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

In re:	)	
	)	
Wabash Carbon Services, LLC	)	UIC Appeal No. 24-01
Vermillion and Vigo, IN	)	
Wells CCS#1 and CCS#2	)	
	)	
Underground Injection Control	)	
Permit Nos.: IN-165-6A-0001 and	)	
IN-167-6A-0001	)	
	)	

EPA REGION 5 RESPONSE TO PETITION FOR REVIEW OF EPA PERMIT DECISIONS

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Environmental Appeals Board Cases

United States Court of Appeals Cases

Federal Statutes

Federal Regulations

TABLE OF ATTACHMENTS

[1] The Region has included relevant portions of the administrative record as attachments to this brief; however, the Region can provide any additional documents in the administrative record to the Board or any of the parties if requested.

STATEMENT OF COMPLIANCE WITH WORD LIMITATION

On May 3, 2024, the Board granted the Region's request for an extension of the 14,000-word limitation found at 40 C.F.R. § 124.19(d)(3). Consistent with 40 C.F.R. § 124.19(d)(3), "[t]he table of contents, table of authorities, table of attachments (if any), statement requesting oral argument (if any), statement of compliance with the word limitation, and any attachments do not count toward the word limitation." This brief complies with the Board's extension order of 22,000 words. *See* 40 C.F.R. § 124.19(d)(1)(iv). Given the complexity of the technical issues discussed in this brief and within the voluminous administrative record, particularly with respect to the SDWA claim, the Region is able and willing to provide supplementary briefing on any topic as requested to support the Board's review of the Petition.

STATEMENT REGARDING ORAL ARGUMENT

The United States Environmental Protection Agency, Region 5 (Region) believes that the issues raised by the Petition can be resolved through review of the record and the legal arguments set forth in the filings in this matter. The Region has put extensive effort into this response to ensure that it addresses the relevant issues. Accordingly, the Region believes oral argument is unnecessary, but would welcome oral argument should the Board find that it would assist in their review and determination.

I. INTRODUCTION

The United States Environmental Protection Agency ("EPA" or "Agency"), Region 5 ("Region"), hereby responds to the Petition for Review filed on February 22, 2024 ("Petition") with the Environmental Appeals Board ("EAB" or "Board") by Andrew Lenderman, Ben Lenderman, Floyd Lenderman and Jessie Lenderman ("Petitioners") challenging Permit No. IN-165-6A-001 and Permit No. IN-167-6A-001 ("Permits") issued by the Region to Wabash Carbon Services, LLC ("WCS" or "Wabash") on January 19, 2024, pursuant to the Underground Injection Control ("UIC") Program under Part C of the Safe Drinking Water Act ("SDWA"), 42 U.S.C. §§ 300h *et seq*. The Board should dismiss the claims in the Petition for which Petitioners failed to preserve their arguments and therefore do not meet the threshold filing requirements of 40 C.F.R. §§ 124.13 and 124.19(a)(4)(ii). But even assuming all arguments were preserved, the Petition also should be denied because Petitioners fail to meet their high burden of demonstrating that the Region's decision is clearly erroneous, or otherwise warrants review. Petitioners may disagree with the Region's decision to issue the Permits. That is not the legal standard. As Petitioners themselves acknowledge, a permit decision is upheld as long as the permit issuer exercised considered judgment, duly considered the issues raised, and adopted an approach that is rational in light of the information in the administrative record. Pet. at 5; *In re Gov't of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 334 (EAB 2002). The Permits easily meet that standard.

II. STATUTORY AND REGULATORY FRAMEWORK

Congress enacted the SDWA in 1974 to ensure that the Nation's sources of drinking water are protected against contamination and "to prevent underground injection which endangers drinking water sources." 42 U.S.C. § 300h(b)(1). Part C of the SDWA, 42 U.S.C. §§ 300h to 300h-

8, is designed to protect underground sources of drinking water ("USDWs") from contamination caused by the underground injection of fluids. Among other things, Part C of the SDWA directed EPA to promulgate regulations establishing minimum requirements for UIC programs to prevent underground injection from endangering USDWs. 42 U.S.C. § 300h.

EPA's regulations implementing the UIC program are found in 40 C.F.R. Parts 144-48. Part 144 establishes the regulatory framework, including permitting requirements, for EPA-administered UIC programs. Part 146 sets out technical criteria and standards that must be met in permits.[2] General procedural requirements applicable to UIC permits are found in 40 C.F.R. Part 124. The UIC program regulates underground injection by six classes of wells. 40 C.F.R. § 144.1(g). This appeal concerns two Class VI wells. Class VI are wells into which carbon dioxide ("CO2") is injected for geological sequestration ("GS"). 40 C.F.R. § 144.6(f). EPA published specific regulations for UIC Class VI wells in 2010, now codified at 40 C.F.R. §§ 146.81-95. *See Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO2) Geologic Sequestration (GS)* Wells, 75 Fed. Reg. 77,230 (Dec. 10, 2010) ("Class VI Rule").[3]

At the time the Class VI regulations were promulgated, EPA recognized the uncertainties surrounding GS and, as a result, adopted an "adaptive rulemaking approach." 75 Fed. Reg. at 77,240. As the Board has explained, "[b]y structuring the [Class VI] regulations to allow for an iterative permitting program, which accounts for increased knowledge and operational experience

[2] Parts 145 and 147 address State and Tribal UIC program requirements; Part 148 concerns hazardous waste injection restrictions. None of these Parts are relevant to this appeal.

[3] The Region is the permitting authority for Class VI wells in Indiana. *See* 42 U.S.C. § 300h-1(c); 40 C.F.R. §§ 147.1951-55.

as permitting moves forward, the Agency established necessary requirements during the earliest phases of geologic sequestration deployment, while also creating a mechanism for incorporating into the permit, as needed, any new research, data, or information." *In re Archer Daniels Midland Co*. ("*ADM*"), 17 E.A.D. 380, 384-85 (EAB 2017) (citing 75 Fed. Reg. at 77,240-41).

The Post-Injection Site Care Plan ("PISC") is part of a Class VI permit and is also an iterative process, as detailed in Section V.B.i. below. *See generally* 40 C.F.R. § 146.93. A PISC consists of monitoring requirements that apply to "the period after CO2 injection ceases—but prior to site closure—during which the owner or operator must continue monitoring to ensure USDW protection from endangerment." 75 Fed. Reg. at 77,266; *see also* 40 C.F.R. § 146.93(a)(1), (b). The "period" is known as the PISC timeframe. *See* 75 Fed. Reg. at 77,266; 40 C.F.R. § 146.93(a)(1)(v). The Class VI regulations require the PISC timeframe to be "at least 50 years *or* for the duration of the alternative timeframe approved by [EPA]." 40 C.F.R. § 146.93(b)(1) (emphasis added). Under the latter of these options, EPA may approve an alternative timeframe for a PISC "if an owner or operator can demonstrate during the permitting process that an alternative post-injection site care timeframe is appropriate and ensures non-endangerment of USDWs." 40 C.F.R. § 146.93(c).

