on the information currently available, as additional information becomes available, that calculated value may change. To the extent new information indicates that the current value in Attachment A exceeds 90 percent of the fracture pressure of the injection zone(s), the maximum injection pressure should be reduced even before any conforming change is made to the permit. This ensures compliance with the regulatory standard in 40 C.F.R. § 146.88(a) and protection of USDWs. Similarly, although it is very unlikely, it may be possible for ADM to initiate new fractures or propagate existing fractures in the injection or confining zones, or cause the movement of injection or formation fluid into a USDW, even if they comply with the maximum injection pressure limitation. In that case, injection pressure would also need to be reduced to protect USDWs and to comply with 40 C.F.R. § 146.88(a).</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
4	ADM	<p>Provision: K(8) Text of Draft Permit: 8. Circumstances Under Which Injection Must Cease – Injection shall cease when any of the following circumstances arises:</p> <ul style="list-style-type: none"> (a) Failure of the well to pass a mechanical integrity test; (b) A loss of mechanical integrity during operation; (c) The automatic alarm or automatic shut-off system is triggered; (d) A significant unexpected change in the annulus or injection pressure; (e) The Director determines that the well lacks mechanical integrity; or (f) The permittee is unable to maintain compliance with any permit condition or regulatory requirement and the Director determines that injection should cease. <p>References: 146.88(f) If a shutdown (i.e., down-hole or at the surface) is triggered or a loss of mechanical integrity is discovered, the owner or operator must immediately investigate and identify as expeditiously as possible the cause of the shutoff. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraph (e) of this section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator must: (1) Immediately cease injection; (2) Take all steps reasonably necessary to determine whether there may have been a release of the injected carbon dioxide stream or formation fluids into any unauthorized zone; (3) Notify the Director within 24 hours; (4) Restore and demonstrate mechanical integrity to the satisfaction of the Director prior to resuming injection; and (5) Notify the Director when injection can be expected to resume.</p> <p>146.94(b) If the owner or operator obtains evidence that the</p>	<p>Some level of variation in annulus or injection pressure is typical of well operation, and some planned events (such as well start up or tests) will create more substantial variations by design. However, unanticipated variations may be indicators of a potential loss of mechanical integrity and/or fracturing of the injection and/or confining formations. It is difficult to define the precise levels that may trigger these requirements, especially when the wells are not yet operational. As ADM and EPA gain more actual experience, it may be feasible to lay out more specific ground rules through modifications to the permit and/or incorporated plans. In the meantime, however, this provision requires ADM to make reasonable judgments on when it views an unanticipated variation as significant. If that creates an incentive for ADM to be cautious about this decision in the absence of more precise standards, that incentive is appropriate given the potential risks associated with injection into a well without mechanical or geological integrity. To the extent this provision goes beyond the specific language of the regulation, EPA may add permit requirements beyond those laid out specifically in the UIC regulations on a case-by-case basis under 40 C.F.R. § 144.52(a)(9) (case-by-case conditions as necessary to prevent migration) and § 144.52(b) (case-by-case conditions as required to provide for and ensure compliance with all applicable requirements of the SDWA and regulations).</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>injected carbon dioxide stream and associated pressure front may cause an endangerment to a USDW, the owner or operator must:</p> <ul style="list-style-type: none"> (1) Immediately cease injection; (2) Take all steps reasonably necessary to identify and characterize any release; (3) Notify the Director within 24 hours; and (4) Implement the emergency and remedial response plan approved by the Director. <p>Proposed Revision:</p> <p>8. Circumstances Under Which Injection Must Cease – Injection shall cease when any of the following circumstances arises:</p> <ul style="list-style-type: none"> (a) Failure of the well to pass a mechanical integrity test; (b) A confirmed loss of mechanical integrity during operation; (c) If, upon investigation, the well appears to be lacking mechanical integrity after <ul style="list-style-type: none"> (1) the automatic alarm or automatic shut-off system is triggered or ; (d2) A significant unexpected change in the annulus or injection pressure; (ed) The Director determines that the well lacks mechanical integrity; or (fe) The permittee is unable to maintain compliance with any permit condition or regulatory requirement and the Director determines that injection should cease. <p>Comment: The permit condition is not consistent with the regulatory requirement, and the requirement to cease injection when there is “a significant unexpected change in the annulus or injection pressure” is ambiguous.</p>	

#	Commenter	Comment Text	EPA Response
5	CSC	<p>Section K(8) of the draft permits incorrectly states that injection must cease if “[t]he automatic alarm or automatic shut-off system is triggered” or if “[a] significant unexpected change in the annulus or injection pressure” occurs. Cessation of injection is required in such circumstances only if, “upon investigation, the well appears to be lacking mechanical integrity” after the event occurs. Our detailed comments provide an appropriate revision to make this condition consistent with the regulatory requirements of sections 146.88(f) and 146.94(b).</p>	<p>While 40 C.F.R. § 146.88(f) might permit a well to resume operating while the “owner or operator ... immediately investigate[s] and identif[ies] as expeditiously as possible the cause of the shutoff,” EPA believes it is a reasonable and appropriate precaution to cease operations while that immediate investigation proceeds. The same is true with respect to any significant unexpected change in annulus or injection pressure. All of these occurrences are indicators of a potential loss of mechanical integrity and/or fracturing of the injection and/or confining formations. If the facility were to resume injection before completing an investigation, its investigation may confirm that the well lacked integrity or that injection damaged the formation and that its interim injection activities caused significant violations of the permit and threats to USDWs. Shutting a well in when a loss of mechanical integrity is suspected limits the potential for endangering USDWs as well as limiting ADM’s exposure to potentially serious violations. By ceasing injection, ADM will limit CO₂ volumes associated with the event, isolate the injectate, and minimize the risk of subsurface fluid movement and associated problems that may endanger USDWs.</p> <p>To the extent this provision goes beyond the specific language of the regulation, EPA may add permit requirements beyond those laid out specifically in the UIC regulations on a case-by-case basis under 40 C.F.R. § 144.52(a)(9) (case-by-case conditions as necessary to prevent migration) and § 144.52(b) (case-by-case conditions as required to provide for and ensure compliance with all applicable requirements of the SDWA and regulations). This provision is a rational extension of the regulatory language, and is in place to ensure protection of the well, the USDWs, and ADM. Protective language is especially important here, as this is one of the first Class VI wells operated at this scale in the United States.</p>

#	Commenter	Comment Text	EPA Response
			Therefore, the permit language has not been modified based upon this comment.
6	CSC	<p>Provision: K(8) Text of Draft Permit: 8. Circumstances Under Which Injection Must Cease – Injection shall cease when any of the following circumstances arises:</p> <ul style="list-style-type: none"> (a) Failure of the well to pass a mechanical integrity test; (b) A loss of mechanical integrity during operation; (c) The automatic alarm or automatic shut-off system is triggered; (d) A significant unexpected change in the annulus or injection pressure; (e) The Director determines that the well lacks mechanical integrity; or (f) The permittee is unable to maintain compliance with any permit condition or regulatory requirement and the Director determines that injection should cease. <p>References: 146.88(f) If a shutdown (i.e., down-hole or at the surface) is triggered or a loss of mechanical integrity is discovered, the owner or operator must immediately investigate and identify as expeditiously as possible the cause of the shutoff. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraph (e) of this section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator must: (1) Immediately cease injection; (2) Take all steps reasonably necessary to determine whether there may have been a release of the injected carbon dioxide stream or formation fluids into any unauthorized zone; (3) Notify the Director within 24 hours; (4) Restore and demonstrate mechanical integrity to the satisfaction of the Director prior</p>	<p>Some level of variation in annulus or injection pressure is typical of well operation, and some planned events (such as well start up or tests) will create more substantial variations by design. However, as noted above, significant, unanticipated variations may be indicators of a potential loss of mechanical integrity and/or fracturing of the injection and/or confining formations. It is difficult to define the precise levels that may trigger these requirements, especially when the wells are not yet operational. As ADM and EPA gain more actual experience, it may be feasible to lay out more specific ground rules through modifications to the permit and/or incorporated plans. In the meantime, however, this provision requires ADM to make reasonable judgments on when it views an unanticipated variation as significant. If that creates an incentive for ADM to be cautious about this decision in the absence of more precise standards, that incentive is appropriate given the potential risks associated with injection into a well without mechanical or geological integrity. To the extent this provision goes beyond the specific language of the regulation, EPA may add permit requirements beyond those laid out specifically in the UIC regulations on a case-by-case basis under 40 C.F.R. § 144.52(a)(9) (case-by-case conditions as necessary to prevent migration) and § 144.52(b) (case-by-case conditions as required to provide for and ensure compliance with all applicable requirements of the SDWA and regulations).</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment Text	EPA Response
		<p>to resuming injection; and (5) Notify the Director when injection can be expected to resume.</p> <p>146.94(b) If the owner or operator obtains evidence that the injected carbon dioxide stream and associated pressure front may cause an endangerment to a USDW, the owner or operator must:</p> <p>(1) Immediately cease injection;</p> <p>(2) Take all steps reasonably necessary to identify and characterize any release;</p> <p>(3) Notify the Director within 24 hours; and (4) Implement the emergency and remedial response plan approved by the Director.</p> <p>Proposed Revision:</p> <p>8. Circumstances Under Which Injection Must Cease – Injection shall cease when any of the following circumstances arises:</p> <p>(a) Failure of the well to pass a mechanical integrity test;</p> <p>(b) A confirmed loss of mechanical integrity during operation;</p> <p>(c) If, upon investigation, the well appears to be lacking mechanical integrity after</p> <p>(1) the automatic alarm or automatic shut-off system is triggered or ;</p> <p>(e2) A significant unexpected change in the annulus or injection pressure;</p> <p>(ed) The Director determines that the well lacks mechanical integrity; or</p> <p>(fe) The permittee is unable to maintain compliance with any permit condition or regulatory requirement and the Director determines that injection should cease.</p> <p>Comment: The permit condition is not consistent with the regulatory requirement, and the requirement to cease injection when there is “a significant unexpected change in</p>	

#	Commenter	Comment Text	EPA Response
		<p>the annulus or injection pressure” is very ambiguous and potentially troublesome. The recommendations for revised language will modify the permit conditions to be consistent with the applicable regulatory provisions which trigger investigations rather than automatic shutdowns. Cessation of injection must occur only when there is a reason to believe that a loss of mechanical integrity may have occurred. The “significant unexpected change” language remains ambiguous, and there should be some better understanding of how large these unexpected changes should be. For example, any change in annular pressure should be larger by more than double the magnitude of normal diurnal and temperature related fluctuations. The significance levels for these triggers should be established by written agreement once operating experience provides a basis for doing that.</p>	
7	ADM	<p>Provision: K(9)(a) Text of Draft Permit: (a) The permittee must shut-in the well by gradual reduction in the injection pressure as outlined in Attachment C of this permit; or Proposed Revision: (a) The permittee must shut-in the well in a manner to ensure protection of health, safety, and the environment as outlined in Attachments A & C of this permit; or Comment: Permittee will have a standard shutdown procedure that ensures protection of health, safety, and the environment. The regulations do not require this procedure (outside of the ERRP) be detailed as a permit condition. The permittee must have the freedom to exercise judgement as to the type of shutdown to employ under various non-emergency conditions.</p>	<p>EPA revised the permit to read: (a) The permittee must shut-in the well by gradual reduction in the injection pressure as outlined in Attachment A of this permit.</p> <p>EPA did not make the other suggested changes, as the reference to protection of health and safety is already included in Attachment A to which the permit refers.</p>

