

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

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In re	)	
	)	
Pratt Zero Carbon, LLC	)	UIC Appeal No. 26-03
Pratt Energy CCUS #1 (PECCUS-1)	)	
Pratt County, Kansas	)	
Class VI UIC Permit No. KSS151570001	)	
	)	

RESPONSE OF PRATT ZERO CARBON, LLC TO PETITION FOR REVIEW

ATTACHMENT 4



REGION 7

LENEXA, KS 66219

U.S. ENVIRONMENTAL PROTECTION AGENCY

UNDERGROUND INJECTION CONTROL RESPONSE TO COMMENTS

CLASS VI INJECTION WELL PERMIT

Permit No. KSS151570001

Pratt Zero Carbon, LLC – Pratt Energy CCUS#1 (PECCUS-1) – Pratt County, Kansas

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I. Introduction

The United States Environmental Protection Agency, Region 7, issues this response to comments in accordance with 40 C.F.R. § 124.17(a). This regulation requires that at the time any final EPA permit decision is issued, the Agency shall: (1) specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and (2) briefly describe and respond to all significant comments on the draft permit raised during the public comment period, or during any hearing.

II. Background

On March 5, 2026, EPA released a draft Underground Injection Control (UIC) Class VI permit (Permit No. KSS151570001) for public comment. This permit is intended for the injection of carbon dioxide for long-term storage by Pratt Zero Carbon, LLC (PZC), a subsidiary of Pratt Energy, LLC. On March 5, 2026, the publication of the draft permit on www.regulations.gov and local newspaper began the public comment period which ended on April 19, 2026.

On March 5, 2026, EPA published a public notice in the Tri-County Tribune. This notice provided a summary of the draft permit, details about the location and timing of the public availability session and public hearing, instructions to locate the draft permit, and guidance on how to submit comments.

On April 9, 2026, EPA conducted a 90-minute public information session in Pratt, Kansas to allow interested parties to ask questions about the draft permit. This was followed by a public hearing at the same location where the public was invited to provide oral and/or written comments regarding the draft permit. A court stenographer was present during the hearing to document and transcribe any comments made during the hearing. No comments were received during the public hearing.

EPA also solicited written comments on the proposed permit through Regulations.gov under Docket EPA-R07-OW-2026-1585. This platform allowed the public to review the draft permit, the Fact Sheet, and the public notice that was posted in the Tri-County Tribune. All comments received during the public comment period are available on Regulations.gov under the same Docket Number.

III. Description of Changes

In accordance with 40 C.F.R. Part 124.17(a)(1), the EPA hereby specifies which provisions of the draft permits have been changed in the final Permit decision and the reasons for the changes. The changes to the draft permits are explained below.

Due to a typographical error the EPA is amending the first two rows Agency names in Table 10-4 to read:

Agency	Phone Number
Pratt County Police Department Pratt City Police Department	620-672-5551
Pratt Fire Department Pratt City Fire Department	620-672-4600
Pratt Regional Medical Center	620-672-7451
Kansas Division of Emergency Management	785-291-3333
Kansas Department of Health and Environment (Division of Environment)	785-291-3092
UIC Program Director (Ben Meissner, Region 7)	913-551-7992
EPA National Response Center (24 Hours)	800-424-8802
Kansas Geological Survey	785-864-3965

IV. General and Out-of-Scope Comments

Part C of the Safe Drinking Water Act and EPA regulations at 40 C.F.R. Parts 124, 144, and 146 outline the requirements and standards that applicants must meet to obtain a UIC permit. These regulations define the scope of EPA's regulatory authority and detail the permit application review process, including standards for geologic siting, well engineering, operation, injection system monitoring, well plugging and abandonment, post-closure site care, financial assurance, and site restoration for deep injection wells. The regulations also establish terms and conditions of permits. Relevant comments should address these requirements.

EPA received several comments that did not pertain to the eight criteria listed above. The EPA is not obligated to respond to comments that are out of scope and do not relate to the UIC permitting process, the protection of USDWs, or to any UIC regulatory standards applicable to Class VI carbon sequestration projects. A summary of these out-of-scope comments appears below without response.

As indicated above, EPA's permit review is confined to the factors specified at 40 C.F.R. Parts 124, 144, and 146. Comments regarding the following topics are outside the scope of the UIC program with respect to this permitting action:

1. Adequacy of carbon capture equipment installed at the plant.
2. Information on carbon capture equipment installed at the plant, its water usage, and waste generated.
3. The viability of producing ethanol and generating carbon credits.
4. Concerns regarding pipeline construction, operations, and monitoring.
5. An analysis of whether this project, or carbon capture and sequestration in general, is financially feasible.
6. Issues of property and pore-space ownership.
7. Potential higher ethanol production rates create an increase in water demand.
8. Estimated engineering costs for repairing water treatment plants.

V. In-Scope Comments

Below are the EPA's responses to the in-scope comments received during the public comment period.

1. General Comments

Comment 1a: Several commenters expressed concern about the lack of transparency and availability of data generated under the conditions of this draft permit.

EPA Response to Comment 1a: The EPA agrees that monitoring data must be available to the public. All monitoring reports and any notice of violation will be available on the EPA's UIC Class VI Data Repository website at https://udr.epa.gov/ords/uicdr/r/uicdr_ext/uicdr-pub/map. Additional information may be available through filing a Freedom of Information Act request.

Comment 1b: Several commenters expressed concern about PZC's previous violation of the Community Right to Know Act, and a recent violation issued by the Kansas Corporation Commission, and that PZC will not act responsibly if problems arise, regardless of permit requirements.