III. THE PERMITS AND THE APPEAL

In April 2021, the Region received an application from Wabash for the construction of two Class VI wells known as CCS#1 and CCS#2 ("Wells") for injection of CO2 in Vermillion County and Vigo County, Indiana, respectively. *See* Permits' Applications (April 28, 2021) (A.R. #1) ("Permits' application documents"); (Original documents: A.R. ##2-20). Among the Permits' application documents, Wabash submitted a demonstration for an alternative PISC timeframe of four years ("Original PISC") and a related financial assurance proposal. *See* WCS, *PISC 40 C.F.R.*

146.93(a) Wabash CCS Project (Sept. 14, 2020) (A.R. #5) ("Org. PISC"); WCS, *Original Financial Assurance Demonstration* (April 28, 2021) (A.R. #7) ("Org. FA Calc"). The demonstration walked through each of the regulatory requirements and referenced other permit application documents, such as the Area of Review ("AoR") and the Permit Geologic Summary ("PGS"), for support where appropriate. *See* Org. PISC; WCS, *AoR and Corrective Action Plan 40 C.F.R. 146.84(b) Wabash CCS Project* (April 10, 2021) (A.R. #3) ("Org. AoR"); WCS, *Class VI Permit Application Narrative 40 CFR 146.82(a) Wabash CCS Project* (April 28, 2021) (A.R. #2) ("Org. PGS").

Following a six-month review, on September 28, 2022, the Region issued a 13-page technical review letter ("TRL") to Wabash. Region 5, U.S. EPA, UIC Class 6 [sic] Permit Applications WVCCS #1 and WVCCS #2 (Sept. 28, 2022) (A.R. #70) ("Technical Review Letter" or "TRL"). As EPA's Class VI website explains, "[t]h[e] [technical review] involves a thorough review of all application materials and an ongoing dialogue with the applicant to understand the proposed project and ensure that it will be constructed and operated in a manner that will not endanger USDWs. This is accomplished through an ongoing dialogue between the applicant and the permitting authority."[4] The TRL, as well as the Region's Review of the PGS and Review of the AoR, identified all of the ways in which the Permits' application documents were insufficient or incomplete. TRL; EPA, Region 5, *Evaluation of the Class VI Application Narrative for Wabash Valley Resources Class VI Permit Application* (Sept. 10, 2021) (A.R. #67) ("EPA Review of PGS"); EPA, Region 5, *Evaluation of the AoR Delineation Modeling Approach for Wabash Valley Resources Class VI Permit Application* (Sept. 10, 2021) (A.R. #68) ("EPA Review of AoR"). They

[4] Class VI - Wells used for Geologic Sequestration of Carbon Dioxide, U.S. EPA, https://www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-carbon-dioxide#ClassVI_PermittingProcess (last updated Apr. 15, 2024).

provided the Region's questions, critiques, and feedback on the Permits' application documents, including the demonstration for an alternative PISC timeframe, and they requested further data, information, explanation, and analysis from Wabash. *Id*.

In response, Wabash submitted 191 pages of analysis, explanation, and information to address all the issues raised in the TRL. WCS, *Responses to EPA TRL* (Nov. 11, 2022) (A.R. #71). In December 2022, Wabash submitted revised Permits' application documents addressing and incorporating the Region's concerns and feedback, including a revised demonstration for an alternative PISC timeframe. A.R. ##21-39; WCS, *PISC 40 C.F.R. 146.93(a) Wabash CCS Project* (Feb. 24, 2023) (A.R. #24) ("Rev. PISC"); *see also* WCS, *AoR and Corrective Action Plan 40 C.F.R. 146.84(b) Wabash CCS Project* (Feb. 24, 203) (A.R. #22) ("Rev. AoR"); WCS, *Class VI Permit Application Narrative 40 CFR 146.82(a) Wabash CCS Project* (Feb. 24, 2023) (A.R. #21) ("Rev. PGS").

The Region determined that the revised Permits' application documents submitted by Wabash addressed the issues raised in the TRL and demonstrated that an alternative PISC timeframe of 10 years would not result in any endangerment to USDWs. EPA, Region 5, *Response to Comments* at 18 (January 1, 2024) (A.R. #1014) ("Resp. To Cmts.") ("EPA has determined that the alternate PISC period and the post injection monitoring plan are appropriate and will be protective of USDWs."). Based on this revised application, on July 7, 2023, the Region issued, and provided public notice of, draft UIC Permit No. IN-165-6A-0001 and draft Permit No. IN-167-6A-0001 ("draft Permits") to Wabash for the Wells. *See* Region 5, U.S. EPA, *UIC draft Permit: Class VI No. IN-165-6A-0001* (July 7, 2024) (A.R. #40); Region 5, U.S. EPA, *UIC draft Permit Class VI No. IN-167-6A-0001* (July 7, 2024) (A.R. #41) ("draft Permits"); Region 5, U.S. EPA, *Public*

Comments Sought on Class VI UIC Injection Well Carbon Storage Draft Permits (July 7, 2023) (A.R. #42) ("Fact Sheet"); *see also* A.R. ##43-46 (regarding public notices and mailings). The draft Permits included an alternative PISC timeframe of 10 years. *See* draft Permits at Att. E PISC.

The public comment period for the draft Permits was initially scheduled to end on August 11, 2023, and was later extended to August 21, 2023. Region 5, U.S. EPA, *Public Notice: EPA extends public comment period on underground injection draft permits for WCS in Indiana's Vigo and Vermillion Counties until Monday, Aug. 21* (Aug. 14, 2023) (A.R. #47) ("Newsp. Ext. Notices"); Andreas Lord, *Public comment period extension USPS certificate of service* (Aug. 14, 2023) (A.R. #47) ("Mailing Ext. Notices"). On August 10, 2023, the Region held a public meeting in Terre Haute, Indiana on the draft Permits where it presented information about the draft Permits and provided a question-and-answer period following the presentation. EPA, Region 5, *Draft Permits for the WCS Class VI Carbon Sequestration Injection Wells* (Aug. 10, 2023) (A.R. #1013) ("EPA Presentation"). Also on August 10, 2023, the Region held a public hearing in Terre Haute, Indiana and allowed members of the public to comment verbally on the draft Permits. National Court Reporters Inc., *EPA Public Hearing Certified Original Transcript* (Aug. 10, 2023) (A.R. #1006) ("Transcript"); Comments submitted at Public Hearing (Aug. 10, 2023) (A.R. #1012) ("Cmts. at Hearing").

On January 19, 2024, the Region issued the Permits along with a Response to Comments, which provided the Region's responses to all significant public comments received on the draft Permits during the comment period. Region 5, U.S. EPA, *UIC Permit Class VI No. IN-165-6A-0001* (Jan. 19, 2024) (A.R. #1024); Region 5, U.S. EPA, *UIC Permit Class VI No. IN-167-6A-0001* (Jan. 19, 2024) (A.R. #1025) ("Permits"); Resp. to Cmts.