#	Commenter	Comment Text	EPA Response
8	ADM	<p>Provision: Appendix A, Injection Well Operating Conditions Text of Draft Permit: PARAMETER/CONDITION Annulus Pressure = 100 minimum psig Annulus Pressure/Tubing Differential = 100 psig above surface injection pressure</p> <p>Proposed Revision: PARAMETER/CONDITION Annulus Pressure = 400 psig minimum Annulus - Tubing Pressure Differential at Tubing Packer = 100 psig minimum</p> <p>Comment: The table is not correct and needs to accurately reflect what is detailed in the Testing and Monitoring Plan. From the Testing and Monitoring Plan page C5 the permittee will:</p> <ol style="list-style-type: none"> 2. The surface annulus pressure will be kept at a minimum of 400 pounds per square inch (psi) during injection, 4. The pressure within the annular space, over the interval above the packer to the confining layer, will be greater than the pressure of the injection zone formation at all times, and 5. The pressure in the annular space directly above the packer will be maintained at least 100 psi higher than the adjacent tubing pressure during injection. 	<p>EPA changed the table in Attachment A as suggested by the commenter. This revision matches the requirements in the Testing and Monitoring Plan and has been determined by EPA to retain the protectiveness of the operating conditions of the permit.</p>
9	ADM	<p>Provision: Appendix A, Summary Requirements Text of Draft Permit: Under routine conditions (e.g., for well workovers), the permittee will reduce CO2 injection at a rate of 500 tons per day over a 6 day period to ensure protection of health, safety, and the environment. (Procedures that address immediately shutting in the well are in Attachment F (Emergency and Remedial Response Plan) of this permit). Proposed Revision: Under routine conditions (e.g., for well workovers), the permittee will reduce CO2 injection at a rate of 500 tons per day over a 6 day period to ensure protection of health, safety, and the environment. (Procedures that</p>	<p>EPA believes that specific procedures, i.e., related to the rate at which gradual cessation of injection that are in Attachment A (and provided by ADM) are appropriate to ensure that injection rates are reduced gradually in a manner that will not impose unacceptable stress on the injection well where it is necessary to cease injection, but immediate cessation (e.g., due to an emergency event), is not needed. However, EPA acknowledges that, based on the specific circumstances of the workover or other event that necessitates a gradual shutdown, a different reduction in the injection rate may be appropriate. Therefore, EPA has revised the text in Attachment A to read as follows:</p>

#	Commenter	Comment Text	EPA Response
		<p>address immediately shutting in the well are in Attachment F (Emergency and Remedial Response Plan) of this permit).</p> <p>Comment: Permittee will have a standard shutdown procedure that ensures protection of health, safety, and the environment. The regulations do not require this procedure (outside of the ERRP) be detailed as a permit condition. The permittee must have the freedom to exercise judgement as to the type of shutdown to employ under various non-emergency conditions</p>	<p>“Under routine conditions (e.g., for well workovers), the permittee will reduce CO₂ injection at a rate of 500 tons per day over a 6 day period <u>(or at a rate specified by the permittee and approved by the Director prior to the workover or other activity that necessitates cessation of injection)</u>, to ensure protection of health, safety, and the environment.” EPA expects that any changes in the specific procedures from what is contained in Attachment A would be included in advance notification of a workover or other event submitted by ADM.</p> <p>To the extent this provision goes beyond the specific language of the regulation, EPA may add permit requirements beyond those laid out specifically in the UIC regulations on a case-by-case basis under 40 C.F.R. § 144.52(a)(9) (case-by-case conditions as necessary to prevent migration) and § 144.52(b) (case-by-case conditions as required to provide for and ensure compliance with all applicable requirements of the SDWA and regulations). This provision is a rational extension of the regulatory language, and is in place to ensure protection of the well, the USDWs, and ADM. Protective language is especially important here, as this is one of the first Class VI wells operated at this scale in the United States.</p>

SECTION 6. TESTING AND MONITORING COMMENTS

#	Commenter	Comment	EPA Response
1	FutureGen	The monitoring efforts, methods of measurements, and the verification and accounting protocols implemented on the site to ensure safe and effective sequestration operations appear to be extremely protective of both the USDW and the shallow drinking water aquifers.	Thank you for your comment. This comment does not request or require any change to the permit.
2	ADM	<p>Provision: QASP, Table 1</p> <p>Text of Draft Permit: Table 1 on Page 6.</p> <p>Proposed Revision: Delete Table 1 from Page 6 but include the notes at the bottom of the table.</p> <p>Comment: Duplication of previous page, last 2 lines can be removed or combined. Line 1 should be "direct geochemical measurement" rather than "groundwater monitoring"</p>	<p>EPA has reviewed the comment and determined that the proposed change will provide clarity and not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised the QASP to incorporate the suggested revision.</p>
3	ADM	<p>Provision: QASP, Table 4</p> <p>Quaternary Strata Fluid Sampling</p> <p>Text of Draft Permit: Parameters Analytical Methods Water Density(field) Oscillating body method</p> <p>Proposed Revision: Parameters Analytical Methods</p> <p>Water Density(field) Oscillating body method</p> <p>Comment: Permittee does not plan to measure the shallow groundwater density. Delete reference to Water Density in this table.</p>	<p>EPA has reviewed the proposed change and determined that not measuring the shallow groundwater density will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised the QASP to incorporate the suggested revision.</p>

#	Commenter	Comment	EPA Response
4	ADM	<p>Provision: QASP, Table 10 Westbay Pressures (MOSDAX)</p> <p>Text of Draft Permit: Detection Limit Precision +/- 0.001 psi +/- 0.01 psi</p> <p>References:</p> <p>Proposed Revision: Detection Limit Precision +/- 0.01 psi +/- 0.1 psi</p> <p>Comment: Revise detection limit and precision for WB MOSDAX probes.</p>	<p>EPA has reviewed the comment and determined that the proposed change will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised the QASP to incorporate the suggested revision.</p>
5	ADM	<p>Provision: QASP, A.4.b. Precision</p> <p>Text of Draft Permit: For groundwater sampling, data accuracy will be assessed by the collection and analysis of field blanks to test sampling procedures and matrix spikes to test lab procedures. Field blanks will be taken no less than one per sampling day to spot check for sample bottle contamination. Laboratory assessment of analytical precision will be the responsibility of the individual laboratories per their standard operating procedures.</p> <p>Proposed Revision: For groundwater sampling, data accuracy will be assessed by the collection and analysis of field blanks to test sampling procedures and matrix spikes to test lab procedures. Field blanks will be taken no less than one per sampling day event to spot check for sample bottle contamination. Laboratory assessment of analytical precision will be the responsibility of the individual laboratories per their standard operating procedures.</p> <p>Comment: Permittee will take field blanks no less than one per sampling event.</p>	<p>EPA has reviewed the comment and determined that the proposed change will not impact the protectiveness of the Testing and Monitoring Plan. Since sampling will be conducted quarterly at most, there should be no difference between a “sampling day” and a “sampling event.”</p> <p>Therefore, EPA has revised the QASP to incorporate the suggested revision.</p>
6	ADM	<p>Provision: QASP, A.4.g. Method Sensitivity</p> <p>Text of Draft Permit: Table 14–Table 19 provide additional details on gauge specifications and sensitivities.</p>	<p>EPA agrees that this typographical error should be corrected. The requested change has been made.</p>

#	Commenter	Comment	EPA Response
		<p>Proposed Revision: Tables 14–19 provide additional details on gauge specifications and sensitivities.</p> <p>Comment: There is a typo there shouldn't be a carriage return between "Table 14-" and "Table 19 - ..."</p>	
7	ADM	<p>Provision: QASP, B.1.f. Critical/Informational Data</p> <p>Text of Draft Permit: During both groundwater sampling and analytical efforts, detailed field and laboratory documentation will be taken. Documentation will be recorded in field and laboratory forms and notebooks. Critical information will include time and date of activity, person/s performing activity, location of activity (wellfield sampling) or instrument (lab analysis), field or laboratory instrument calibration data, purge volume, field parameter values. For laboratory analyses, much of the critical data are generated during the analysis and provided to end users in digital and printed formats. Noncritical data may include appearance and odor of the sample, problems with well or sampling equipment, and weather conditions.</p> <p>Proposed Revision: During both groundwater sampling and analytical efforts, detailed field and laboratory documentation will be taken. Documentation will be recorded in field and laboratory forms and notebooks. Critical information will include time and date of activity, person/s performing activity, location of activity (wellfield sampling) or instrument (lab analysis), field or laboratory instrument calibration data, purge volume, field parameter values. For laboratory analyses, much of the critical data are generated during the analysis and provided to end users in digital and printed formats. Noncritical data may include appearance and odor of the sample, problems with well or sampling equipment, and weather conditions.</p> <p>Comment: Permittee does not plan to record groundwater</p>	<p>EPA has reviewed the comment and determined that the proposed change will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised the QASP to incorporate the suggested revision.</p>

#	Commenter	Comment	EPA Response
		sample purge volumes. This would be difficult or impossible to measure or calculate.	
8	ADM	<p>Provision: QASP, B.1.g. Sources of Variability</p> <p>Text of Draft Permit: (7) conducting laboratory quality assurance checks using third party reference materials, blind and replicate sample checks, and</p> <p>Proposed Revision: (7) conducting laboratory quality assurance checks using third party reference materials, and/or blind, and/or replicate sample checks, and</p> <p>Comment: On page 25, under Sources of Variability, it mentions conducting lab quality checks using third party reference materials, and blind and replicate sample checks. This should have an "or" instead of "and" we do not do all of these.</p>	<p>EPA has reviewed the comment and determined that the proposed change will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised the QASP to incorporate the suggested revision.</p>
9	ADM	<p>Provision: QASP, B.3. Sample Handling and Custody</p> <p>Text of Draft Permit: Sample holding times (Table 22) will be consistent with those described in US EPA (1974), American Public Health Association (APHA, 2005), Wood (1976), and ASTM Method D6517-00 (2005). After collection, samples will be placed in ice chests in the field and maintained thereafter at approximately 4°C until analysis. The samples will be maintained at their preservation temperature and sent to the designated laboratory within 24 hours. Analysis of the samples will be completed within the holding time listed in Table 22.</p> <p>Proposed Revision: Sample holding times (Table 22) will be consistent with those described in US EPA (1974), American Public Health Association (APHA, 2005), Wood (1976), and ASTM Method D6517-00 (2005). After collection, samples will be placed in ice chests in the field and maintained thereafter at approximately 4°C until analysis. The samples will be maintained at their preservation temperature and sent to the designated laboratory within 24 hours. Analysis of the</p>	<p>EPA has reviewed the comment and determined that the proposed change will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised the referenced language in the QASP as follows, to reflect a slight revision from the suggested change: "As appropriate, alternative sample containers and preservation techniques <u>approved by the UIC Program Director</u> will be used to meet analytical requirements."</p>