EPA Response to Comment 1b: The EPA clarifies that review of this permitting must be within the scope of 40 C.F.R. Part 146 Subpart H, which stipulates specific requirements for geologic siting, well construction, operation, testing and monitoring of the injection well and the project, well plugging and abandonment, post-injection site care, financial responsibility, and site restoration for CO₂ injection wells. The terms and conditions of the permits require PZC to meet these requirements during the injection and post-injection phases of the project.

The EPA appreciates the commenters' concerns about past activities by the applicant; however, the EPA clarifies that the activities on this project will be pursuant to a Class VI permit that incorporates the requirements of 40 C.F.R. Part 146 Subpart H, and the EPA will require the permittee to perform activities as described in the permit. Under federal law, permit termination and/or civil and criminal penalties may be levied against the owner or operator for violations of the permit.

2. Regulations and Oversight

Comment 2a: One commenter suggested that the draft permit and the UIC authority should be expanded to cover regulations for air, land, and humans.

EPA Response to Comment 2a: EPA regulations at 40 C.F.R. Parts 124, 144, and 146 establish the requirements and standards that must be met by permit applicants UIC permit application approval. These regulations define the scope of the EPA's regulatory authority and the permit application review process, including standards for geologic siting, well engineering, operation, injection system monitoring, well plugging and abandonment, post-injection site care, financial assurance, and site restoration for deep injection wells. The regulations also set requirements for the terms and conditions of permits. Requirements for

programs outside of the UIC Program's purpose and mandate, which is to protect underground sources of drinking water, would be outside the purview of the UIC program's regulatory authority.

Comment 2b: One commenter suggested that new regulations should be established against withholding data which would be key in reducing risk to underground sources of drinking water.

EPA Response to Comment 2b: As previously mentioned in response to Comment 1a, the EPA agrees that monitoring data must be made available to the public. All monitoring reports and any notices of violations will be available on the EPA's Class VI Data Repository website at https://udr.epa.gov/ords/uicdr/r/uicdr_ext/uicdr-pub/map. Withholding reporting information required by this permit could be an EPA-enforceable violation of the permit. Additional information may be requested through a Freedom of Information Act request. Finally, the promulgation of new regulations is outside the scope of this permit review by EPA.

Comment 2c: One commenter requested that EPA commit to physical follow-up visits to the site with publicly accessible reports or at least meet with people overseeing the daily operations with publicly accessible reports.

EPA Response to Comment 2c: The EPA conducts periodic environmental compliance inspections to supplement regular self-monitoring data, and permit violations are subject to an EPA enforcement action. Credentialed EPA inspectors conduct periodic field inspections of wells, investigate non-compliance, follow up on citizen complaints, and evaluate permit violations. If warranted, EPA inspectors or designated representatives may also conduct independent sampling to confirm the accuracy of data collected and reported by the permittee. Under federal law, there are civil and criminal penalties for violations and any notices of violation would be available on the Class VI Data Repository website at https://udr.epa.gov/ords/uicdr/r/uicdr_ext/uicdr-pub/map.

3. Public Participation Process

Comment 3a: One commenter expressed concern about the lack of City, County, and State agencies at the public information meeting and public hearing. Noting the only notification they were aware of was the public notice published in the local newspaper.

EPA Response to Comment 3a: Pursuant to 40 C.F.R. Part 124.10 and 124.12, the EPA mailed the public notice and fact sheet to property owners within one-half mile of the proposed area of review, posted the public notice in a newspaper of local circulation, and notified both the Kansas Corporation Commission and the Kansas Department of Health and Environment. In addition, the EPA consulted with the City of Pratt regarding the proposed permit and placed the notice and associated materials on its regional website and social media accounts for the public to access.

Comment 3b: One commenter indicated that a 30-day public comment period was inadequate and requested the public comment period be extended by an additional 60 days.

EPA Response to Comment 3b: EPA's UIC permitting regulations require the Agency to hold at least a 30-day public comment period whenever the Director prepares a draft permit. See 40 C.F.R. Part 124.10(b)(1). EPA is also required to hold a public hearing on a draft permit when significant public interest exists or at the Director's discretion (40 C.F.R. Parts 124.12(a)(1) and (2)). Due to the complexity of the materials and potential for public interest, the EPA expanded the 30-day public comment period to 45 days and held a public hearing on April 9, 2026. Additionally, EPA staff made themselves available for the public to contact for questions or concerns regarding the draft permit.

4. Review Process

Comment 4a: One commenter suggested that EPA needs to conduct a thorough review of the permit, geology of the area, engineering scenarios of the plume, injection well design, including new seismic, and other available materials for the project.

EPA Response to Comment 4a: EPA regulations at 40 C.F.R. Parts 144 and 146 (Subpart H for Class VI wells) set the requirements and standards that a UIC permit applicant must meet to be issued a permit. These regulations address geology, siting, well construction and engineering, well operation, testing and monitoring, definition of the area of review, post-injection site care and site closure. EPA reviews permit applications within the context of these regulations. EPA requires each proposed Class VI well applicant to perform a comprehensive review which includes siting, well construction, operational, and financial requirements to ensure the protection of all USDWs. For Class VI permits, the following are the general steps in the review process: completeness review, technical review, decision to issue or deny a draft permit, public comment period, public meeting, public hearing, and decision to issue or deny a final permit. The permit application was submitted in December 2023, and EPA conducted a nearly two-year, comprehensive technical review prior to drafting the permit. EPA issued several requests for additional information to PZC based on its technical review. The technical review consisted of additional input provided by contractor support through EPA Headquarters and Department of Energy staff who reviewed the modeling provided. Therefore, after thoroughly reviewing the permit application, EPA has determined that the requirements for issuing this permit have been met.