On January 24, 2024, the Region sent notice of issuance of the Permits, and a copy of the Response to Comments, to Wabash and the commenters who participated in the public comment process including Petitioners. *See* EPA, Region 5, *WCS Final Permits for Class VI wells IN-165-6A-001 (Vermillion Cnty.) and IN_167-6A-001 (Vigo Cnty.)* (Jan. 19, 2024) (A.R. #1017) ("Trans. Ltr. to Applicant"); EPA, Region 5, *WCS Final Permits for Class VI wells IN-165-6A-001 (Vermillion Cnty.) and IN_167-6A-001 (Vigo Cnty.)* (Jan. 19, 2024) (A.R. #1018) ("Trans. Ltr. to Cmtr."). The notice outlined the requirements of 40 C.F.R. § 124.19 for how to appeal the Permits to the Board and provided mailing and filing information. Trans. Ltr. to Applicant at 2. In accordance with the Class VI regulations, the Permits authorize construction of the Wells and prohibit injection until Wabash receives written authorization from the Region. *See* Permits at Sections J and R, Att. H; *see also* 40 C.F.R. § 146.82(a), (c); 146.87.

The Clerk of the Board docketed the Petition for Review of the Permits on February 22, 2024. *See* Board Docket UIC Appeal No. 24-01. The Petition asks the Board to "vacate" the Permits, alleging that the Region perform a cumulative effects analysis, reasonable alternatives analysis, or hard look review for the Permits under the National Environmental Policy Act ("NEPA"), and that the Permits' PISC timeframe and financial assurance conditions violate the SDWA because they are unsupported by the administrative record. Pet. at 1, 6. The Petition further alleges that because the Region violated NEPA and the SDWA, the Region's decisions to issue the Permits were arbitrary and capricious under the Administrative Procedures Act ("APA"). *Id.* at 6.

IV. STANDARD OF REVIEW

Section 124.19 of Title 40 of the United States Code of Federal Regulations governs the Board's review of a UIC permit. If the Board concludes that a petition satisfies all threshold

procedural requirements, the Board will evaluate whether the petition warrants review. *In re Guam Waterworks Auth.*, 15 E.A.D. 437, 443 (EAB 2011). Under 40 C.F.R. § 124.19, the Board has discretion to grant or deny review of a permit decision. *In Re Panoche Energy Ctr., LLC,* 18 E.A.D. 818, 820 (EAB 2023). "In considering whether to grant or deny review of a permit decision," the Board is guided by EPA's statement in promulgating these regulations, that the Board's power to grant review of a permit decision "should be only sparingly exercised," emphasizing that "most permit conditions should be finally determined at the [permit issuer's] level." *In re Ocean Era, Inc*., 18 E.A.D. 678, 691, 696 (EAB 2022) (quoting *Consolidated Permit Regulations*, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980)). "The Board ordinarily denies review of a permit decision (and thus does not remand it) unless the petitioner demonstrates that the permit decision is based on a clearly erroneous finding of fact or conclusion of law, or involves a matter of policy or exercise of discretion that warrants review." *ADM*, 17 E.A.D. at 382-83. The petitioner bears the burden of demonstrating that review is warranted and "must demonstrate that each challenge to a permit decision is based on: (A) A finding of fact or conclusion of law that is clearly erroneous; or (B) An exercise of discretion or an important policy consideration that the Environmental Appeals Board should, in its discretion, review." 40 C.F.R. § 124.19(a)(4)(i).[5]

"When evaluating a challenged permit decision for clear error, the Board examines the administrative record that serves as the basis for the permit to determine whether the permit issuer exercised his or her 'considered judgment.'" *In re City of Lowell*, 18 E.A.D. 115, 132 (EAB 2020)

[5] Here, Petitioners claim that the Region's failure to perform formal NEPA review and the Region's approval of the PISC timeframe are "clearly erroneous." Pet. at 10, 16. The Petition does not raise a challenge to the Permits based on an exercise of discretion or an important policy consideration that the EAB should, in its discretion, review under 40 C.F.R. 124.19(a)(4)(i)(B), and so that standard is not covered in this Section.

(quoting *In re Gen. Elec. Co*., 17 E.A.D. 434, 560-61 (EAB 2018)). "The Board traditionally assigns a heavy burden to petitioners seeking review of issues that are essentially technical in nature." *D.C. Mun. Separate Storm Sewer Sys*., 10 E.A.D. at 334 (citing *In re City of Moscow, Idaho*, 10 E.A.D. 135, 142 (EAB 2001)). "When the Board is presented with technical issues," the Board seeks to "determine whether the record demonstrates that the Region duly considered the issues raised in the comments and whether the approach ultimately adopted by the Region is rational in light of all the information in the record." *Id*. (citing *In re NE Hub Partners L.P.*, 7 E.A.B. 561, 568 (EAB 1998)). If the Board is "satisfied that the Region gave due consideration to comments received and adopted an approach in the final permit decision that is logical and supportable, [the Board] typically will defer to the Region's position." *NE Hub*, 7 E.A.B. at 568. For permit challenges based on technical issues, the Board generally expects the petitioner to reference "studies, reports, or other materials that provide relevant, detailed, and specific facts and data about permitting matters that were not adequately considered by a permit issuer." *See In re City of Keene*, 18 E.A.D. 720, 745 (EAB 2022) (quoting *In re Envtl. Disposal Sys., Inc*., 12 E.A.D. 254, 291 (EAB 2005)). A petitioner bears a particularly heavy burden when they have challenged an issue that involves the type of technical judgement to which the Board typically defers to the Region's expertise, such as UIC technical determinations. *See In re FutureGen Indus. Alliance, Inc.*, 16 E.A.D. 717, 733-37 (EAB 2015) (denying review of UIC permit and deferring to the region's technical judgement regarding the plume boundary and AoR); *see also Panoche Energy Ctr*., 18 E.A.D. at 847 (denying review of UIC permit and deferring to the region's technical judgment regarding ambient monitoring program and testing for pressure and water quality); *NE Hub*, 7 E.A.D. at 570 (declining to review the region's "quintessentially technical" determinations

regarding the required construction techniques for proposed Class III UIC wells), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3d Cir. 1999).

V. ARGUMENT

Before the Board, Petitioners advance three challenges to the Permits: 1) that the Permits violate NEPA because the Region did not perform a cumulative effects analysis, reasonable alternatives analysis, and hard look review; 2) that the Permits violate the SDWA because there is nothing in the administrative record addressing the requirements in either 40 C.F.R. § 146.93(c) regarding the 10-year PISC timeframe or in 40 C.F.R. § 146.85 regarding the financial assurance conditions; and 3) that the Permits violate the APA due to the alleged failures under NEPA and the SDWA. Pet. at 6. As evidenced by the administrative record, the Region complied with the statutory and regulatory requirements, and the Board should deny Petitioners' claims.

First, Petitioners fail to meet the threshold filing requirements of 40 C.F.R. § 124.13 and § 124.19(a)(4) for their NEPA claims. Specifically, the issues in the Petition were not raised with the requisite specificity during the public comment period despite Petitioners' ample opportunity to do so. Second, the Petition for review should be denied because it fails to demonstrate that the Region's decisions on the Permits with respect to NEPA, the SDWA, and the APA are clearly erroneous or otherwise warrant review. *See* 40 C.F.R. § 124.19(a)(4)(i). To the contrary, the record shows that the Region exercised considered judgment, and adopted an approach that is supported by, and rational in light of, the information in the administrative record and met the relevant regulatory requirements in issuing the Permits. *See NE Hub*, 7 E.A.D. at 568; *City of Lowell*, 18 E.A.D. at 132. The Region's decision—which involves issues that are technical in nature—

warrants deference. *Id*. Petitioners have not demonstrated clear error, and the Board should deny review of the Petition. *Id*.