#	Commenter	Comment	EPA Response
		<p>samples will be completed within the holding time listed in Table 22. As appropriate, alternative sample containers and preservation techniques will be used to meet analytical requirements.</p> <p>Comment: Permittee may need to modify sample containers and preservation techniques but these techniques will be used to meet analytical requirements.</p>	
10	ADM	<p>Provision: QASP, Table of Contents Text of Draft Permit: ASTM, 2005, Method D6452-99 (reapproved 2005), Standard Guide for Purging Methods for Wells Used for Ground-Water Quality Investigations, ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA. Proposed Revision: ASTM, 2005, Method D6452-99 (reapproved 2005), Standard Guide for Purging Methods for Wells Used for Ground-Water Quality Investigations, ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA.</p> <p>Comment: Error in the table of contents. An actual reference is listed in the table of contents and should be deleted from this table.</p>	EPA agrees that this typographical error should be corrected. The requested change has been made.
11	ADM	<p>Provision: Table 2 Sampling/Monitoring Locations Text of Draft Permit: Injection Pressure Monitoring Reservoir - Below Packer Temperature Monitoring Reservoir - Below Packer Temperature Monitoring Along wellbore using distributed temperature sensor (DTS) Proposed Revision: Injection Pressure Monitoring Reservoir - Proximate to Packer Temperature Monitoring Reservoir - Proximate to Packer Temperature Monitoring Along wellbore to packer using distributed temperature sensor (DTS)</p>	<p>EPA has reviewed the comment and determined that the proposed change will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised Attachment C to incorporate the suggested revision.</p>

#	Commenter	Comment	EPA Response
		<p>Comment: The pressure and temperature gauges are proximate to the packer. The DTS will terminate at the tubing packer.</p>	
12	ADM	<p>Provision: M(1)(a) Text of Draft Permit: (a) The permittee shall maintain and comply with the approved Testing and Monitoring Plan (Attachment C of this permit) and with the requirements at 40 CFR 144.51(j), 146.88(e), and 146.90. The Testing and Monitoring Plan is an enforceable condition of this permit. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Procedures for all testing and monitoring under this permit must be submitted to the Director in an electronic format for approval at least 30 days prior to the test. In performing all testing and monitoring under this permit, the permittee must follow the procedures approved by the Director. If the permittee is unable to follow the EPA approved procedures, then, the permittee must contact the Director at least 30 days prior to testing to discuss options, if any are feasible. When the test report is submitted, a full explanation must be provided as to why any approved procedures were not followed. If the approved procedures were not followed, EPA may take an appropriate action, including but not limited to, requiring the permittee to re-run the test. Proposed Revision: (a) The permittee shall maintain and comply with the approved Testing and Monitoring Plan (Attachment C of this permit) and with to meet the requirements at 40 CFR 144.51(j), 146.88(e), and 146.90. The Testing and Monitoring Plan is an enforceable condition of this permit. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Procedures for all testing and monitoring under this permit must be submitted to the Director in an</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.90 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the testing and monitoring plan will be regularly reviewed and revised as required by 40 C.F.R. §146.90(j) and Section M of the Permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged. 40 C.F.R. § 144.51(j)(i) applies to all UIC permits. It requires all samples and measurements taken for the purpose of monitoring to be representative of the monitored activity. Part N(6)(c) of the permit requires reports of noncompliance including, but not limited to, noncompliance due to the failure to follow approved testing and monitoring provisions, to include the information identified in Part N(3)(b). The information required by Part M(1)(a) is consistent with that required by Part N(6)(c). In addition, 40 C.F.R. § 144.54(b) provides that permits shall specify monitoring requirements, and 40 C.F.R. § 144.51(a) provides that permits shall establish a duty to</p>

#	Commenter	Comment	EPA Response
		<p>electronic format for approval at least 30 days prior to the test. In performing all testing and monitoring under this permit, the permittee must follow the procedures approved by the Director. If the permittee is unable to follow the EPA approved procedures, then, the permittee must contact the Director at least 30 days prior to testing to discuss options, if any are feasible. When the test report is submitted, a full explanation must be provided as to why any approved procedures were not followed. If the approved procedures were not followed, EPA may take an appropriate action, including but not limited to, requiring the permittee to re-run the test.</p> <p>Comment: By issuing the permit, EPA has determined that implementing the Testing and Monitoring Plan does meet the requirements of 40 CFR 144.51(j), 146.88(e), and 146.90. The procedures are detailed in this plan making them an enforceable condition of the permit.</p>	<p>comply with all permit conditions, including monitoring requirements.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>
13	CSC	<p>Provision: M(1)(a) Text of Draft Permit: (a) The permittee shall maintain and comply with the approved Testing and Monitoring Plan (Attachment C of this permit) and with the requirements at 40 CFR 144.51(j), 146.88(e), and 146.90. The Testing and Monitoring Plan is an enforceable condition of this permit. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Procedures for all testing and monitoring under this permit must be submitted to the Director in an electronic format for approval at least 30 days prior to the test. In performing all testing and monitoring under this permit, the permittee must follow the procedures approved by the Director. If the permittee is unable to follow the EPA approved procedures, then, the permittee must contact the Director at least 30 days prior to</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.90 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the testing and monitoring plan will be regularly reviewed and revised as required by 40 C.F.R. §146.90(j) and</p>

#	Commenter	Comment	EPA Response
		<p>testing to discuss options, if any are feasible. When the test report is submitted, a full explanation must be provided as to why any approved procedures were not followed. If the approved procedures were not followed, EPA may take an appropriate action, including but not limited to, requiring the permittee to re-run the test.</p> <p>Proposed Revision:</p> <p>(a) The permittee shall maintain and comply with the approved Testing and Monitoring Plan (Attachment C of this permit) and with to meet the requirements at 40 CFR 144.51(j), 146.88(e), and 146.90. The Testing and Monitoring Plan is an enforceable condition of this permit. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Procedures for all testing and monitoring under this permit must be submitted to the Director in an electronic format for approval at least 30 days prior to the test. In performing all testing and monitoring under this permit, the permittee must follow the procedures approved by the Director. If the permittee is unable to follow the EPA approved procedures, then, the permittee must contact the Director at least 30 days prior to testing to discuss options, if any are feasible. When the test report is submitted, a full explanation must be provided as to why any approved procedures were not followed. If the approved procedures were not followed, EPA may take an appropriate action, including but not limited to, requiring the permittee to re-run the test.</p> <p>--OR--</p> <p>The permittee has submitted the approved Testing and Monitoring Plan, which is included in Attachment C of this permit. This plan includes the information required by Sections 144.51(j), 146.88(e), and 146.90 and demonstrates how each of the applicable requirements will be met. The</p>	<p>Section M of the Permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged. 40 C.F.R. § 144.51(j)(i) applies to all UIC permits. It requires all samples and measurements taken for the purpose of monitoring to be representative of the monitored activity. Part N(6)(c) of the permit requires reports of noncompliance including, but not limited to, noncompliance due to the failure to follow approved testing and monitoring provisions, to include the information identified in Part N(3)(b). The information required by Part M(1)(a) is consistent with that required by Part N(6)(c). In addition, 40 C.F.R. § 144.54(b) provides that permits shall specify monitoring requirements, and 40 C.F.R. § 144.51(a) provides that permits shall establish a duty to comply with all permit conditions, including monitoring requirements.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>

#	Commenter	Comment	EPA Response
		<p>Testing and Monitoring Plan is an enforceable condition of this permit.</p> <p>Comment: The procedures are all spelled out in the plan.</p>	
14	ADM	<p>Provision: M(2)</p> <p>Text of Draft Permit: 2. Carbon Dioxide Stream Analysis – The permittee shall analyze the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics, as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(a).</p> <p>Proposed Revision: 2. Carbon Dioxide Stream Analysis – The permittee shall analyze the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics, as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(a).</p> <p>Comment: By issuing the permit, EPA has determined that implementing the Testing and Monitoring Plan does meet the requirements of 40 CFR 146.90(a).</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.90 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the testing and monitoring plan will be regularly reviewed and revised as required by 40 C.F.R. §146.90(j) and Section M of the permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>
15	CSC	<p>Provision: M(2)</p> <p>Text of Draft Permit:</p> <p>2. Carbon Dioxide Stream Analysis – The permittee shall analyze the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics, as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(a).</p> <p>Proposed Revision: 2. Carbon Dioxide Stream Analysis – The permittee shall analyze the carbon dioxide stream with</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p>

#	Commenter	Comment	EPA Response
		<p>sufficient frequency to yield data representative of its chemical and physical characteristics, as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(a).</p> <p>Comment: By issuing the permit, EPA has determined that implementing the Testing and Monitoring Plan does meet the requirements of 40 CFR 146.90(a).</p>	<p>In addition, 40 C.F.R. §146.90 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the testing and monitoring plan will be regularly reviewed and revised as required by 40 C.F.R. §146.90(j) and Section M of the permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>
16	ADM	<p>Provision: Appendix C, Instrument Calibration Text of Draft Permit: Pressure and temperature instruments shall be calibrated over the full operational range at least annually using ANSI or other recognized standards. Pressure transducers shall have a drift stability of less than 1 psi over the operational period of the instrument and an accuracy of + 5 psi. Sampling rates will be at least once per 5 seconds. Temperature sensors will be accurate to within one degree Celsius.</p> <p>Proposed Revision: Above ground pressure and temperature instruments shall be calibrated over the full operational range at least annually using ANSI or other recognized standards. Pressure transducers shall have a drift stability of less than 1 psi over the operational period of the instrument and an accuracy of + 5 psi. Sampling rates will be at least once per 5 seconds. Temperature sensors will be accurate to within one degree Celsius.</p> <p>Comment: The permittee will be not be able to calibrate the permanently installed subsurface gauges.</p>	<p>Monitoring data collected from subsurface gauges may develop significant errors during the life of the project. If the monitors cannot be removed for calibration, other methods of checking calibration, developing calibration curves, and checking for monitor drift should be used to satisfy this requirement.</p> <p>However, EPA acknowledges the comment that ADM will not be able to calibrate the permanently installed subsurface gauges, and has revised the text as follows:</p> <p><u>Above ground</u> pressure and temperature instruments shall be calibrated over the full operational range at least annually using ANSI or other recognized standards. <u>Downhole gauges, in lieu of removing the injection tubing, will demonstrate accuracy by using a second pressure gauge, with current certified calibration, that will be lowered into the well to the same depth as the permanent downhole gauge.</u> Pressure transducers shall have a drift stability of less than 1 psi over the operational period of the instrument and an accuracy of + 5 psi. Sampling rates will be at least once per 5 seconds. Temperature sensors will be accurate to within one degree Celsius.</p>