Comment 4b: One commenter suggested that PZC needs to hire geologists, engineers, and modelers to research and review all formations and aquifers in the injection area and provide clear evidence of stratigraphic column from surface to basement to inform proper geologic models.

EPA Response to Comment 4b: While the EPA cannot speak to specific

individuals PZC retained to develop the permit application material, as mentioned above, EPA regulations at 40 C.F.R. Parts 144 and 146 (Subpart H for Class VI wells) set the requirements and standards that a UIC permit applicant must meet to be issued a permit. These regulations address geology, siting, well construction and engineering, well operation, testing and monitoring, definition of the area of review, post-injection site care and site closure. EPA performs thorough internal administrative and technical reviews, as well as requires each proposed Class VI well applicant to perform a comprehensive review which includes siting, well construction, operational and financial requirements to ensure the protection of all USDWs. PZC provided the stratigraphic cross sections and maps showing features relative to the injection zone(s), which is what is required by 40 C.F.R. Part 146.82(a)(5). EPA's review of the materials provided determined that the requirements of 40 C.F.R. Part 146 Subpart H were met. Additional reviews of construction and operation will occur as specified in 40 C.F.R. Part 146.84(e) and in the permit.

Comment 4c: One commenter indicated that the permit should be re-evaluated at least once every three years during operation and once every five years during the post injection site care period. Additionally, one commenter indicated the area of reviews should be reevaluated annually.

EPA Response to Comment 4c: 40 C.F.R. Part 146.84(e) requires an area of review reevaluation at a minimum fixed frequency, not to exceed five years, as specified in the area of review and corrective action plan, or when monitoring and operational conditions warrant a reevaluation. Owners or operators must: reevaluate the area of review, identify all wells in the reevaluated area of review that require corrective action, perform corrective action on wells requiring corrective action in the reevaluated area of review and 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 is needed. While the draft permit established a five-year area of review reevaluation, monitoring data will be reported on a semi-annual basis and reviewed by the EPA to ensure that an earlier reevaluation isn't warranted. If there is an expansion to the area of review based on either monitoring data reviewed or the fixed frequency, EPA is required to amend the permit and provide the public with an opportunity to comment on the proposed modifications to the permit.

5. Site Geology

Comment 5a: One commenter expressed concern that the draft permit listed both the proposed injection zones and potential injection zones.

EPA Response to Comment 5a: EPA acknowledges this wording can be confusing. Formations below the proposed injection zone are listed as potential injection formations as PZC may seek to utilize them in the future. The draft permit only allows injection into the Shawnee and Lansing-Kansas City Groups and prohibits injection into any other formation. Under this draft permit, injection or migration of fluids into any formation other than the designated

injection formations (Shawnee and Lansing-Kansas City Groups) would be a violation of the permit, which may lead to permit termination and/or civil or criminal violations. If PZC were to seek to utilize zones identified as “potential” for injection, this would constitute a major permit modification and require a comprehensive review of the additional zones, an updated area of review based on modeling, potential corrective actions, and updated financial responsibility. Additionally, any major permit modification would be subject to a new public comment period to allow the public to review the proposed revisions and provide comments.

Comment 5b: One commenter was concerned that the draft permit language allowed PZC to “gather site-specific data” to add more “injection and confining zones” to this permit.

EPA Response to Comment 5b: This language is included in the draft permit due to 40 C.F.R. Part 146.87(b), which requires the owner or operator to obtain whole cores or sidewall cores of the injection zone and confining systems. Additionally, PZC must obtain formation fluid samples for analysis by a certified laboratory, and the results must be submitted to the Director for review. This site-specific information is then compared to the existing information submitted in the draft permit and used to reevaluate the area of review. If the site-specific information obtained from the cores (such as porosity, permeability, formation fluid chemistry, etc.) indicates the area of review needs to be expanded, this would constitute a major permit modification and a new public comment period would be opened to allow the public to review the proposed revisions and provide comment. This draft permit only allows injection into the Shawnee and Lansing-Kansas City Groups any injection or migration of fluids outside these approved zones would be a violation of the permit and could result in permit termination and/or civil and criminal penalties.

Comment 5c: One commenter expressed concern the references to the Sappa & Grand Island Formations and the Fullerton and Holdrege formations are not formations and are members of the Meade and Blanco Formation.

EPA Response to Comment 5c: EPA acknowledges that some material available on the Kansas Geologic Survey website indicates these are members of the Meade and Blanco Formation, and there is additional information available from KGS which refers to them as formations as well. Regardless of regional naming conventions, this discrepancy does not alter the draft permitting decision nor negate that the EPA has found the proposed operations to meet the federal requirements under 40 C.F.R. Part 144 and 146 (Subpart H for Class VI injection wells).

Comment 5d: One commenter expressed concern about the use of the word phanerozoic in the draft permit.

EPA Response to Comment 5d: EPA finds this reference to the Phanerozoic in the context of the draft permit to be acceptable. This passage is merely using this term in a general way to describe all the geologic layers which lay on top of

the Precambrian basement structure.

Comment 5e: One commenter expressed concern of potential reservoirs being combined into a single grouping and single depth, and the aquifers listed as “alluvium USDW” and “lowermost USDW” are inappropriately titled and should be listed as Pleistocene on Figures 1-5.