A. National Environmental Policy Act

Consistent with the NEPA functional equivalence doctrine and the Class VI regulations, the Region undertook an orderly review and considered carefully the environmental issues involved for the Permits with the assistance of meaningful public participation. Disregarding EPA's longstanding position and established federal court and EAB precedent concluding that the SDWA and the UIC permit program are functionally equivalent to NEPA—and therefore exempt from NEPA's requirements—Petitioners allege that the Region's approval of the Permits violates NEPA. In particular, Petitioners assert that the Region was required under NEPA to (1) analyze the reasonably foreseeable cumulative effects from the proposed action, (2) consider reasonable alternatives to the action, and (3) perform a hard look review, and failed to do so.[6] Pet. at 6.

The Board should deny review of Petitioners' NEPA claims. As an initial matter, Petitioners do not meet the Board's procedural thresholds for appeal because no commenter raised that the Permits violated NEPA as required by 40 C.F.R. § 124.13. Moreover, Petitioners fail to explain

[6] The Petition references a 2016 version of the Council on Environmental Quality's ("CEQ") NEPA regulations throughout. Pet. at 8 (quoting a former definition of cumulative effects); *id.* at 9 (citing to 40 C.F.R. § 1508.8, which no longer exists, for the definition of "cumulative impacts"). CEQ's NEPA regulations have been amended twice since 2016, most recently in 2022. *See NEPA Implementing Regulations Revisions*, 87 Fed. Reg. 23,453, 23,461 (Apr. 20, 2022). The draft Permits were published in July 2023, and the final Permits were issued in January 2024. Therefore, the current version of the NEPA regulations would have been the relevant provisions if they were applicable. *See In Re Ariz. Pub. Serv. Co.*, 18 E.A.D. 245, 264-65 (EAB 2020) (stating that the EAB's "general rule" is that "the proper point in time for fixing applicable standards and guidelines is when the permit issuer initially issues a final permit" and holding that the applicable Clean Water Act regulations were those "in force at the time the Region issued the Permit") (quotations and citations omitted)).

why these issues were not required to be raised previously as required by 40 C.F.R. § 124.19(a)(4)(ii).

If the Board reaches the merits of the claims, the Board should find that NEPA's requirements, such as the cumulative impacts analysis, reasonable alternatives analysis, and hard look review, are not required for this action because the Permits were issued under the SDWA, which includes a public participation process and consideration of environmental issues that is "functionally equivalent with NEPA." *See W. Neb. Res. Council v. EPA*, 943 F.2d 867, 871-72 (8th Cir. 1991); *see also* 40 C.F.R. § 6.101(b) (noting the federal courts' conclusion that certain EPA actions are functionally equivalent with NEPA); 40 C.F.R. § 124.9(b)(6) (exempting UIC permits from the NEPA Environmental Impact Statement requirement). Because the Region complied with the SDWA permitting process, and thereby undertook the requisite functionally equivalent review for the Permits, the Board should deny review of Petitioners' NEPA claims.

i. Review of the Petition's NEPA claims should be denied because the issue was not raised during the public comment period

As a threshold matter, the Board should deny review of the NEPA claims because no commenter raised the Permits' compliance with NEPA during the public comment period as required by 40 C.F.R. § 124.13. *See* A.R. ##74-1006, 1012 ("Public Comments"). In addition, any sub-argument or more specific claim that the Permits were subject to NEPA's cumulative effects analysis, reasonable alternatives analysis, hard look review, or their functional equivalent was not raised during the public comment period.

Under 40 C.F.R. § 124.13, all persons "must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public

comment period." "Importantly, commenters must raise issues with sufficient specificity and clarity that the permitting authority has an opportunity to address the concerns raised before it issues the permit." *In re Footprint Power Salem Harbor Dev. LP*, 16 E.A.D. 546, 571 (EAB 2014). "The failure to raise an issue that was 'reasonably ascertainable' during the public comment period is grounds for denial of a petition for review." *Ocean Era*, 18 E.A.D. at 697 (citation omitted); *see also In re Tucson Elec. Power*, 17 E.A.D. 675, 689-90 (EAB 2018) (denying review and holding that an argument raised for the first time in a petition "has not been preserved for Board review"); *see also* 40 C.F.R. § 124.19(a)(4)(ii); *City of Lowell*, 18 E.A.D. at 136-37 (denying review and holding that a petitioner's "non-page-specific reference" to the region's entire response to comments is a "level of generality [that] falls far short of what the regulations require of a petitioner to demonstrate that an issue was raised during the public comment period and therefore preserved for Board review").

Raising the issue for the first time on appeal, Petitioners assert that the Region was required to evaluate reasonable alternatives and cumulative effects for the Permits and conduct a hard look review under NEPA, but did not do so, and that these issues were "raised during the public comment period and therefore preserved for review." Pet. at 2, 6 (citing to Petitioners' four written comments and the Region's entire Response to Comments). Yet not a single comment mentioned NEPA or claimed these Permits should be subject to NEPA requirements; thus, Petitioners did not meet this threshold requirement. *See* Public Comments; Resp. to Cmts. The Board has recognized that "[a]dhering to the requirements in 40 C.F.R. § 124.13 ensures that the Region has an opportunity to address potential problems with the draft permit before the permit becomes final, thereby promoting the Agency's longstanding policy that most permit issues should be resolved at

the regional level, and providing predictability and finality to the permitting process." *In re Arecibo & Aguadilla Reg'l Wastewater Treatment Plants*, 12 E.A.D. 97, 116-17 (EAB 2005). Here, by raising NEPA claims in the Petition, Petitioners undermine the purpose of 40 C.F.R. § 124.13 by asking the Board to reverse established court and EAB precedent and the Agency's long-standing position and practice without having provided the Region with any opportunity to consider and respond to the issue during the public comment period prior to issuance of the Permits.[7]

In an attempt to meet their threshold requirements, Petitioners characterize comments containing general concerns about the activities in the surrounding area and beyond as raising cumulative effects under NEPA. *See* Pet. at 8-10. Petitioners' out-of-scope comments are insufficient to preserve Petitioners' NEPA claims.[8] *See In re Steel Dynamics, Inc*., 9 E.A.D. 165, 230 (EAB 2000) (explaining that to be preserved, an issue must be presented in comments "with

[7] The Petition states, "EPA *likely* skipped these [cumulative effects and alternatives NEPA analyses] steps [during permitting] because it believed its UIC permitting process is the 'functional equivalent' of NEPA, but (at least in this case) EPA is mistaken." Pet. at 6. (parenthetical in original) (emphasis added). This statement is demonstrative of the fact that the applicability of NEPA to the Permits was not raised in public comments. Petitioners are now only speculating as to the Region's "likely" responses on the issue because they failed to raise the issue and provide the Region an opportunity to respond and explain why the SDWA UIC permitting process provides the functional equivalent of NEPA.