#	Commenter	Comment	EPA Response
17	ADM	<p>Provision: Appendix C, Continuous Monitoring of Annular Pressure</p> <p>Text of Draft Permit: 1. The annulus between the tubing and the long string of casing will be filled with brine. The brine will have a specific gravity of 1.25 and a density of 10.5 lbs/gal. The hydrostatic gradient is 0.546 psi/ft. The brine will contain a corrosion inhibitor.</p> <p>Proposed Revision: 1. The annulus between the tubing and the long string of casing will be filled with brine. The brine will have a specific gravity of 1.25 1.26 and a density of 10.5 lbs/gal. The hydrostatic gradient is 0.546 psi/ft. The brine will contain a corrosion inhibitor.</p> <p>Comment: The specific gravity of the 10.5 lbs/gal brine will be 1.26.</p>	<p>EPA has reviewed the comment and determined that the proposed change will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised Attachment C to incorporate the suggested revision.</p>
18	ADM	<p>Provision: Appendix C, Testing and Monitoring Plan</p> <p>Text of Draft Permit: During periods of well shut down, the surface annulus pressure will be kept at a minimum pressure to maintain a pressure differential of at least 100 psi between the annular fluid directly above (higher pressure) and below (lower pressure) the injection tubing packer set at 6,320 ft KB.</p> <p>Proposed Revision: During periods of well shut down, the surface annulus pressure will be kept at a minimum pressure to maintain a pressure differential of at least 100 psi between the annular fluid directly above (higher pressure) and below (lower pressure) the injection tubing packer set at 6,320 approximately 6,320 ft KB.</p> <p>Comment: The packer depth has not been set and will not be known until well completion.</p>	<p>The depths of the well components reflect where the well is intended to be placed. Because the permit has numerous citations of depths and locations, noting that these are anticipated depths and are therefore subject to change would overly complicate the permit and be potentially confusing. Small deviations identified after construction is completed can be corrected through the minor modification process identified in 40 C.F.R. § 144.41.</p> <p>Therefore, the permit language has not been modified based upon these comments.</p>
19	CSC	<p>Provision: M(3)</p> <p>Text of Draft Permit: 3. Continuous Monitoring – The permittee shall maintain continuous monitoring devices and use them to monitor injection pressure, flow rate, volume,</p>	<p>Thank you for your comment. The permit language has not been modified based upon this comment.</p>

#	Commenter	Comment	EPA Response
		<p>the pressure on the annulus between the tubing and the long string of casing, annulus fluid level, and temperature. This monitoring shall be performed as described in the Testing and Monitoring Plan to meet the requirements of 40 CFR 146.90(b).</p> <p>Comment: This is excellent because it properly recognizes that performing in accordance with the Testing and Monitoring Plan meets the requirements of 40 CFR 146.90(b).</p>	
20	ADM	<p>Provision: M(4) Text of Draft Permit: 4. Corrosion Monitoring – The permittee shall perform corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion on a quarterly basis using the procedures described in the Testing and Monitoring Plan and in accordance with 40 CFR 146.90(c) to ensure that the well components meet the minimum standards for material strength and performance set forth in 40 CFR 146.86(b). Proposed Revision: 4. Corrosion Monitoring – The permittee shall perform corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion on a quarterly basis using the procedures described in the Testing and Monitoring Plan and in accordance with 40 CFR 146.90(c) to ensure that the well components meet the minimum standards for material strength and performance set forth in 40 CFR 146.86(b). Comment: By issuing the permit, EPA has determined that implementing the Testing and Monitoring Plan does meet the requirements of 40 CFR 146.86(b) & 40 CFR 146.90(c).</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.90 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the testing and monitoring plan will be regularly reviewed and revised as required by 40 C.F.R. §146.90(j) and Section M of the permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>Therefore, EPA did not make any changes to the permit based on this comment.</p>
21	CSC	<p>Provision: M(4) Text of Draft Permit:</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The</p>

#	Commenter	Comment	EPA Response
		<p>4. Corrosion Monitoring – The permittee shall perform corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion on a quarterly basis using the procedures described in the Testing and Monitoring Plan and in accordance with 40 CFR 146.90(c) to ensure that the well components meet the minimum standards for material strength and performance set forth in 40 CFR 146.86(b).</p> <p>Proposed Revision: 4. Corrosion Monitoring – The permittee shall perform corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion on a quarterly basis using the procedures described in the Testing and Monitoring Plan and in accordance with 40 CFR 146.90(c) to ensure that the well components meet the minimum standards for material strength and performance set forth in 40 CFR 146.86(b).</p> <p>Comment: Once again, this condition is written in a way that suggests that compliance requires something beyond following the approved corrosion monitoring process, which is not the case.</p>	<p>relevant regulatory provisions are lengthier and more detailed, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.90 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the testing and monitoring plan will be regularly reviewed and revised as required by 40 C.F.R. §146.90(j) and Section M of the permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>Therefore, EPA did not make any changes to the permit based on this comment.</p>
22	ADM	<p>Provision: Appendix C, Table 5 St. Peter Fluid Sampling</p> <p>Text of Draft Permit: Spatial Coverage GM#2// 1 point location, 1 interval: 3300 KB/2606 MSL</p> <p>Proposed Revision: Spatial Coverage GM#2// 1 point location, 1 interval: 3450 KB/2756 MSL</p> <p>Comment: Permittee has determined that the St. Peter has greater permeability at the proposed depth and this will facilitate collecting fluid samples.</p>	<p>EPA has reviewed the proposed change and determined that the revised sampling depth of 3450 KB/2756 MSL will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised Attachment C to incorporate the suggested revision.</p>
23	ADM	<p>Provision: Appendix C, Table 5 Quaternary Strata Fluid Sampling</p>	<p>EPA has reviewed the proposed change and determined that the revised sampling depths will not impact the protectiveness of the Testing and Monitoring Plan.</p>

#	Commenter	Comment	EPA Response
		<p>Text of Draft Permit: Spatial Coverage MVA11LG - 135 ft MVA13LG - 140 ft</p> <p>Proposed Revision: Spatial Coverage MVA11LG - 107 ft MVA13LG - 80 ft</p> <p>Comment: MVA11LG should be at a depth of 107' and MVA13LG should be at a depth of 80'.</p>	<p>Therefore, EPA has revised Attachment C to incorporate the suggested revision.</p>
24	ADM	<p>Provision: Appendix C, Table 7 Quaternary Strata Fluid Sampling</p> <p>Text of Draft Permit: Parameters Analytical Methods Water Density(field) Oscillating body method</p> <p>Proposed Revision: Parameters Analytical Methods Water Density(field) Oscillating body method</p> <p>Comment: Permittee does not plan to measure the shallow groundwater density. Delete reference to Water Density in this table.</p>	<p>EPA has reviewed the proposed change and determined that not measuring the shallow groundwater density will not impact the protectiveness of the Testing and Monitoring Plan.</p> <p>Therefore, EPA has revised Attachment C to incorporate the suggested revision.</p>
25	Anthony Samsel	<p>Someone didn't think this through. This technology will inadvertently cause aquifer contamination, which will lower the acidity of the water and cause massive mineral leaching, similar to techniques used in uranium fluid extraction mining operations.</p> <p>Expect increases in radionuclide contamination of the aquifer by Uranium, thorium, radium and radon among other elemental contaminants.</p>	<p>EPA disagrees that the project will endanger USDWs. The permit complies with the tailored requirements in the Class VI Rule that specifically address the unique nature of CO₂ GS and focus on ensuring protection of USDWs, human health and the environment where GS is occurring. Geochemical modeling was conducted to assess the compatibility of the injection zone with the injected CO₂ stream and, based on the results, EPA has determined that there is no risk to USDWs due to the mobilization of any contaminants, including those cited in the comment. ADM will also conduct formation testing to gather data demonstrating the compatibility of the CO₂ stream with fluids in the injection zone and minerals in both the injection and the confining zone,</p>

#	Commenter	Comment	EPA Response
			<p>pursuant to 40 CFR 146.87 and Part Q of the permit. If the results of this testing indicate that there is a concern for mobilization of these or any other parameters, the permit and the Testing and Monitoring Plan will be modified as appropriate.</p> <p>The permit language has not been modified based upon this comment.</p>
26	CSC	<p>Provision: M(5) Text of Draft Permit: 5. Ground Water Quality Monitoring– The permittee shall monitor ground water quality and geochemical changes above the confining zone(s) that may be a result of carbon dioxide movement through the confining zone(s) or additional identified zones. This monitoring shall be performed for the parameters identified in the Testing and Monitoring Plan at the locations and depths, and at frequencies described in the Testing and Monitoring Plan to meet the requirements of 40 CFR146.90(d). Comment: The language in these conditions succeeds better than other formulations in indicating that compliance with the Testing and Monitoring Plan will “meet the requirements” of the respective regulatory provisions. The approach reflected in the Class IH permit provisions used by EPA Region 5 is still preferable to this formulation, but this approach is acceptable.</p>	<p>Thank you for your comment. The permit language has not been modified based upon this comment.</p>
27	CSC	<p>Provision: M(6) Text of Draft Permit: 6. External Mechanical Integrity Testing – The permittee shall demonstrate external mechanical integrity as described in the Testing and Monitoring Plan and Section L of this permit to meet the requirements of 40 CFR 146.90(e). Comment: The language in these conditions succeeds better than other formulations in indicating that compliance with the Testing and Monitoring Plan will “meet the</p>	<p>Thank you for your comment. The permit language has not been modified based upon this comment.</p>