EPA Response to Comment 5e: After additional review, EPA finds Figures 1-5 to be adequate for conveying the general stratigraphy of the proposed injection well. Specific information on the intervals of interest can be found elsewhere in the draft permit and will be further refined with the collection of site-specific data during construction. Additionally, while the “Sappa and Grand Island” and “Fullerton and Holdredge” Formations are listed as Alluvium and Lowermost USDW, respectively, and may be Pleistocene in age, they still fall within the Quaternary and, therefore, are placed in the proper location on Figure 1-5.

Comment 5f: One commenter expressed concern on unconformities in aquifers and communication between USDWs.

EPA Response to Comment 5f: The EPA agrees that unconformities exist and there is communication between USDWs within the project area. However, as required under 40 C.F.R. 146.86(b)(2), to be protective of underground sources of drinking water, proposed injection wells must have a surface casing which extends through the lowermost USDW and be cemented to the surface through the use of a single or multiple strings of casing and cement. Information gathered during the permit review indicated the lowermost USDW is approximately 230 feet below ground surface. The proposed surface casing for the injection well extends to approximately 800 feet below ground surface which provides an additional 570 feet of protection for USDWs at the site. There is an additional protective casing between the surface and long string casing which will extend to approximately 2,860 feet below ground surface, adding an additional layer of protection for USDWs.

Comment 5g: One commenter expressed concern on the lack of information on the Pleasanton and Cherokee groups and that the Marmaton, Pleasanton, and Cherokee groups should not be considered confining zones.

EPA Response to Comment 5g: As mentioned in a previous response to comment, these are listed as potential reservoirs which may be analyzed in the future for injection and are not listed as confining zones. The draft permit only allows injection into the Shawnee and Lansing-Kansas City formations and includes the Wabaunsee and Shawnee Groups as upper confining zones. Any injection or migration of fluid outside those zones would be a permit violation. If PZC wishes to use these formations for injection in the future, it would trigger additional information requirements and would be considered a major permit modification opening the modifications to a public comment period.

Comment 5h: One commenter expressed concern that the confining zones are carbonate and limestone which decreases their ability to withstand geochemical

changes from injection activities.

EPA Response to Comment 5h: While the two proposed primary confining zones' (Heebner Shale and Wabaunsee Group) lithology may have some carbonate constituents, they also consist of cyclic shale and mudrock/mudstone depositional layers that should not have adverse geochemical reactions to the injectate and should prevent fluid movement outside the proposed injection zones. The sampling, analysis, and review requirements of 40 C.F.R. 146.87(b) will provide site-specific data to ensure the compatibility of the rock formations and formation fluids with the injectate.

Comment 5i: One commenter asked why PZC has been conducting seismic surveys and installing a monitoring well near their property line if the project won't affect them.

EPA Response to Comment 5i: This comment is likely referring to PZC working to obtain 3D seismic information for site-specific information on the geology of the site. While PZC may be obtaining 3D seismic information along their property line, a careful evaluation of the area of review was conducted and it was determined that based on the available information, the area of review was appropriately sized. Obtaining seismic and monitoring data from an area wider than the proposed area of review is part of building accurate models, ensuring protection of USDWs, and the emergency response plans. If new information is obtained through core data and the area of review expands, then this would constitute a major permit modification which would trigger a new public comment period.

Comment 5j: One commenter expressed concern that there was no seismic study included in the application and that a permit should not be granted if it is not included.

EPA Response to Comment 5j: This proposed draft permit grants PZC the ability to construct the well and includes requirements to obtain information confirming the site-specific information. In addition to this information being obtained by core recovery and analysis, this also includes obtaining 3D seismic information to confirm the geologic structure of the area. An authorization to inject will not be issued until the site-specific information obtained (core data, seismic, geochemical, etc.) has been reviewed by the Director. If new data indicate changes need to be made to the permit to ensure the protection of USDWs, the modifications will be open to the public for review and comment.

Comment 5k: One commenter stated that the subsurface is not a sealed container.

EPA Response to Comment 5k: The EPA shares the concern of ensuring that any proposed injection activity remains within the approved injection zone and is protective of USDWs. The Class VI requirements and PZC's draft permit contain numerous provisions to ensure the safety of the project and the protection of USDWs. This includes that the site must have suitable geology that meets the

requirements of 40 C.F.R. Part 146.83 to protect USDWs from endangerment with: (1) an injection zone that can receive the total volume of CO₂ that PZC will inject without fracturing; and (2) a competent confining zone, with no transmissive faults or fractures to prevent the CO₂ from moving upward. Additionally, operating conditions are incorporated into the draft permit to ensure that injection pressure will not initiate fractures in the injection or confining zones which could serve as conduits for the migration of the injectate outside the permitted injection formations. The injection wells are equipped with an automatic surface shut-off system that would shut off the well if any permitted operating parameters, such as injection pressure, diverge from permit limitations. Finally, 40 C.F.R. Part 146.83(a)(2) requires that confining zone(s) be free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced formation fluids. A review of the information provided did not identify any such features present in the proposed confining zones within the area of review.

Comment 5l: One commenter indicated that geochemistry is not being considered by PZC.

EPA Response to Comment 5l: The EPA recognizes that interactions between the CO₂ and formation fluids may cause changes in the subsurface. For this reason, applicants are required to provide information on the compatibility of the formation fluids with the CO₂ injectate. During required pre-operational testing, PZC will gather fluid samples from the proposed injection zones and perform a geochemical compatibility analysis to identify any potential reactions which could affect injection operations. The fluid analysis and results of geochemical studies must also be submitted to the EPA for review prior to authorizing injection.