[8] Several of the comments that the Petition retrospectively characterizes as raising a cumulative effects regard issues outside of the UIC permitting program that would be governed by local law, property rights, and/or Indiana state law. *See* Pet. at 9-10. As this Board has well-established, the Region is not required to go beyond the SDWA and the UIC. *See* 40 C.F.R. § 144.35(b), (c) (dictating that a UIC permit does not convey private property rights and does not authorize invasion of property rights); *ADM*, 17 E.A.D. at 405 ("[T]he permit issuer's authority to issue, and the Board's authority to review, UIC permits extends to the boundaries of the UIC permitting program itself."); *Beckman Prod. Servs.*, 5 E.A.D. 10, 23 (EAB 1994) (holding that even where a permittee "has met all federal requirements for issuance of a UIC permit, it is not by virtue of its federal UIC permit shielded from compliance with any valid state or local regulations governing its operations.").

sufficient clarity to enable a meaningful response"). For example, the Region would have to make a logical leap to conclude it received NEPA violation comments from general concerns regarding "the past uses of the carbon dioxide generating facility and the disposal of coal ash at the [facility] site," "health impacts from the process at the facility…," or "other sources of carbon dioxide in the area of the project" Pet. at 8-10. None of the comments cited by Petitioners raised NEPA, or the Petitioners' more specific allegations about NEPA's requirement to consider cumulative effects or alternatives or take a hard look at environmental consequences. Nor did these comments raise the allegation that the SDWA's permitting process is not functionally equivalent to NEPA.[9]

Petitioners' reliance on these "[g]eneral comments" raising concerns about the project that are beyond the scope of the SDWA are "not sufficient to preserve [the Petitioners'] specific argument on a distinct issue for review"—namely that the Region was required to follow NEPA requirements and did not do so. *Ocean Era*, 15 E.A.D. at 691 (citing *Footprint Power*, 16 E.A.D. at 574-75 (EAB 2014)). The Board in *Ocean Era* rejected a very similar argument and denied review of the petition's NEPA claim for failure to meet the threshold obligations in 40 C.F.R. §§ 124.13, 124.19(a)(4). 15 E.A.D. at 680, 694, 697. In that case, the petitioner argued that the region should have followed NEPA requirements for a Clean Water Act permit and claimed the issue was preserved by comments criticizing the region's environmental assessment for the permit. *Id.* at 696. The region responded that the permits were exempt from NEPA requirements and the applicability of NEPA to the permits was never raised in the comments. *Id*. The Board agreed and held that comments questioning whether the region's review fulfilled the environmental assessment

[9] The Petition states that "Neither the permit itself nor EPA's response to comments reference this [cumulative impacts] important NEPA requirement." Pet. at 8. This is further evidence that this issue was not raised during the public comment period.

requirement under NEPA did not preserve on appeal a claim that NEPA requirements were applicable to the permit in the first instance. *Id*. at 696-97 (citing among other authorities, *In re Indeck-Elwood, LLC*, 13 E.A.D. 126, 168-169 (EAB 2006) (determining the arguments raised during the public comment period were "distinctly different" from the one raised on appeal and declining to review the issue on appeal because it was not preserved)).

For the same reason, Petitioners' cumulative effects and reasonable alternatives claims are not preserved here. Petitioners cite to comments about carbon capture and sequestration ("CCS") generally, not even GS specifically.[10] The concerns in these comments are "distinct from" whether NEPA requirements apply to the Permits in the first instance as well as the further argument that the Region did not adequately complete NEPA requirements. *Ocean Era*, 18 E.A.D. at 696. Petitioners' cited comments on CCS are also distinct from a comment that the SDWA's procedures are not the functional equivalent to NEPA. *See Moscow*, 10 E.A.D. at 150 (holding that the issues raised on appeal were distinct from the ones raised in comments and were not preserved for Board review). There are "fundamental differences" between the issues raised in the comments and the NEPA claims in the Petition; one cannot preserve the other for review. *See Footprint Power*, 16 E.A.D. at 574-75 (holding that an issue was not preserved for Board review when there were fundamental differences between petitioners' comments on the draft permit and the issue petitioners raised on appeal).

[10] For example, Petitioners rely on comments regarding other sources of CO2; other Class VI facilities in other states; the amount of water usage at CCS facilities; and the health impacts of facilities that generate CO2 (as opposed to disposal of it via sequestration as the Wells will do). Pet. at 9.

The Petition cites to comments that there are better alternatives to address CO2 in the atmosphere than CCS, which could be understood to question whether there are reasonable alternatives to the project. Pet. at 10. However, as noted in the Response to Comments, this comment is outside the scope of the UIC program and the SDWA's authority. Resp. to Cmts. at 1-4; 40 C.F.R. § 124.17(a)(2) (requiring EPA to "[b]riefly describe and respond to all significant comments *on the draft permit*") (emphasis added); *see also ADM*, 17 E.A.D. at 405 ("In sum, the permit issuer's authority to issue, and the Board's authority to review, UIC permits extends to the boundaries of the UIC permitting program itself."); *In re Am. Soda LLP*, 9 E.A.D. 280, 289 (EAB 2000) (explaining that the SDWA and the UIC regulations "establish the only criteria a Region may use deciding whether to issue a UIC permit") (emphasis omitted). And no comment presented the issue that EPA can or must consider such out-of-scope topics because the Permits are subject to NEPA.

In addition, Petitioners failed to explain, as required by 40 C.F.R. § 124.19(a)(4)(ii), why such NEPA issues were not required to be raised during the public comment period as provided in 40 C.F.R. § 124.13. *See Guam Waterworks Auth.*, 15 E.A.D. at 443 (stating that a petitioner must demonstrate that any issues or arguments it raises on appeal have been preserved for Board review, unless the issues or arguments were not reasonably ascertainable). Since Petitioners have not met the threshold requirements for their NEPA claims, the Board should dismiss the Petition's NEPA claims.

ii. Review should be denied because the SDWA UIC permitting process is functionally equivalent to NEPA

If the Board decides to review the Petition's NEPA claim despite Petitioners' failure to meet the procedural thresholds, the Board should deny review on the merits because the Permits are not

subject to NEPA requirements. Petitioners concede that UIC permits are exempt from NEPA EIS requirements, but then argue that such permits are nevertheless required to undergo cumulative effects analysis, reasonable alternatives analysis, and hard look review. Pet. at 7-12. Petitioners have not met their burden to demonstrate that the Region clearly erred in failing to apply the NEPA requirements from which the Permits are explicitly exempted from under the well-established functional equivalency doctrine of the federal courts and this Board and the regulatory exemptions codifying that doctrine at 40 C.F.R. §§ 124.9(b)(6) and 6.101(b).

Ordinarily, federal agencies must prepare an EIS under NEPA for any "major [f]ederal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). The EIS must include a "detailed statement" discussing, among other things, "the reasonably foreseeable environmental effects of," and "a reasonable range of alternatives to," the proposed action. *Id.*; *see* 40 C.F.R. §§ 1502.14-16, 1508.1(g). However, courts have consistently and broadly exempted certain EPA actions from the requirements of NEPA through the "functional equivalence" doctrine. *See e.g., Envtl. Def. Fund, Inc. v. EPA,* 489 F.2d 1247, 1256-57 (D.C. Cir. 1973) (holding that action under FIFRA is functionally equivalent to NEPA); *Warren Cnty. v. North Carolina*, 528 F. Supp. 276, 286-87 (E.D.N.C. 1981) (same under TSCA); *Maryland v. Train,* 415 F. Supp. 116, 121-22 (D. Md. 1976) (same under MPRSA); *see also Procedures for Implementing NEPA and Assessing the Environmental Effects Abroad of EPA Actions*, 72 Fed. Reg. 53,652, 53,654 (Sept. 19, 2007); 75 Fed. Reg. at 77,236.