#	Commenter	Comment	EPA Response
		requirements” of the respective regulatory provisions. The approach reflected in the Class IH permit provisions used by EPA Region 5 is still preferable to this formulation, but this approach is acceptable.	
28	ADM	<p>Provision: M(8) Text of Draft Permit: (a) The permittee shall use direct methods to track the position of the carbon dioxide plume and the pressure front in the injection zone as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(g)(1). (b) The permittee shall use indirect methods to track the position of the carbon dioxide plume and pressure front as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(g)(2). Proposed Revision: (a) The permittee shall use direct methods to track the position of the carbon dioxide plume and the pressure front in the injection zone as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(g)(1). (b) The permittee shall use indirect methods to track the position of the carbon dioxide plume and pressure front as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(g)(2). Comment: By issuing the permit, EPA has determined that implementing the Testing and Monitoring Plan does meet the applicable requirements of 40 CFR 146.90(g)(1) & 40 CFR 146.90(g)(2).</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.90 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the testing and monitoring plan will be regularly reviewed and revised as required by 40 C.F.R. §146.90(j) and Section M of the permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>Therefore, EPA did not make any changes to the permit based on this comment.</p>
29	CSC	<p>Provision: M(8) Text of Draft Permit: (a) The permittee shall use direct methods to track the position of the carbon dioxide plume and the pressure front in the injection zone as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly</p>

#	Commenter	Comment	EPA Response
		<p>146.90(g)(1). (b) The permittee shall use indirect methods to track the position of the carbon dioxide plume and pressure front as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(g)(2).</p> <p>Proposed Revision: (a) The permittee shall use direct methods to track the position of the carbon dioxide plume and the pressure front in the injection zone as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(g)(1). (b) The permittee shall use indirect methods to track the position of the carbon dioxide plume and pressure front as described in the Testing and Monitoring Plan and to meet the requirements of 40 CFR 146.90(g)(2).</p> <p>Comment: By issuing the permit, EPA has determined that implementing the Testing and Monitoring Plan does meet the applicable requirements.</p>	<p>and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.90 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the testing and monitoring plan will be regularly reviewed and revised as required by 40 C.F.R. §146.90(j) and Section M of the permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>Therefore, EPA did not make any changes to the permit based on this comment.</p>
30	NRDC	<p>Table 9 in the Testing and Monitoring Plan indicates that a repeat 3D surface seismic survey will be performed in Year 2 of injection, but planned activities are not described in the permit. <u>The Applicant should provide additional details about the planned repeat seismic survey, including a discussion of why only one repeat survey will be performed, and conditions that could potentially affect this decision and trigger additional repeat surveys.</u></p>	<p>As documented in the Post-Injection Site Care (PISC) and Site Closure Plan (Attachment E to the permit), two additional 3D seismic surveys will take place during the PISC period. Vertical seismic profile (VSP) measurements will also be collected one time during the injection phase. Based on the results of the site-specific modeling conducted for this project, and in combination with the other techniques included in the planned testing and monitoring program, EPA believes that one 3D seismic survey conducted during the second year of the project's 5-year injection phase is sufficient to demonstrate the location of the CO₂ plume. If data suggest that a significant change in the size or shape of the actual CO₂ plume as compared to the predicted CO₂ plume is occurring, or that there are deviations from modeled predictions such that the actual plume may extend vertically or horizontally beyond the modeled plume, ADM will initiate an AoR reevaluation according</p>

#	Commenter	Comment	EPA Response
			<p>to the procedures in the AoR and Corrective Action Plan (Attachment B to the permit).</p> <p>Therefore, EPA did not make any changes to the permit based on this comment.</p>

SECTION 7. PLUGGING AND POST-INJECTION SITE CARE COMMENTS

#	Commenter	Comment Text	EPA Response
1	ADM	<p>Provision: O(1) Text of Draft Permit: 1. Well Plugging Plan – The permittee shall maintain and comply with the approved Well Plugging Plan (Attachment D of this permit) which is an enforceable condition of this permit and shall meet the requirements of 40 CFR 146.92. Proposed Revision: 1. Well Plugging Plan – The permittee shall maintain and comply with the approved Well Plugging Plan (Attachment D of this permit) which is an enforceable condition of this permit and shall meets the requirements of 40 CFR 146.92. Comment: By issuing the permit, EPA has determined that implementing the Well Plugging Plan does meet the applicable requirements of 40 CFR 146.92.</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions for plugging the injection well are relatively lengthy and technical, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.92 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based.</p> <p>Therefore, EPA did not make the suggested changes to the permit.</p>
2	CSC	<p>Provision: O(1) Text of Draft Permit: 1. Well Plugging Plan – The permittee shall maintain and comply with the approved Well Plugging Plan (Attachment D of this permit) which is an enforceable condition of this permit and shall meet the requirements of 40 CFR 146.92. Proposed Revision: 1. Well Plugging Plan – The permittee shall maintain and comply with the approved Well Plugging Plan (Attachment D of this permit) which is an enforceable condition of this permit and shall meets the requirements of 40 CFR 146.92. Comment: By issuing the permit, EPA has determined that implementing the Well Plugging Plan does meet the applicable requirements.</p>	<p>As a general matter, the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions for plugging the injection well are relatively lengthy and technical, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.92 makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based.</p>

#	Commenter	Comment Text	EPA Response
			Therefore, EPA did not make the suggested changes to the permit.
3	ADM	<p>Provision: O(6)(b) Text of Draft Permit: (b) The permittee shall monitor the site following the cessation of injection to show the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered, as specified in the Post-Injection Site Care and Site Closure Plan and in 40 CFR 146.90, and 40 CFR 146.93, including: Proposed Revision: (b) The permittee shall monitor the site following the cessation of injection to show the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered, as specified in the Post-Injection Site Care and Site Closure Plan and in to meet the requirements of 40 CFR 146.90, and 40 CFR 146.93, including: Comment: By issuing the permit, EPA has determined that implementing the Post-Injection Site Care and Site Closure Plan does meet the applicable requirements of 40 CFR 146.90, and 40 CFR 146.93.</p>	<p>Therefore, EPA did not make the suggested changes to the permit.</p> <p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions for testing and monitoring, and for the PISC, are relatively lengthy and technical, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.93(a) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the PISC Plan may require revisions. See 75 Fed. Reg. 77266 (Dec. 10, 2010) and Section H of the permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>Therefore, EPA did not make the suggested changes to the permit.</p>
4	CSC	<p>Provision: O(6)(b) Text of Draft Permit: (b) The permittee shall monitor the site following the cessation of injection to show the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered, as specified in the Post-Injection Site Care and Site Closure Plan and in 40 CFR 146.90, and 40 CFR 146.93, including: Proposed Revision: (b) The permittee shall monitor the site following the cessation of injection to show the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered, as</p>	<p>Therefore, EPA did not make the suggested changes to the permit.</p> <p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions for testing and monitoring, and for the PISC, are relatively lengthy and technical, so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. Incorporating the additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p>

#	Commenter	Comment Text	EPA Response
		<p>specified in the Post-Injection Site Care and Site Closure Plan and in 40 CFR 146.90, and 40 CFR 146.93, including: Comment: By issuing the permit, EPA has determined that implementing the Post-Injection Site Care and Site Closure Plan does meet the applicable requirements.</p>	<p>In addition, 40 C.F.R. §146.93(a) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the PISC Plan may require revisions. See 75 Fed. Reg. 77266 (Dec. 10, 2010) and Section H of the permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>Therefore, EPA did not make the suggested changes to the permit.</p>
5	ADM	<p>Provision: O(6)(b)(v) Text of Draft Permit: (v) The permittee shall continue to conduct post-injection site monitoring for at least 50 years or for the duration of any alternative timeframe approved pursuant to 40 CFR 146.93(c) and the Post-Injection Site Care and Site Closure Plan. References: 146.93(b) (2) If the owner or operator can demonstrate to the satisfaction of the Director before 50 years or prior to the end of the approved alternative timeframe based on monitoring and other site-specific data, that the geologic sequestration project no longer poses an endangerment to USDWs, the Director may approve an amendment to the post-injection site care and site closure plan to reduce the frequency of monitoring or may authorize site closure before the end of the 50-year period or prior to the end of the approved alternative timeframe, where he or she has substantial evidence that the geologic sequestration project no longer poses a risk of endangerment to USDWs. Proposed Revision: (v) The permittee shall continue to conduct post- injection site monitoring until the Director has authorized site closure. for at least 50 years or for the duration of any alternative timeframe approved pursuant to 40 CFR 146.93(c) and the Post-Injection Site Care and Site Closure Plan.</p>	<p>Per 40 C.F.R. § 146.93(a), the owner or operator must submit the post-injection site care and site closure plan as a part of the permit application to be approved by the Director. Among other requirements cited at 40 C.F.R. § 146.93(a)(2), the post-injection site care and site closure plan must include the duration of the post-injection site care timeframe and, if approved by the Director, the demonstration of the alternative post-injection site care timeframe that ensures non-endangerment of USDWs.</p> <p>ADM submitted, and EPA approved, a request for an alternative PISC timeframe, which was incorporated into the Post-Injection Site Care and Site Closure Plan. As the approved Plan, and 40 C.F.R. § 146.93 require, ADM must continue post-injection monitoring and site care until EPA approves ADM’s non-endangerment demonstration and authorizes site closure, even if this results in more than 10 years of post-injection monitoring, as described in the currently approved plan.</p> <p>At any time during the life of the GS project, ADM may modify and resubmit the post-injection site care and site closure plan for the Director's approval. The language cited by the commenter provides information on the process and standards that would apply if ADM seeks a change.</p>

#	Commenter	Comment Text	EPA Response
		<p>Comment: There are a number of different scenarios that would allow the permittee to cease post-injection monitoring before 50 years, but all involve obtaining authorization for site closure.</p>	<p>The post injection site care plan for ADM’s permit meets the federal UIC regulations in 40 C.F.R. § 146.93, and there is no basis or need to amend the language of this attachment to the permit.</p> <p>However, the permit language at O(6)(b)(v) has been modified as follows: The permittee shall continue to conduct post-injection site monitoring for the duration of the alternative timeframe approved pursuant to 40 CFR 146.93(c) and the Post-Injection Site Care and Site Closure Plan and until the Director has authorized site closure as described in Section O(6)(c) and O(6)(d) of this permit.</p>
6	CSC	<p>Provision: O(6)(b)(v) Text of Draft Permit: (v) The permittee shall continue to conduct post-injection site monitoring for at least 50 years or for the duration of any alternative timeframe approved pursuant to 40 CFR 146.93(c) and the Post-Injection Site Care and Site Closure Plan. References: 146.93(b) (2) If the owner or operator can demonstrate to the satisfaction of the Director before 50 years or prior to the end of the approved alternative timeframe based on monitoring and other site-specific data, that the geologic sequestration project no longer poses an endangerment to USDWs, the Director may approve an amendment to the post-injection site care and site closure plan to reduce the frequency of monitoring or may authorize site closure before the end of the 50-year period or prior to the end of the approved alternative timeframe, where he or she has substantial evidence that the geologic sequestration project no longer poses a risk of endangerment to USDWs.</p>	<p>Per 40 C.F.R. § 146.93(a), the owner or operator must submit the post-injection site care and site closure plan as a part of the permit application to be approved by the Director. Among other requirements cited at 40 C.F.R. § 146.93(a)(2), the post-injection site care and site closure plan must include the duration of the post-injection site care timeframe and, if approved by the Director, the demonstration of the alternative post-injection site care timeframe that ensures non-endangerment of USDWs.</p> <p>ADM submitted, and EPA approved, a request for an alternative PISC timeframe, which was incorporated into the Post-Injection Site Care and Site Closure Plan. As the approved Plan and 40 C.F.R. § 146.93 require, ADM must continue post-injection monitoring and site care until EPA approves ADM’s non-endangerment demonstration and authorizes site closure, even if this results in more than 10 years of post-injection monitoring, as described in the currently approved plan.</p>