Comment 5m: One commenter was concerned that the High Plains Aquifer sits atop the confining zone and was not considered or protected by the requirements in the draft permit.

EPA Response to Comment 5m: The EPA acknowledges the commenter's concern regarding the protection of the High Plains Aquifer but disagrees that it was not considered or protected by the draft permit. Based on information reviewed, the lowermost USDW identified at the site is the Fullerton and Holdrege Aquifers which occur at approximately 230 feet below ground surface. As mentioned previously, 40 C.F.R. Part 146.86(b)(2) requires injection wells to have surface casing which extends through the lowermost USDW and is cemented to surface through the use of a single or multiple strings of casing and cement. The draft permit sets the surface casing at 800 feet below ground surface into the Sumner Group. In addition to the surface casing, PZC will also install an intermediate casing which extends into the Wabaunsee Group approximately 2,860 feet below ground surface. This provides an additional protective layer to all USDWs located at the site, including the High Plains Aquifer which qualifies as a USDW and is located approximately 160 feet below the ground surface.

6. Area of Review and Modeling

Comment 6a: Several commenters expressed concern that the area of review calculated by modeling and established in the draft permit does not adequately consider all nearby operations, potential injection zones, fault systems in basement rock, and nearby artificial penetrations and additional analysis outside the area of review should be conducted including the central Kansas uplift, the Sedgwick Basin, and Hugoton basins.

EPA Response to Comment 6a: As defined at 40 C.F.R. Part 146.84(a) the area of review is the region surrounding the geologic sequestration project where USDWs may be endangered by the proposed injection activity. The area of review is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream and is based on site characterization, monitoring, and operational data.

In accordance with 40 C.F.R. Part 146.84(c)(1), PZC delineated the area of review using a computational model that predicts the movement of the carbon dioxide plume and critical pressure front based on available information about planned injection operations and the characteristics of the subsurface rock formations. Due to the number of nearby artificial penetrations, EPA requested an additional buffer zone analysis for artificial penetrations be conducted 500 feet outside the proposed area of review. This yielded five additional oil and gas wells which have been plugged. Due to the proximity of these wells to the area of review, should monitoring data or an area of review reevaluation indicate the area of review should be expanded, any well within this area will need to be reevaluated and potentially re-plugged with CO₂ resistant cement to ensure no upward migration of injection fluids. This would also be a major permit modification which would be open for public comment.

The area of review is based on modeling that reflects site-specific data to predict the extent of the CO₂ plume and pressure front, which are the areas within which any deficient wells could be affected by the proposed operation. Given the complexity of area of review delineations for Class VI projects, which are more detailed than is required for other injection well classes, the EPA disagrees that additional analysis outside the buffer is necessary to ensure USDW non-endangerment or that evaluating wells outside the delineated area of review is needed. The EPA clarifies that the scope of the UIC permits is limited to wells within the identified area of review of the proposed Class VI injection well.

As previously mentioned, PZC must reevaluate the area of review every five years, at a minimum, for the life of the project by incorporating operational and monitoring data into the delineation model in order to verify that the plume and pressure front are behaving as predicted. Part of the area of review reevaluation process includes a new survey of wells to identify the names and locations of all wells within the area of review (existing or modified). This process allows EPA and PZC to identify and address concerns about additional abandoned wells affected by the project. Injection operations cannot continue if the UIC Program

Director does not approve the revised area of review, and if necessary, any potential corrective actions.

The EPA further clarifies that the applicant must submit testing, monitoring, and operational data every six months, which will be reviewed by the region. Should any unforeseen situations arise, such as monitoring data that indicates the CO₂ plume and pressure front are behaving differently than predicted or an emergency event occurs, this may trigger an out-of-cycle area of review reevaluation based on consultation with the UIC Program Director. PZC would be required to update the area of review modeling and, if the resultant area of review is larger than initially predicted, they would be required to identify whether any additional wells may necessitate corrective action and perform any needed corrective action. Such changes could result in a major permit modification, reopening the permit to public comment.

Comment 6b: One commenter expressed concern that when PZC contacted them in 2022, the proposed area of review included their property, but the application submitted to EPA for review no longer has the property within the modeled area of review.

EPA Response to Comment 6b: EPA is unable to comment on what project specifics were discussed with nearby property owners prior to an official submittal of the permit application. However, based on the map provided in the comments, it appears the injection well was relocated further north, which changed the location of the area of review shown in the map provided.

Comment 6c: Several commenters expressed concern for a nearby proposed ion exchange water treatment facility and EPA should reach out to City officials to see if they had any response to the draft permit.

EPA Response to Comment 6c: EPA has had subsequent communication with the City of Pratt to discuss the proposed ion exchange water treatment center and their existing and proposed wells. The proposed treatment plant is located approximately one mile outside the area of review. As mentioned previously, the area of review is the region surrounding the geologic sequestration project where USDWs may be endangered by the proposed injection activity. This area of review is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream and is based on site characterization, monitoring and operational data. Locations outside this area of review are not anticipated to experience any negative effects from the proposed injection activities.

Additionally, an aquifer must have less than 10,000 mg/L total dissolved solids to be considered a USDW. The lowermost USDW was identified at approximately 230 feet below ground surface. This creates approximately 2,600 feet of separation between the lowermost USDW and the top of the upper confining zone. There are additional confining zones between these two sections which should also prohibit the upward migration of any injectate or formation fluids from reaching an underground source of drinking water. Due to the distance

between the proposed treatment facility and the edge of the area of review, the depths of the proposed injection zone and lowermost underground source of drinking water, and additional confining zones between the two depths there is no anticipated impact to the proposed water treatment facility or its existing or proposed wells.