Federal courts have determined that "formal compliance with NEPA" is not required for EPA actions for which the analyses that have been conducted under another statute are functionally equivalent with NEPA. *Envtl. Def. Fund,* 489 F.2d at 1256-57. The functional equivalence doctrine

holds that "where an agency is engaged primarily in an examination of environmental questions, where substantive and procedural standards ensure full and adequate consideration of environmental issues, then formal compliance with NEPA is not necessary, but functional compliance is sufficient." *Id*. at 1257. In particular, functional equivalence exists when a statute "itself provides for orderly consideration of diverse environmental factors." *Amoco Oil Co. v. EPA*, 501 F.2d 722, 750 (D.C. Cir. 1974). A statute's process need not "consider every point the agency would have to consider in preparing a formal EIS under NEPA" to be considered the functional equivalent to the NEPA process. *Alabama ex rel. Siegelman v. EPA*, 911 F.2d 499, 504-05 (11th Cir. 1990).

Prior to the formation of the Board, the first appellate EPA administrative decision to address functional equivalence held that "NEPA is fulfilled where the federal action has been taken by an agency with recognized environmental expertise" and under a statutory and regulatory scheme "whose procedures ensure extensive consideration of environmental concerns, public participation, and judicial review." *In re Chem. Waste Mgmt., Inc*., 2 E.A.D. 575, 578 (Adm'r 1988) (holding that RCRA's permitting process is the functional equivalent to NEPA), *aff'd mem. sub nom*. *Alabama*, 911 F.2d at 501. The Eleventh Circuit affirmed EPA's understanding of the doctrine in holding that RCRA is the functional equivalent of NEPA because the statute ensures that "EPA considers fully, with the assistance of meaningful public comment, environmental issues involved in the permitting." *Alabama*, 911 F.2d at 505.

The EAB first addressed the functional equivalence of the UIC permitting program to NEPA in *American Soda*. 9 E.A.D. at 290-92. As recognized by the Board in *American Soda*, "where a federal agency is engaged primarily in an examination of environmental questions, and where

substantive and procedural standards ensure full and adequate consideration of environmental issues, then formal compliance with NEPA is not necessary, and functional compliance is sufficient." *Id.* at 290-91 (EAB 2000) (quoting *Warren Cnty.*, 528 F. Supp. at 286) (citations removed) (denying review because "40 C.F.R. § 124.9(b)(6) [is] dispositive on the question of the UIC permit program's functional equivalence to NEPA"); *accord In re Beeland Group, LLC*, 14 E.A.D. 189, 205-06 (EAB 2008); *In re Windfall Oil & Gas, Inc.*, 16 E.A.D. 769, 811 (EAB 2015).

The Eighth Circuit Court of Appeals has agreed that the analyses conducted under the SDWA are functionally equivalent to the analyses required under NEPA. *W. Neb. Res. Council*, 943 F.2d at 871-72 (holding that EPA did not need to comply with the formal requirements of NEPA in issuing an aquifer exemption because the UIC process accomplishes the functional equivalent). The Court held that the SDWA is functionally equivalent to NEPA because "the procedures employed and the analysis undertaken" pursuant to the SDWA cover "core NEPA concerns." *Id*. at 872. For statutes that are the functional equivalent to NEPA, such as the SDWA, the Agency need not "comply with the formal requirements of NEPA in performing its environmental protection functions under organic legislation [that] mandates specific procedures for considering the environment [which] are functional equivalents of the impact statement process." *Id.* at 871-72 (internal quotations omitted). "Formal requirements of NEPA" are grounded in the statute and the applicable regulations, such as an EIS and its mandated components. *See* 40 C.F.R. § 1502.14 (EIS must include reasonable alternatives.); 40 C.F.R. §§ 1502.15-16, 1508.1(g) (EIS must include reasonably foreseeable cumulative effects.). The premise of the functional equivalence doctrine is that the Agency does not need to comply with those statutory and regulatory

NEPA requirements to perform an equivalent environmental review. *W. Neb. Res. Council*, 943 F.2d at 871-72.

Under 40 C.F.R. § 6.101(b), EPA codified the functional equivalence doctrine in its NEPA regulations. The SDWA regulations also codify the functional equivalence doctrine: "[UIC permits] are not subject to the environmental impact statement [EIS] provisions of section 102(2)(C) of the National Environmental Policy Act, 42 U.S.C. § 4321." 40 C.F.R. § 124.9(b)(6). The Petition acknowledges the exemption under 40 C.F.R. § 129.9(b)(6) and admits that this regulation "provides an exemption from environmental impact statement [EIS] requirements" for UIC permits. Pet. at 7, f.1. Despite this admission, Petitioners argue that, nonetheless, the Region was required to evaluate the Permits' reasonable[11] alternatives and cumulative effects.[12] Petitioners do not explain how or why the reasonable alternatives and the reasonably foreseeable cumulative effects analyses are *not* part of the very EIS requirements that Petitioners admit the Region is exempt from. In practice, Petitioners' interpretation would render the exemptions from a NEPA EIS meaningless. If the reasonable alternatives analysis and the cumulative effects analysis—two of the only EIS components written into the NEPA statute itself at 42 U.S.C. § 4332(C), and listed as part of the "standard format" for the EIS in the NEPA regulations at 40 C.F.R. § 1502.10(a)—are not considered "EIS requirements" then little else could be.

[11] Petitioners argue that EPA was required to consider all "possible" alternatives whereas NEPA is limited to a "reasonable range of" alternatives. *Compare* Pet. at 6 *with* 42 U.S.C. § 4332(C)(iii); 40 C.F.R. § 1502.14.

[12] The Petition refers to "cumulative impacts" whereas the NEPA regulations refer to environmental impacts, which include cumulative effects among other things. *Compare* Pet. at 8 *with* 40 C.F.R. §§ 1502.16, 1508.1(g).

The Petition states that "NEPA *requires* all federal agencies, including EPA, to take a 'hard look' at the environmental impacts from major federal actions, *including the issuance of UIC permits*" and cites *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989) as supportive authority. Pet. at 6. (emphasis added). EPA was not a party to *Robertson*, and the case did not pertain to or address the SDWA or a UIC permit. The Petition makes no attempt to explain how or why *Robertson* would be applicable precedent to this matter or support the proposition asserted regarding UIC permits specifically. The "hard look" requirement of NEPA is inapplicable because the SDWA's UIC permitting procedures provide the functional equivalent. *See W. Neb. Res. Council*, 943 F.2d at 871-72; *Beeland*, 14 E.A.D. at 205-06.