#	Commenter	Comment Text	EPA Response
		<p>Proposed Revision: (v) The permittee shall continue to conduct post- injection site monitoring until the Director has authorized site closure. for at least 50 years or for the duration of any alternative timeframe approved pursuant to 40 CFR 146.93(c) and the Post-Injection Site Care and Site Closure Plan.</p> <p>Comment: There are a number of different scenarios that would allow the permittee to cease post-injection monitoring before 50 years, but all involve obtaining authorization for site closure. Therefore, this wording is sufficient to cover all of those contingencies.</p>	<p>At any time during the life of the GS project, ADM may modify and resubmit the post-injection site care and site closure plan for the Director's approval. The language cited by the commenter provides information on the process and standards that would apply if ADM seeks a change.</p> <p>The post injection site care plan for ADM's permit meets the federal UIC regulations in 40 C.F.R. § 146.93, and there is no basis or need to amend the language of this attachment to the permit.</p> <p>However, the permit language at O(6)(b)(v) has been modified as follows: The permittee shall continue to conduct post-injection site monitoring for the duration of the alternative timeframe approved pursuant to 40 CFR 146.93(c) and the Post-Injection Site Care and Site Closure Plan and until the Director has authorized site closure as described in Section O(6)(c) and O(6)(d) of this permit.</p>
7	CSC	<p>Section O(6)(b)(v) incorrectly states that “[t]he permittee shall continue to conduct post- injection site monitoring for at least 50 years or for the duration of any alternative timeframe approved pursuant to 40 CFR 146.93(c) and the Post-Injection Site Care and Site Closure Plan.” The permittee may discontinue post-injection site monitoring earlier than either of those dates if, pursuant to section 146.93(b)(2) the Director “authorize[s] site closure before the end of the 50-year period or prior to the end of the approved alternative</p>	<p>Per 40 C.F.R. § 146.93(a), the owner or operator must submit the post-injection site care and site closure plan as a part of the permit application to be approved by the Director. Among other requirements cited at 40 C.F.R. § 146.93(a)(2), the post-injection site care and site closure plan must include the duration of the post-injection site care timeframe and, if approved by the Director, the demonstration of the alternative post-injection site care timeframe that ensures non-endangerment of USDWs.</p>

#	Commenter	Comment Text	EPA Response
		<p>timeframe”. A permittee is never subject to an absolute requirement to continue monitoring for at least 50 years, and the permit should not suggest otherwise. Given the potential alternative scenarios for discontinuation of monitoring, it would be more accurate to simply state: “The permittee shall continue to conduct post-injection site monitoring until the Director has authorized site closure.”</p>	<p>ADM submitted, and EPA approved, a request for an alternative PISC timeframe, which was incorporated into the Post-Injection Site Care and Site Closure Plan. As the approved Plan and 40 C.F.R. § 146.93 require, ADM must continue post-injection monitoring and site care until EPA approves ADM’s non-endangerment demonstration and authorizes site closure, even if this results in more than 10 years of post-injection monitoring, as described in the currently approved plan.</p> <p>At any time during the life of the GS project, ADM may modify and resubmit the post-injection site care and site closure plan for the Director’s approval. The language cited by the commenter provides information on the process and standards that would apply if ADM seeks a change.</p> <p>The post injection site care plan for ADM’s permit meets the federal UIC regulations in 40 C.F.R. § 146.93, and there is no basis or need to amend the language of this section of the permit.</p> <p>Therefore, the permit language has not been modified based upon this comment. See response to comments 5 and 6 for related permit language change.</p>
8	ADM	<p>Provision: O(6)(d) Text of Draft Permit: (d) Prior to authorization for site closure, the permittee shall submit to the Director for review and approval, in an electronic format, a demonstration, based on information collected pursuant to Section O(5)(b) of this permit, that the carbon dioxide plume and the associated pressure front do not pose an endangerment to USDWs and that no additional monitoring is needed to ensure that the project does not pose an endangerment to USDWs, as required under 40 CFR 146.93(b)(3). The Director reserves the</p>	<p>As EPA’s “Geologic Sequestration of Carbon Dioxide: Underground Injection Control (UIC) Program Class VI Well Project Plan Development Guidance” (Aug. 2012) states at p. 50, [t]he purpose of reviewing the PISC and Site Closure Plan is to consider:</p> <ul style="list-style-type: none"> • Whether post-injection site care is adequate to ensure that USDWs are protected from endangerment from carbon dioxide injection activities (or provide early warning of potential endangerment);

#	Commenter	Comment Text	EPA Response
		<p>right to amend the post-injection site monitoring requirements (including extend the monitoring period) if the carbon dioxide plume and the associated pressure front have not stabilized or there is a concern that USDWs are being endangered.</p> <p>References: 146.93(b) (3) Prior to authorization for site closure, the owner or operator must submit to the Director for review and approval a demonstration, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the geologic sequestration project does not pose an endangerment to USDWs.</p> <p>Proposed Revision: (d) Prior to authorization for site closure, the permittee shall submit to the Director for review and approval, in an electronic format, a demonstration, based on information collected pursuant to Section O(5)(b) of this permit, that the carbon dioxide plume and the associated pressure front do not pose an endangerment to USDWs and that no additional monitoring is needed to ensure that the project does not pose an endangerment to USDWs, as required under 40 CFR 146.93(b)(3). The Director reserves the right to amend the post-injection site monitoring requirements (including extend the monitoring period) if the carbon dioxide plume and the associated pressure front have not stabilized or there is a concern that USDWs are being endangered.</p> <p>Comment: There is no requirement for the carbon dioxide plume and the associated pressure front to “stabilize”, whatever that means. Indeed, the word stabilize does not appear in any form in the final Class VI regulations and is unnecessary here.</p> <p>If the term is retained in this condition, it must be clear that the use of the word “stabilized” in this context is not</p>	<ul style="list-style-type: none"> • Whether changes to monitoring are needed, e.g., if the types of monitoring can be reduced as data indicate post-injection stabilization of the carbon dioxide plume and pressure front; and • Whether appropriate amounts and types of data are being collected to support an eventual non-endangerment demonstration, and whether making this demonstration before the required fifty (50) year PISC timeframe is appropriate. The UIC Program Director may determine whether a shorter or longer PISC timeframe is necessary. <p>Since the concern about the “stabilization” of the CO₂ plume and/or injection pressure front in the guidance is based upon the protection of USDWs, EPA did make the change suggested by the commenter to reflect the regulatory language more precisely. It should be clear, however, that plume and pressure front stability will be factors EPA considers in evaluating whether there is a risk to USDWs.</p>

#	Commenter	Comment Text	EPA Response
		intended to imply that a complete cessation in the movement of injected or formation fluids in the injection zone is necessary to meet the closure requirement. It should be sufficient to demonstrate that current monitoring and model(s) show that the injected CO2 stream is not expected to migrate in the future in a manner likely to result in endangerment of a USDW.	
9	CSC	<p>Provision: O(6)(d) Text of Draft Permit: (d) Prior to authorization for site closure, the permittee shall submit to the Director for review and approval, in an electronic format, a demonstration, based on information collected pursuant to Section O(5)(b) of this permit, that the carbon dioxide plume and the associated pressure front do not pose an endangerment to USDWs and that no additional monitoring is needed to ensure that the project does not pose an endangerment to USDWs, as required under 40 CFR 146.93(b)(3). The Director reserves the right to amend the post-injection site monitoring requirements (including extend the monitoring period) if the carbon dioxide plume and the associated pressure front have not stabilized or there is a concern that USDWs are being endangered.</p> <p>References: 146.93(b) (3) Prior to authorization for site closure, the owner or operator must submit to the Director for review and approval a demonstration, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the geologic sequestration project does not pose an endangerment to USDWs.</p> <p>Proposed Revision: (d) Prior to authorization for site closure, the permittee shall submit to the Director for review and approval, in an electronic format, a demonstration, based on information collected pursuant to Section O(5)(b) of this</p>	<p>As EPA’s “Geologic Sequestration of Carbon Dioxide: Underground Injection Control (UIC) Program Class VI Well Project Plan Development Guidance” (Aug. 2012) states at p. 50, [t]he purpose of reviewing the PISC and Site Closure Plan is to consider:</p> <ul style="list-style-type: none"> • Whether post-injection site care is adequate to ensure that USDWs are protected from endangerment from carbon dioxide injection activities (or provide early warning of potential endangerment); • Whether changes to monitoring are needed, e.g., if the types of monitoring can be reduced as data indicate post-injection stabilization of the carbon dioxide plume and pressure front; and • Whether appropriate amounts and types of data are being collected to support an eventual non-endangerment demonstration, and whether making this demonstration before the required fifty (50) year PISC timeframe is appropriate. The UIC Program Director may determine whether a shorter or longer PISC timeframe is necessary. <p>Since the concern about the “stabilization” of the CO₂ plume and/or injection pressure front in the guidance is based upon the protection of USDWs, EPA made the change suggested by the commenter to reflect the regulatory language more precisely. It should be clear, however, that plume and pressure front stability will be factors EPA considers in evaluating whether there is a risk to USDWs.</p>