7. Construction

Comment 7a: Several commenters expressed concern regarding the perforations into the proposed injection zones and how which formations are accepting the injectate will be tracked to ensure the proposed area of review is accurate.

EPA Response to Comment 7a: Due to the proposed construction of the well, perforations will be needed to ensure injection only occurs into the Shawnee and Lansing-Kansas City Groups. These injection operations will be monitored by PE IZM-1 which is a monitoring well that extends into the injection zones. PE IZM-1 will be used to directly monitor injection zone pressure and temperatures. To gather this information, PE IZM-1 will have a downhole pressure and temperature gauge and will have distributed temperature sensing fiber-optic lines along the well to gather temperature data along the wellbore. This data will be compared to the anticipated modeling data for verification the plume and pressure front are behaving as predicted. Anomalies in injection rate, volume, pressure, and temperature would be detected in real-time and appropriate action taken, as needed. This data will be compared to the predicted model data, and if it appears that the injectate is not behaving as the modeling indicated, modifications to the permit and area of review may be made. As mentioned previously, an increased area of review would also trigger another public comment period for the public to review the proposed revisions and provide comments.

Comment 7b: Several commenters expressed concern that the materials used to construct the well may not be adequate over the duration of the project and that CO₂ resistant materials should be used throughout the entirety of the well.

EPA Response to Comment 7b: The compatibility between well materials, CO₂, and the products of CO₂-water mixtures is a critical element of maintaining the integrity of injection wells and preventing fluid movement that can endanger USDWs. For this reason, Class VI injection and monitoring wells are required to be designed and built to withstand the environment to which they will be exposed over the lifespan of the project.

The EPA acknowledges that there are concerns with corrosion at Class VI injection wells. Factors impacting the corrosivity of an environment containing CO₂ are complex and may include, but are not limited to, pressure, temperature, and impurities (Cl⁻, O₂, SO₂, NO_x, H₂S, etc.) that are frequently present in sequestration injectate and/or formation fluids. Selection of appropriate construction materials is, therefore, project and site-specific and depend, among other things, on the composition of formation fluids and the CO₂ stream.

During technical review of the permit application, the EPA requested that PZC conduct corrosion modeling on the initially proposed chromium-13 well materials. Results of this modeling indicated that chromium-13 may not be adequate to address corrosion over the life of the project. PZC decided to revise the permit application with chromium-25 well materials, which exceeds the minimum construction materials the corrosion modeling indicated would be necessary.

In addition to the use of chromium-25 well materials, corrosion coupons representative of the well construction materials will be monitored quarterly for mass loss and potential corrosion pitting. Should corrosion coupons indicate unexpected loss of strength or performance of construction materials, a casing inspection log may be required. Additionally, annual mechanical integrity testing will monitor the integrity of the injection and monitoring wells, and additional tests may be required should these tests reveal potential issues. All this information and testing requirements of the permit and/or regulations are to provide information to ensure that the proposed wells maintain their mechanical integrity and are not a risk to any USDW.

8. Testing and Monitoring

Comment 8a: One commenter expressed concern that “common sense tells us—if we must monitor this for 12 years during the injection period then continue monitoring for an additional 50 years why would we even want to allow this carbon capture to take place.”

EPA Response to Comment 8a: The testing and monitoring plan included in the draft permit describes the rigorous testing and monitoring that PZC is required to perform during the life of the project pursuant to 40 C.F.R. Part 146.90. Once injection ends, testing and monitoring must continue during the 50-year post injection site care period pursuant to 40 C.F.R. Part 146.93. The permit and plans contain monitoring requirements for all aspects of the Class VI UIC injection project including mechanical integrity testing of the injection and monitoring wells, direct and indirect CO₂ plume and pressure front tracking, seismic monitoring, corrosion monitoring, and water quality monitoring directly above the confining zone and in the lowermost USDW. This testing and monitoring is required to ensure that the injection system is operating within the limits of the permit and to demonstrate that USDWs are not endangered throughout the life of the project. Based on the information reviewed by the EPA and established in the permit, PZC has met the testing and monitoring requirements pursuant to 40 C.F.R. Parts 146.90 and 146.93.

Comment 8b: One commenter expressed concern on how EPA will determine what is being captured at the facility is what is injected into the subsurface.

EPA Response to Comment 8b: The testing and monitoring plan included in the draft permit describes the proposed injectate to be captured at the facility and delivered to the injection well for sequestration. The CO₂ injectate is anticipated to be approximately 99.69% CO₂ with 20 parts per million oxygen and 300 –

1,000 parts per million nitrogen. This information was estimated using currently available vent scrubber data from the source ethanol facility. To ensure the subsurface injectate is allowed by the permit, quarterly sampling of the injectate is required. This quarterly sampling will occur at the wellhead, and at the point of injection to ensure that no changes to the injectate occur between the ethanol facility and its transport to the wellhead. The samples are then analyzed by an outside, accredited laboratory. PZC is required to submit the sample results to the EPA under the permit conditions and the results will be available on the EPA's Class VI Data Repository which can be found at https://udr.epa.gov/ords/uicdr/r/uicdr_ext/uicdr-pub/map.

9. Emergency and Remedial Response

Comment 9a: Several commenters expressed concern about the adequacy of staff training for emergency events, first responders having adequate training and specialized equipment to deal with potential emergencies, and a faster notification system to notify nearby landowners of an emergency should be implemented.