For example, the Petition claims that the Region failed to take a hard look at the "well stimulation techniques and impacts" and "postponed much of the hard looking to a later date." Pet. at 11. This simply is not accurate. In a block-quote of Resp. to Cmts. #14 in the Petition, Petitioners conveniently ignore the sentence "[i]t should be noted that any stimulation that may occur will not cause well failure, the development of caverns, or breach the confining units," which appears in the Response immediately before Petitioners' bolded portion. *Id.* (quoting Resp. to Cmts. at 21). Through the SDWA procedures at 40 C.F.R. § 146.82(a)(6) and (9), the Region fully considered the environmental issues concerning well stimulation, fulfilling its obligations under the functional equivalence doctrine. *See* Rev. PGS at 91.

Petitioners have not met their burden to demonstrate that the Region clearly erred in failing to apply NEPA requirements from which the Permits are explicitly exempted from under both the well-established functional equivalence doctrine of the federal courts and this Board and the regulatory exemptions codifying that doctrine at 40 C.F.R. § 124.9(b)(6) and 40 C.F.R. § 6.101(b).

iii. As a factual matter, the Region performed a review of the Permits under the SDWA that is functionally equivalent to NEPA

The Board described the functional equivalence doctrine as providing that "where a federal agency is engaged primarily in an examination of environmental questions, and where substantive and procedural standards ensure full and adequate consideration of environmental issues, then formal compliance with NEPA is not necessary, [and] functional compliance [is] … sufficient." *Am. Soda*, 9 E.A.D. at 290-91 (citing *Warren County*, 528 F. Supp. at 286). The SDWA UIC program and the Region's process for the Permits here ensured that the Region considered, with the assistance of meaningful public participation, the environmental issues involved in the permitting, thereby fulfilling the functional equivalence of NEPA. *See Alabama*, 911 F.2d at 504-05 (affirming the EPA Administrator's permitting decision, opinion, and order on appeal).

1. **The Region provided extensive opportunities for meaningful public participation prior to issuing the Permits**

Throughout the SDWA permitting process, the Region made its determinations with the assistance of meaningful public participation. *See* Resp. to Cmts. at 23-24 (detailing the public engagement on the Permits). The Region provided for a public comment period and extended it to allow for additional participation. *See* Fact Sheet; News. Ext. Notices; *see also* 40 C.F.R. § 124.10. The Region held both a public meeting and a public hearing for the Permits. *See* Transcript; EPA Presentation; *see also* 40 C.F.R. § 124.12. The Region took extensive steps to "enhance the opportunity for public engagement on the draft permits" to facilitate participation by members of environmental justice communities and encourage meaningful public participation. Resp. to Cmts. at 14, 23-24; EPA, EJScreen Report IN-165-6A-0001, WVCCS#1 (October 27, 2022) (AR #63); EPA, EJScreen Report IN-167-6A-0001, WVCCS#2 (October 27, 2022) (AR #64) ("EJ Screens");

Memo to file regarding Environmental Justice Proposed UIC Class VI Wells IN-165-6A-0001, WVCCS1 (May 19, 2023) (A.R. #65) ("EJ Evaluation"); *see also* Exec. Order No. 12898, 59 Fed. Reg. 7629 (February 16, 1994) (directing agencies to incorporate Environmental Justice (EJ) in their actions as appropriate). These steps included wide mailing efforts to reach underserved areas, specialized newspaper announcements for the elderly, and document formatting for disability accessibility, among other initiatives. *See* Mailing list (A.R. #43), Draft permit newspaper ad (A.R. #45); Cert. of Serv. (A.R. #46). The Region received and processed around 1,000 written comments and many more verbal comments during the public comment period. *See* Public Comments; Transcript. The Region carefully reviewed comments and considered and responded to significant comments and each topic raised. *See* Resp. to Cmts.; 40 C.F.R. § 124.17. The Region also provided information on the opportunity to participate further in the permitting process through an appeal to this Board following permit issuance. *See* Trans. Ltr. to Cmtr.; Resp. to Cmts. at 34; *see also* 40 C.F.R. § 124.15(a).

After review of the comments received, the Region considered, summarized, and addressed those comments. For example, as discussed in the next section, the Response to Comments addressed public comments about, among other issues, the health and safety of residents of the area, Resp. to Cmts. at 13, the impact of the Permits on the surrounding area, *id*. at 26, and public apprehension about CO2's underground injection and potential risks to public health and safety, *id*. at 13-14. One indicator of meaningful public participation in the Region's process here, is that the comments resulted in a change to the Permits. Due to the public comments, the Region evaluated the AoR for shallow underground coal mines. *Id*. at 7. The Region documented its consideration of the proposed action's effect on shallow subsurface coal mines as well as such mines' potential

effect on the Wells. A.R. ##1019-20. Following a thorough review of the data, the Region "determined that the existence of underground coal mines will not adversely impact the proposed injection or compromise the protection of USDWs." Resp. to Cmts. at 7. As a precaution, the Region modified Section I(3) the Permits to add a requirement for an additional well casing if a shallow subsurface mining void is encountered during well construction.

2. **The Region performed an orderly environmental review that considered the environmental issues involved in the SDWA permitting process**

As evinced in the Region's extensive administrative record, the Region engaged in an orderly environmental review that carefully considered the environmental issues involved in the UIC Class VI permitting process. For instance, the Region evaluated the computational modeling conducted by Wabash to identify and consider environmental issues. The model is used to predict the behavior of the injected CO2 in the subsurface over time. *See* Rev. AoR. Specifically, the Region evaluated the "movement of water, carbon dioxide, and pressure evolution within the reservoir." Resp. to Cmts. at 12-13.; TRL. The model dynamically simulated "the behavior and extent (vertical and horizontal) of the carbon dioxide plume and pressure front" over time. Resp. to Cmts. at 12; 40 C.F.R. § 146.82(c)(1) (requiring modeling for Class VI wells). This analysis was based on data collected from a dedicated test hole for the project, and extensive study of the regional geology, that will be supplemented with data obtained from the injection and monitoring wells during construction and operation. *See* Resp. to Cmts. at 25; Rev. PGS; 40 C.F.R. § 146.87(b) (data requirements for Class VI wells). The modeling analysis covered the course of the operating period of the Wells (12 years) as well as a potential 50-year post injection period scenario. *See* Resp. to Cmts. at 25; Rev. AoR; Rev. PISC. Based on the computational modeling and other information provided by the applicant in accordance with additional regulatory factors, the Region

concluded that there would be no risk of endangerment to USDWs in the short-term operating period or in the long term, 50 years post-injection. *See* Resp. to Cmts. at 13, 18.

The Region considered other environmental issues involved in the permitting including the risks presented by potential seismic activity as required by 40 C.F.R. § 146.82(a)(3)(v), *see* Resp. to Cmts. at 7-12; concerns about well stimulation and cavern development as required by 40 C.F.R. § 146.82(a)(6) and (9), *see* Resp. to Cmts. at 21; Rev. PGS at 91; and protection of USDWs as required by numerous SDWA provisions such as 40 C.F.R. § 146.83 (minimum criteria for Class VI well siting), 40 C.F.R. § 146.84 (AoR requirements for Class VI wells), and 40 C.F.R. §§ 144.51, 146.88, 146.90-91 (requirements for monitoring, reporting, autowarning, and shutdown systems). *See* Resp. to Cmts. 16-17, 19, 21-22 (addressing risks to USDWs). After investigating these environmental issues, along with many others, the Region concluded issuance of the Permits was appropriate under the SDWA. *Id.* at 33. The Region included requirements in the Permits to ensure continued protection of underground sources of drinking water consistent with the SDWA. *See* Permits at Section K(6) and (8).