#	Commenter	Comment Text	EPA Response
		<p>permit, that the carbon dioxide plume and the associated pressure front do not pose an endangerment to USDWs and that no additional monitoring is needed to ensure that the project does not pose an endangerment to USDWs, as required under 40 CFR 146.93(b)(3). The Director reserves the right to amend the post-injection site monitoring requirements (including extend the monitoring period) if the carbon dioxide plume and the associated pressure front have not stabilized or there is a concern that USDWs are being endangered.</p> <p>Comment: There is no requirement for the carbon dioxide plume and the associated pressure front to “stabilize”, whatever that means. Indeed, the word stabilize does not appear in any form in the final Class VI regulations and is unnecessary here.</p>	
10	ADM	<p>Provision: O(6)(f)</p> <p>Text of Draft Permit: (f) After the Director has authorized site closure, the permittee shall plug all monitoring wells as specified in Attachment E of this permit – the Post-Injection Site Care and Site Closure Plan – in a manner which will not allow movement of injection or formation fluids that endangers a USDW. The permittee shall also restore the site to its pre- injection condition.</p> <p>Proposed Revision: (f) After the Director has authorized site closure, the permittee shall plug all monitoring wells as specified in Attachment E of this permit – the Post-Injection Site Care and Site Closure Plan – in a manner which will not allow movement of injection or formation fluids that endangers a USDW. The permittee shall also restore the site to its pre- injection condition.</p> <p>Comment: There is no regulatory requirement for site restoration. To restore the site to its pre-injection condition following site closure, the permittee will be guided by the</p>	<p>Good stewardship of the facility at the time of closure is a logical extension of the closure process. As EPA’s “Geologic Sequestration of Carbon Dioxide: Underground Injection Control (UIC) Program Class VI Well Project Plan Development Guidance” (Aug. 2012) states at p. 47: “EPA recommends that owners or operators also describe in their PISC and Site Closure Plan how they plan to close the site following the conclusion of the PISC period. Site closure activities may include: plugging all monitoring wells, removing all surface equipment, and restoring the site to its prior condition (e.g., planting vegetation).” The guidance also states on p. D-6 that the template for a PISC and Site Closure Plan, “Describe plans for removing all surface equipment and restoring vegetation.”</p> <p>In EPA’s April 2013, “Draft Underground Injection Control (UIC) Program Guidance on Class VI Well Plugging, Post-Injection Site Care, and Site Closure, this same concepts are reiterated at p. 47, p. D-4 and at p. G-2 that a template for a site closure report “Include a description of completed site restoration activities such</p>

#	Commenter	Comment Text	EPA Response
		<p>state rules for plugging and abandonment of wells located on leased property under The Illinois Oil and Gas Act: Title 62: Mining Chapter I: Department of Natural Resources - Part 240, Section 240.1170 - Plugging Fluid Waste Disposal and Well Site Restoration.</p>	<p>as removing all surface equipment and restoring vegetation (or status, as appropriate).”</p> <p>On page 27 of its Post-Injection Site Care (PISC) plan, ADM states that the site will be restored to its pre-injection condition and identifies the steps ADM will take to restore the site. The PISC plan is part of the final permit and is therefore enforceable. Retaining the language in Part (O)(6)(f) is consistent with the permit condition in the PISC Plan.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>
11	CSC	<p>Provision: O(6)(f) Text of Draft Permit: (f) After the Director has authorized site closure, the permittee shall plug all monitoring wells as specified in Attachment E of this permit – the Post-Injection Site Care and Site Closure Plan – in a manner which will not allow movement of injection or formation fluids that endangers a USDW. The permittee shall also restore the site to its pre- injection condition. Proposed Revision: (f) After the Director has authorized site closure, the permittee shall plug all monitoring wells as specified in Attachment E of this permit – the Post-Injection Site Care and Site Closure Plan – in a manner which will not allow movement of injection or formation fluids that endangers a USDW. The permittee shall also restore the site to its pre-injection condition. Comment: The UIC regulations do not include a requirement for site restoration.</p>	<p>Good stewardship of the facility at the time of closure is a logical extension of the closure process. As EPA’s “Geologic Sequestration of Carbon Dioxide: Underground Injection Control (UIC) Program Class VI Well Project Plan Development Guidance” (Aug. 2012) states at p. 47: “EPA recommends that owners or operators also describe in their PISC and Site Closure Plan how they plan to close the site following the conclusion of the PISC period. Site closure activities may include: plugging all monitoring wells, removing all surface equipment, and restoring the site to its prior condition (e.g., planting vegetation).” The guidance also states on p. D-6 that the template for a PISC and Site Closure Plan, “Describe plans for removing all surface equipment and restoring vegetation.”</p> <p>In EPA’s April 2013, “Draft Underground Injection Control (UIC) Program Guidance on Class VI Well Plugging, Post-Injection Site Care, and Site Closure, this same concepts are reiterated at p. 47, p. D-4 and at p. G-2 that a template for a site closure report “Include a description of completed site restoration activities such as removing all surface equipment and restoring vegetation (or status, as appropriate).”</p>

#	Commenter	Comment Text	EPA Response
			<p>On page 27 of its Post-Injection Site Care (PISC) plan, ADM states that the site will be restored to its pre-injection condition and identifies the steps ADM will take to restore the site. The PISC plan is part of the final permit and is therefore enforceable. Retaining the language in Part (O)(6)(f) is consistent with the permit condition in the PISC Plan.</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>
12	NRDC	<p><i>Post Injection Site Care</i></p> <p>1. We note that contact of CO₂ with the confining zone (Eau Claire) is not projected to occur during the injection period or within the 10-year PISC timeframe, meaning that the ability of the Eau Claire to serve as an appropriate confining zone will not have been tested in practice when the PISC period ends. Although available data indicates that the geologic and geomechanical properties of the Eau Claire are excellent for a confining zone, the position of the CO₂ plume should be given further consideration in the alternate PISC timeframe approval. <u>The Applicant should discuss the projected time when the CO₂ plume is projected to contact the Eau Claire, the possibility of faults or fractures compromise is theoretical and projected properties as a confining zone and any testing or monitoring during the injection period that will be used to identify those. Although we do not necessarily question the proposed 10-year PISC as inappropriate, EPA should consider the reliability of existing information at this point when setting the PISC duration to 10 years and also when evaluating whether the appropriate criteria for closure have been met when the Applicant applies for closure.</u></p>	<p>The results of the site-specific AoR delineation modeling conducted by ADM indicate that the CO₂ plume is not projected to come into contact with the Eau Claire by the end of the 50-year simulation period. At the end of this period, the projected top of the plume is approximately 900 ft below the base of the Eau Claire. The independent modeling assessment conducted by EPA agrees with this result. EPA acknowledges that this initial assessment is based on initial site characterization data; however, additional data on the characteristics of the confining zone collected by ADM pursuant to 40 CFR 146.87 will be used to update the AoR delineation modeling or demonstrate that no update is needed and be considered prior to EPA's authorizing injection (as specified in Part Q of the permit).</p> <p>In addition, if, during the life of the project, data suggest that a significant change in the size or shape of the actual CO₂ plume as compared to the predicted CO₂ plume is occurring, or that there are deviations from modeled predictions such that the actual plume may extend beyond the modeled plume, ADM must initiate an AoR reevaluation according to the procedures in the AoR and Corrective Action Plan (Attachment B to the permit).</p>

#	Commenter	Comment Text	EPA Response
			<p>Although the current modeling and site characterization data supports a determination that an alternative PISC timeframe may be applicable for this project, the authorization of site closure will be contingent upon a demonstration of non-endangerment that will be supported by both modeling and testing and monitoring data, per 40 CFR 146.93(b)(3).</p> <p>Therefore, the permit language has not been modified based upon this comment.</p>
13	ADM	<p>Provision: Appendix E, Table 3 Quaternary Strata Fluid Sampling Text of Draft Permit: Parameters Analytical Methods Water Density(field) Oscillating body method Proposed Revision: Parameters Analytical Methods Water Density(field) Oscillating body method Comment: Permittee does not plan to measure the shallow groundwater density. Delete reference to Water Density in this table.</p>	<p>EPA has reviewed the proposed change and determined that not measuring the shallow groundwater density will not impact the protectiveness of the post-injection testing and monitoring plan.</p> <p>Therefore, EPA has revised Attachment E to incorporate the suggested revision.</p>
14	ADM	<p>Provision: Appendix E, Evaluation of CO2 Plume Text of Draft Permit: Also, limited 2D and 3D seismic surveys may be employed to determine the plume location at specific times. Proposed Revision: Also, limited 2D and 3D seismic surveys may be employed to determine the plume location at specific times. Figure 5 presents an example of how the data from a time lapse 3D seismic surveys may be correlated against the model prediction. Comment: No reference to Figure 5 in the text. Added text for clarity.</p>	<p>EPA agrees that this clarification is appropriate, and has incorporated the requested change into Attachment E of the final permit.</p>

SECTION 8. EMERGENCY AND REMEDIAL RESPONSE COMMENTS

#	Commenter	Comment Text	EPA Response
1	ADM	<p>Provision: P(1) Text of Draft Permit: 1. The Emergency and Remedial Response Plan describes actions the permittee must take to address movement of the injection or formation fluids that may cause an endangerment to a USDW during construction, operation, and post-injection site care periods. The permittee shall maintain and comply with the approved Emergency and Remedial Response Plan (Attachment F of this permit), which is an enforceable condition of this permit, and with 40 CFR 146.94.</p> <p>Proposed Revision: 1. The Emergency and Remedial Response Plan describes actions the permittee must take to address movement of the injection or formation fluids that may cause an endangerment to a USDW during construction, operation, and post- injection site care periods. The permittee shall maintain and comply with the approved Emergency and Remedial Response Plan (Attachment F of this permit), which is an enforceable condition of this permit, and with meets the requirements of 40 CFR 146.94.</p> <p>Comment: By issuing the permit, the EPA has determined that implementing the Emergency and Remedial Response Plan does meet the applicable requirements of 40 CFR 146.94.</p>	<p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. EPA has determined that incorporating additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.94(a) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the Emergency and Remedial Response Plan will be regularly reviewed and revised as required by 40 C.F.R. §146.94(d) and Section P of the Permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>EPA did not change the permit based on this comment.</p>

#	Commenter	Comment Text	EPA Response
2	CSC	<p>Provision: P(1) Text of Draft Permit: 1. The Emergency and Remedial Response Plan describes actions the permittee must take to address movement of the injection or formation fluids that may cause an endangerment to a USDW during construction, operation, and post-injection site care periods. The permittee shall maintain and comply with the approved Emergency and Remedial Response Plan (Attachment F of this permit), which is an enforceable condition of this permit, and with 40 CFR 146.94.</p> <p>Proposed Revision: 1. The Emergency and Remedial Response Plan describes actions the permittee must take to address movement of the injection or formation fluids that may cause an endangerment to a USDW during construction, operation, and post- injection site care periods. The permittee shall maintain and comply with the approved Emergency and Remedial Response Plan (Attachment F of this permit), which is an enforceable condition of this permit, and with 40 CFR 146.94.</p> <p>Comment: Once again, this condition is written in a way that suggests that compliance requires something beyond following the approved Emergency and Remedial Response Plan, which is not the case. The revision recommended here should be adopted and incorporated in the final permit.</p>	<p>As a general matter the UIC permit is intended as a roadmap to identify the relevant requirements and obligations of ADM. The relevant regulatory provisions are lengthier and more detailed so that the permit language may summarize those requirements and provide reference to the regulatory details rather than copying them in their entirety. This makes the permit more reader-friendly and easy to follow. EPA has determined that incorporating additional details by reference does not create any conflict or confusion between the terms of the permit and the regulations.</p> <p>In addition, 40 C.F.R. §146.94(a) makes it clear that ADM must comply with both the permit requirement and the regulatory requirement upon which it is based. For Class VI wells, EPA anticipates that the Emergency and Remedial Response Plan will be regularly reviewed and revised as required by 40 C.F.R. §146.94(d) and Section P of the Permit. Reference to the relevant regulatory provisions provides clarity on the standards against which any revisions will be judged.</p> <p>EPA has not made any change to the permit based on this comment.</p>
3	Evelyn Carter	<p>I'll say this as succinctly as I can. My concern is, of course, with this new idea of this well being established here in the township of Decatur -- or city of Decatur, I guess, the concern is to the safety of the well and how ADM will be responsive to the community if it's necessary.</p>	<p>Site suitability is based on an evaluation of extensive site-specific information, including the geology of the site, seismic history of the area, the location of faults and fractures, operating data (including the volume of CO₂ to be injected) and computational modeling analyses of plume and pressure front behavior over the duration of the project. Based on this review, EPA determined that</p>