EPA Response to Comment 9a: The purpose of the emergency and remedial response requirements for Class VI wells is to ensure expeditious and appropriate responses should an emergency event occur. Under 40 C.F.R. Part 146.94(a), the Emergency and Remedial Response Plan must describe "actions the owner or operator 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." 40 C.F.R. Part 146.94(b) further requires the owner or operator to take the following actions if they obtain evidence that the injected carbon dioxide stream and associated pressure front may cause an endangerment to a USDW: (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. Part O of the draft permit incorporates these requirements. Additionally, the Emergency and Remedial Response Plan, as part of the application, has been incorporated into the permit as Attachment F and is an enforceable part of the permit. Part of this includes training and specialized equipment for on-site emergency response personnel to ensure PZC has adequate equipment and training to respond in the unlikely event of an emergency.

The Emergency and Remedial Response Plan identifies hypothetical, potential risk scenarios based on PZC's understanding of the site geology, operations, and the local community. It establishes procedures the operator must follow during an emergency event. This includes communicating with the public about any event that requires an emergency response to ensure the public is informed of what happened and if there were any environmental or safety implications. The permit provides flexibility in how this information is communicated with the public based on the emergency event, its severity, and whether any impacts to USDWs occurred. This ensures that written communication is not the only

method of notifying adjacent landowners and businesses if there is an emergency event that requires swift communication.

The Emergency and Remedial Response Plan addresses actions the owner or operator must take to address movement of the injection or formation fluids that may cause an endangerment to a USDW. The community's infrastructure, transportation, training and experience, including first responder and hospital resources, are outside the scope of this permitting action. However, as described in the Emergency and Remedial Response Plan, PZC will communicate with the appropriate local authorities, including, but not limited to, the Pratt City Fire Station, Pratt City Police Department, and Pratt Regional Medical Center in addition to the relevant State agencies based on the type of emergency event and severity.

Comment 9b: One commenter indicated that the information in Table 10-4 has an inaccurate title for Pratt County Police Department and Pratt Fire Department.

EPA Response to Comment 9b: EPA acknowledges this typographical error and will make a minor modification to Table 10-4 in the permit to change "Pratt County Police Department" to "Pratt City Police Department" and "Pratt Fire Department" to "Pratt City Fire Department".

10. Seismicity

Comment 10a: One commenter expressed concern about injection occurring near or into the basement rocks which may cause seismicity.

EPA Response to Comment 10a: The EPA's technical review of the permit applications included an assessment of faults and fractures, historic seismicity in the area, and the probability of induced seismicity due to injection activities as required by 40 C.F.R. Part 146.82(a)(3)(v). A search of historic seismic activity revealed the nearest event occurred south of Pratt County in Barber County, which measured 5 on the Mercalli scale. Additional analysis was conducted on seismicity in a 50-mile radius of the proposed injection well beginning January 1, 2015, which resulted in approximately 377 events having occurred in this radius. Most of this seismicity was found in Sumner County and near Hutchinson, Kansas. No seismic events occurred near the proposed injection well location, as shown on Figure 1-27 of the Permit.

The permit restricts injection to only occur into the Shawnee and Lansing-Kansas City Groups, which are located stratigraphically higher than the Arbuckle Formation and Precambrian crystalline basement rock at the site. Based on the information provided in the application and reviewed by the EPA, the Precambrian crystalline basement rock sits at approximately 5,278 feet below ground surface. This is approximately 1,100 feet of separation between the bottom of the Lansing-Kansas City Group and the top of the Precambrian

crystalline basement rock. Additionally, the estimated top of the Arbuckle Formation, which is located immediately above the Precambrian crystalline basement rock, is separated by approximately 250 feet of rock consisting of several formations such as the Pleasanton, Marmaton and Cherokee Groups, the Mississippian Interval, Viola Limestones, and the Simpson Formation which should make any induced seismicity occurring in either the Arbuckle Formation or Precambrian crystalline basement rock, highly unlikely.

Finally, seismicity will be monitored in the project area for seismic events which may occur near the project area. The Emergency and Remedial Response Plan details response actions to be executed by PZC which requires notification and potentially initiating shutdown plans for the injection well while an analysis is conducted to ensure injection operations are protective of USDWs. If injection activities appear to cause induced seismicity permit modifications would need to be made to ensure induced seismicity is not occurring due to injection activities. This would include, but is not limited to, adjusting permitted injection pressures and volumes or could include termination of the permit if acceptable conditions cannot be established.

Comment 10b: One commenter expressed concern on the phase shift of the injectate from liquid to supercritical in the wellbore which may fracture the confining zones.

EPA Response to Comment 10b: 40 C.F.R. Part 146.83(a)(2) requires that confining zone(s) be free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced formations fluids and allow injection at proposed maximum pressures and volumes without initiating or propagating fractures in the confining zone. An additional safety factor is included under 40 C.F.R. Part 146.88(a) which states “except under stimulation, the owner or operator must ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone(s) as to ensure that injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case may injection pressure initiate fractures in the confining zone(s) or cause the movement of injection or formation fluids that endangers a USDW.” Both requirements have been incorporated into the draft permit and are enforceable conditions.

The operating conditions in the permit are established based on the available site-specific information to ensure that the requirements mentioned will not be violated.

Finally, the injection well will be equipped with automatic surface shut-off systems that will shut in the well if any permitted operating parameters exceed permit limitations. The permit limitations should prevent any fracturing of the injection zone or confining zone, in the event of a pressure or rate exceeding the permitting value.

11. Plugging and Abandonment

Comment 11a: One commenter expressed concern that the plugging of Rolf #1 and Swingle #1 wells are not utilizing carbon dioxide resistant cement and is not one continuous plug.

EPA Response to Comment 11a: The EPA acknowledges that both the Rolf #1 and Swingle #1 wells are not plugged with one continuous cement plug. However, 40 C.F.R. Part 146.84(d) states “Owners or operators of Class VI wells must perform corrective action on all wells in the area of review that are determined to need corrective action, using methods designed to prevent the movement of fluid into or between USDWs, including use of materials compatible with the carbon dioxide stream, where appropriate”, and is incorporated into the permit as an enforceable condition. The EPA reviewed the proposed plugging plans for both Rolf #1 and Swingle #1 and determined that they met the requirements in the permit.

While these wells do not have a continuous cement plug, they do have six plugs placed throughout the wellbore at confining zones which should isolate formations and prevent the movement of fluid into or between USDWs. Additionally, the use of CO₂ resistant cement is required for plugs that may encounter CO₂ in the subsurface. As described in Attachment B and specifically described in the Section 2.4.3 Corrective Action Schedule and shown in Figure 2-30 and 2-31, Plugs 1, 2, and 3, that extend above the upper confining zone, will use CO₂ resistant cement to ensure they are compatible with formation fluids over the life of the project.

12. Financial Responsibility

Comment 12a: One commenter requested that EPA receive updated financial responsibility amounts due to inflation and tariffs.

EPA Response to Comment 12a: The EPA acknowledges the need to ensure owner or operators of Class VI wells maintain adequate financial responsibility over the life of the project. Because the permit was submitted in December 2023, EPA required PZC to update their financial responsibility numbers. The financial responsibility amounts established in the draft permit are reflective of 2026 dollars. Additionally, Class VI operators or owners are required to adjust financial responsibility amounts annually to account for inflation. This ensures that financial responsibility amounts remain adequate over the entire life of the project should they be required for corrective action, plugging and abandonment, corrective action, post injection site care, and/or emergency and remedial response.

Comment 12b: One commenter expressed concern that financial responsibility amounts only cover one mitigated leak throughout the project’s life, creating insufficient financial responsibility coverage.

EPA Response to Comment 12b: The EPA disagrees that there is inadequate

financial coverage to address emergency events. Federal regulations require owners or operators of Class VI injection wells to demonstrate and maintain financial responsibility for the following geologic sequestration activities: corrective action, injection well plugging, post injection site care and site closure, and emergency and remedial response. The specific regulatory requirements for financial responsibility applicable to Class VI wells are found at 40 C.F.R. Part 146.85 and incorporated into the permit as enforceable conditions. These financial responsibility requirements are designed to ensure that resources are available to conduct corrective action on any wells in the area of review, implement any needed emergency responses, responsibly plug the injection wells, and properly restore and close the site. The aim is to ensure the protection of USDWs in all eventualities. If an owner or operator is unable to meet their financial obligations under this permit (e.g., as a result of bankruptcy or other financial difficulties), the financial instruments will provide the funding for the EPA to implement necessary actions to ensure the protection of USDWs. Based on the information reviewed by the EPA, PZC has met the financial responsibility requirements under 40 C.F.R. Part 146.85 to obtain this permit.

VI. Determination

After considering all public comments, the EPA has determined that none of the comments submitted have raised issues that alter the EPA's basis for determining that it is appropriate to issue a permit to Pratt Zero Carbon, LLC to construct a Class VI injection well in Pratt County, Kansas. Therefore, the EPA is issuing a final permit with the modifications indicated in this response to comments document.

VII. Appeal

In accordance with 40 C.F.R. §124.19, any person who filed comments on the draft permits or participated in the public hearing may petition the EPA's Environmental Appeals Board (EAB) to review any condition of the final permit decision. Any person who failed to file comments or failed to participate in a public hearing on the draft permits may petition for administrative review only to the extent of the changes from the draft to the final permit decisions.

Such a petition shall include a statement of the reasons supporting review of the decision, including a demonstration that the issue(s) being raised for review were raised during the public comment period (including the public hearing) to the extent required by these regulations. The petition should, when appropriate, show that the permit condition(s) being appealed are based upon either, (1) a finding of fact or conclusion of law which is clearly erroneous, or (2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review. A petition for review of any condition of a UIC permit decision must be filed with the EAB

within 30 days after the EPA serves notice of the issuance of the final permit decision. 40 C.F.R. § 124.19(a)(3).

Additional information regarding petitions for review may be found in the Guide to the U.S. Environmental Protection Agency's Environmental Appeals Board (March 2023) available at:

[https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/8f612ee7fc725edd852570760071cb8e/26e637699cb1cc1685257b50004044f6/\\$FILE/Guide%20to%20the%20EAB%20March%202023.pdf](https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/8f612ee7fc725edd852570760071cb8e/26e637699cb1cc1685257b50004044f6/$FILE/Guide%20to%20the%20EAB%20March%202023.pdf).

If you wish to request an administrative review, the EAB encourages you to utilize the EAB's electronic filing system accessible on the website: <http://www.epa.gov/eab> (Click on "Electronic Filing" Link in the left margin). If you must submit a document in hard copy form through the mail or by hand delivery, please specify the name of the permittee or facility and the permit number or correspondence you sent through the mail and the date it was sent.

All documents that are sent through the U.S. Postal Service, 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 Ave., NW
Mail Code 1103M
Washington, DC 20460-0001

Documents that are hand-carried in person, delivered via courier, mailed by Express Mail, or delivered by a non-USPS carrier such as UPS or Federal Express must be delivered to:

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
1201 Constitution Avenue, N.W.
WJC East Building, Room 3332
Washington, D.C. 20004