#	Commenter	Comment Text	EPA Response
			<p>the project can be safely managed in a manner to ensure protection of USDWs.</p> <p>Additionally, the Emergency and Remedial Response Plan (Attachment F), which is an enforceable condition of ADM's permit, includes procedures ADM must implement if any adverse event, such as a seismic event or CO₂ leakage, were to occur. It includes the actions ADM must take to identify the extent of contamination (if any), implement appropriate remedial actions, and communicate with the public.</p>
4	Anthony Samsel	This also presents the potential for a disaster with mass casualties in the event of an earthquake which could disrupt and release volumes of stored CO ₂ . This would kill both human and animal populations in the vicinity of the release.	<p>Site suitability is based on an evaluation of extensive site-specific information, including the geology of the site, seismic history of the area, the location of faults and fractures, operating data (including the volume of CO₂ to be injected) and computational modeling analyses of plume and pressure front behavior over the duration of the project. Based on this review, EPA determined that the project can be safely managed in a manner to ensure protection of USDWs.</p> <p>Additionally, ADM's permit limits the injection pressure to 90% of the fracture pressure in the injection zone; this pressure limitation is designed to reduce the potential for inducing any seismic events. Also, throughout the life of the project, ADM will monitor for induced and naturally occurring seismic events using five passive seismic monitoring stations.</p> <p>In the unlikely event of a large magnitude seismic event or CO₂ leakage from the injection zone formation, remedial response procedures will need to be tailored to the specific circumstances, the extent of the contamination, and the risk factors involved. The Emergency and Remedial Response Plan (Attachment F of the permit) outlines the protocol to be implemented (based on a</p>

#	Commenter	Comment Text	EPA Response
			range of Magnitudes and attributes of the event), including the process and actions to be implemented to shut in the injection well(s), mitigate risks, and communicate with EPA, other relevant authorities, and the public.
5	NRDC	<p>Testing and Monitoring</p> <p>1. We support Applicant’s proposal to perform passive microseismic monitoring to help identify induced seismicity that may be caused by injection operations. However, we suggest that EPA require additional information and planning to address the risk of induced seismicity. Documented incidences of induced seismicity caused by UIC Class II injection operations have often occurred on previously unknown and/or sub-seismic faults.¹ [FN: Ohio Department of Natural Resources. (2012). Preliminary Report on the Northstar 1 Class II Injection Well and the Seismic Events in the Youngstown, Ohio, Area.]</p> <p>According to the comprehensive report on induced seismicity and energy technologies produced by the National Academy of Sciences, “The factor that appears to have the most direct consequence in regard to induced seismicity is the net fluid balance (total balance of fluid introduced into or removed from the subsurface)...”² [FN: Clarke, D., Detournay, E., Diederich, J., Dillon, D., Green, S., Habiger, R., ... & Smith, J. (2012). Induced seismicity potential in energy technologies. National Academies Press.] Projects that do not balance injection and withdrawal, like carbon capture and sequestration or storage (“CCS”), may have a greater potential to cause induced seismicity, although more research is needed. Induced earthquakes caused by Class II injection operations have been large enough to cause</p>	<p>EPA’s review of the potential for induced seismicity included evaluation of extensive site-specific information, including the seismic history of the area, the location of faults and fractures, operating data (including the volume of CO₂ to be injected) and computational modeling analyses of plume and pressure front behavior over the duration of the project. This evaluation was much more extensive than the evaluations typically performed for Class II permits such as those associated with the events in Ohio and Oklahoma to which the commenter refers, and supports a conclusion that the wells pose a low risk of inducing felt seismic events. See “Induced Seismicity Evaluation Using the EPA-Developed Decision Model” (April 2014) in the Administrative Record for this permit.</p> <p>Although the components suggested by Lawrence Berkeley National Laboratory and the National Academy of Sciences are not required by the UIC regulations, EPA agrees with the need to monitor for and potentially address induced seismicity. The Emergency and Remedial Response Plan, which is an enforceable condition of ADM’s permit, includes protocols for natural and induced seismic events that include many of the same things as are recommended in the National Academy of Sciences publication the commenter cited. (The Emergency and Remedial Response Plan does not address criteria for ground vibration and noise, as these are outside the scope of the Class VI Rule.) The Plan includes response protocols that correspond to the site’s potential risk and the level of seismic activity and an emergency communications plan.</p>

#	Commenter	Comment Text	EPA Response
		<p>property damage and injury.³ [FN: Keranen, K. M., Savage, H. M., Abers, G. A., & Cochran, E. S. (2013). Potentially induced earthquakes in Oklahoma, USA: Links between wastewater injection and the 2011 Mw 5.7 earthquake sequence. <i>Geology</i>, 41(6), 699-702.] Even in the absence of actual damage, induced seismicity is a nuisance and source of anxiety for nearby communities, and may undermine public trust and support for CCS projects. Researchers at Lawrence Berkeley National Laboratory⁴ [FN: See, e.g. Majer, E., Nelson, J., Robertson-Tait, A., Savy, J., & Wong, I. (2012). Protocol for addressing induced seismicity associated with enhanced geothermal systems. US Department of Energy.; Majer, E., Nelson, J., Robertson-Tait, A., Savy, J., & Wong, I. (2013). Best Practices for Addressing Induced Seismicity Associated With Enhanced Geothermal Systems (EGS). US Department of Energy.] and the National Academy of Sciences⁵ [FN: Id. fn 3.] have published detailed information on the elements that should be considered for inclusion in a protocol for addressing induced seismicity, including but not limited to 1) a stakeholder communications and outreach plan; 2) criteria for ground vibration and noise; 3) a hazard assessment; 4) a risk assessment; 5) seismic monitoring, and; 6) mitigation plans. <u>Using these guidelines we request that EPA require Applicant to develop a protocol to address induced seismicity.</u></p>	<p>Required passive seismic monitoring (described in the enforceable Testing and Monitoring Plan) will inform ADM and EPA when any natural or induced events occur; any such event will require implementation of the Emergency and Remedial Response Plan.</p>

In accordance with 40 C.F.R. § 124.19(a), any person who filed comments on the draft permit or participated in the public hearing may petition the EAB to review any condition of the final permit decision. Additionally, any person who failed to file comments or failed to participate in the public hearing on the draft permit may petition the EAB for administrative review of any permit conditions set forth in the final permit decision, but only to the extent that those final permit conditions reflect changes from the proposed draft permit. Any petition shall identify the contested permit condition or other specific challenge to the permit decision and clearly set forth, with legal and factual support, petitioner's contentions for why the permit decision should be reviewed, as well as a demonstration that any issue raised in the petition was raised previously during the public comment period (to the extent required), if the permit issuer has responded to an issue previously raised, and an explanation of why the permit issuer's response to comments was inadequate as required by 40 C.F.R. § 124.19(a)(4).

If you wish to request an administrative review, documents in EAB proceedings may be filed by mail (either through the U.S. Postal Service ("USPS") or a non-USPS carrier), hand-delivery, or electronically. The EAB does not accept notices of appeal, petitions for review, or briefs submitted by facsimile. All submissions in proceedings before the EAB may be filed electronically, subject to any appropriate conditions and limitations imposed by the EAB. To view the Board's Standing Orders concerning electronic filing, click on the "Standing Orders" link on the Board's website at

www.epa.gov/eab. All documents that are sent through the USPS, except by USPS Express Mail, must be addressed to the EAB's mailing address, which is: Clerk of the Board, U.S. Environmental Protection Agency, Environmental Appeals Board, 1200 Pennsylvania Avenue, NW, Mail Code 1103M, Washington, D.C. 20460-0001. Documents that are hand-carried in person or that are delivered via courier or a non-USPS carrier such as UPS or Federal Express must be delivered to: Clerk of the Board, United States Environmental Protection Agency, Environmental Appeals Board, 1201 Constitution Avenue, NW, WJC East Building, Room 3334, Washington, D.C. 20004.

A petition for review of any condition of a UIC permit decision must be filed with the EAB within 30 days after EPA serves notice of the issuance of the final permit decision. 40 C.F.R. § 124.19(a)(3). When EPA serves the notice by mail, service is deemed to be completed when the notice is placed in the mail, not when it is received. However, to compensate for the delay caused by mailing, the 30-day deadline for filing a petition is extended by three days if the final permit decision being appealed was served on the petitioner by mail. 40 C.F.R. § 124.20(d). Petitions are deemed filed when they are received by the Clerk of the Board at the address specified for the appropriate method of delivery. 40 C.F.R. § 124.19(a)(3) and 40 C.F.R. § 124.19(i). The request will be timely if received within the time period described above. For this request to be valid, it must conform to the requirements of 40 C.F.R. § 124.19. A copy of these requirements is enclosed. The regulations are also available electronically at <http://www.gpo.gov/fdsys/pkg/CFR-2013-title40-vol23/pdf/CFR-2013-title40-vol23-sec124-19.pdf> This request for review must be made prior to seeking judicial review of any permit decision. Additional information regarding petitions for review may be found in the Environmental Appeals Board Practice Manual (August 2013) and A Citizen's Guide to EPA's Environmental Appeals Board, both of which are

available at

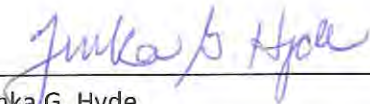
http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/General+Information/Environmental+Appeals+Board+Guidance+Documents?OpenDocument

The EAB may also decide on its own initiative to review any condition of any UIC permit. The EAB must act within 30 days of the service date of notice of the Regional Administrator's action. Within a reasonable time following the filing of the petition for review, the EAB shall issue an order either granting or denying the petition for review. To the extent review is denied, the conditions of the final permit decision become final agency action when a final permit decision is issued by the EPA pursuant to 40 C.F.R. § 124.19(l).

Final Permit

The final permit and Response to Comments document are available for viewing at the Decatur Public Library, 130 N. Franklin Street, Decatur, Illinois.

Please contact Allan Batka of my staff at (312) 353-7316, or via email at batka.allan@epa.gov if you have any questions about the Archer Daniels Midland injection well permit.



Tinka G. Hyde
Director, Water Division
U.S. Environmental Protection Agency
Region 5

Date 9/23/14