The Region, following the SDWA, considered and addressed a number of environmental issues raised by meaningful public participation. For example, the Region addressed public concerns regarding the "health and safety of residents of the area." Resp. to Cmts. at 13. The Region specifically emphasized the Emergency and Remedial Response Plan (ERRP)—a binding part of the Permits prepared pursuant to the SDWA regulations at 40 C.F.R. §§ 146.82(a)(19) and 146.94 that covers equipment failure as a response scenario. *Id*. at 15; *see also* ERRP. The Response to Comments also explained that "worst-case scenarios were modeled" as part of the development of the ERRP, and that the ERRP outlines responses to a variety of "risk scenarios" and

provides for contingencies. Resp. to Cmts. at 15. The Permits also require financial assurance, in accordance with 40 C.F.R. § 146.85, to provide funding to EPA to implement Wabash's responsibilities in the event that they are unable to do so. *See* Permits at Section H; *see also* Resp. to Cmts. #8 at 15-16.

The Region considered and addressed the impact of the Permits on the surrounding area as raised by meaningful public participation. *See* Resp. to Cmts. at 26. The Region explained that "the proposed injection well locations are in open farmland, adjacent to county roads, are free of trees…." *Id.* at 22. The Region determined that the surface disturbance during construction is anticipated to be about 1.5 acres for each well, including access. *Id*. at 26. The Region also found that the post-construction footprint for each injection well will be limited to the wellheads and necessary surface appurtenances (likely in the range of approximately 1,100 square feet, which is the footprint of similar injection wells) and that farmland will not be disturbed by the injection. *Id*. The Region further addressed these concerns in the Permits, which require that once the injection period ends, the Wells will be plugged in accordance with the well plugging plan, all surface structures will be removed, and the injection sites will be restored. *See* Permits at Section P and Att. D, E; Resp. to Cmts. at 26; *see also* 40 C.F.R. § 146.93 (requirements for PISC and closure for Class VI wells).

Through meaningful participation, the Region also considered public apprehension about CO2's underground injection and potential risks to public health and safety. *See* Resp. to Cmts. at 13-14; ERRP; Permits at Att. F. The Region explained that CO2 is "noncombustible and not flammable" and is not a hazardous waste. Resp. to Cmts. at 13 (citing 40 C.F.R. § 241.4(h)). The Region took the public's concerns seriously as evinced by the Permits' conditions written pursuant

to the SDWA. Under Section N and Attachments A and C of the Permits, the CO2 injection stream must be greater than 99.5% CO2 and Wabash is required to continuously monitor/test the CO2 injection stream and to legally "certify under the penalty of law that the CO2 stream … has not been mixed with, or otherwise co-injected with, hazardous waste" 40 C.F.R. § 261.4(h)(4)(ii). The Permits also require Wabash to annually test the injection Wells and the monitoring wells at the Facility for external mechanical integrity, meaning to test for fluid loss or fluid movement in surrounding rock formations. *See* Permits at Sections N and Att. A, C; *see also* 40 C.F.R. § 146.89 (requiring Class VI UIC wells to maintain mechanical integrity and perform and report regular mechanical integrity tests); 40 C.F.R. § 146.90 (requiring monitoring of Class VI UIC well injection stream). Pursuant to the Permits, Wabash must continuously monitor the internal mechanical integrity (meaning structural integrity of well casing) automatically and if integrity is lost, the injection system will automatically shut down. Permits at Sections I, K(6) and (8), L(5)(b), and Att. F at 3. After considering and addressing meaningful public participation, the Region concluded that the permitting action "is safe and will be protective of human health and the environment." Resp. to Cmts. at 14; *see also* 40 C.F.R. § 144.12 (prohibiting injection activity that allows the movement of fluids into USDWs in violation of drinking water standards and requiring EPA to act in the event such movement occurs).

Further, as part of its orderly environmental review, the Region prepared an EJ Analysis prior to issuing the permits consistent with Executive Order No. 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.* Specifically, to help identify areas with possible environmental justice concerns, the Region employed EPA's EJSCREEN, which is an environmental justice screening and mapping tool that provides EPA with

a nationally consistent approach to help identify areas that may warrant further consideration, analysis, or outreach. EJ Screens; EJ Evaluation. As explained in the Region's memorandum, the Region's analysis considered both environmental conditions and characteristics of potentially affected populations. EJ Evaluation at 2; *see also* Resp. to Cmts. at 14 (describing the Region's EJ efforts).

These are only a few demonstrative examples[13] from the administrative record that illustrate the many ways in which the Region, through the UIC process, carefully considered, with the assistance of meaningful public participation, the environmental issues involved in the permitting, consistent with the functional equivalence doctrine. For this reason, the Region asks the Board to deny review of the Petition's NEPA claims.

B. **The Safe Drinking Water Act**

Petitioners assert that the Region's approval of a 10-year PISC timeframe and related financial assurance requirements in the Permits violated the SDWA. Specifically, Petitioners sole argument is that "there is no indication in the administrative record that all the information gathering and analyses required by 40 C.F.R. § 146.93(c) were performed" and "EPA's related findings as to financial assurance are also unsupported by the administrative record" and as a result, the Region's decision is "clearly erroneous." Pet. at 16-17. But that is not true. As explained in Sections i through iii below, each of the requirements in 40 C.F.R § 146.93(c) for the PISC timeframe and in 40 C.F.R. § 146.85(a)(2) for financial assurance is documented in and supported by the Region's administrative record; therefore, Petitioners have not met their burden under 40

[13] Section V.B. below details further the Region's extensive consideration of environmental issues as part of the SDWA process for this permitting action.

C.F.R. § 124.19(a)(4)(i) to identify and demonstrate that their challenge is based on a clearly erroneous finding or conclusion. The Board should deny review of the Petition.

Petitioners do not identify any technical or scientific clear error in the Permits' PISC or financial assurance conditions. 40 C.F.R. § 124.19(a)(4)(i). Instead, they baldly assert that the Region's approval was not supported by the administrative record. Pet. at 16. As such, the issue of whether the Region committed a clear error in issuing the Permits on any technical or scientific grounds is not properly before the Board for review. *Id.* Therefore, the Board should decline to review any technical or scientific matters about the Permits.

If the Board nevertheless proceeds to review the Permits on technical or scientific grounds, the Board should defer to the Region's expertise and deny review of the Permits. *FutureGen*, 16 E.A.D. at 739, 743 (Typically the Board does not "second-guess the Region's technical [UIC] determinations based on Petitioners' bald assertion."). An "examin[ation] [of] the administrative record," including the multiple exchanges between Wabash and the Region as part of the iterative permitting process, shows that the Region "exercised [its] 'considered judgement'" in approving the alternative PISC timeframe demonstration and related financial assurance. *City of Lowell*, 18 E.A.D. at 132. Therefore, Petitioners have not met their burden to demonstrate that the PISC or financial assurance conditions in the Permits are clearly erroneous. *Id.*; 40 C.F.R. § 124.19(a)(4)(i).

i. Regulatory and factual background on the PISC alternative timeframe under 40 C.F.R. § 146.93

As part of a permit applicant's required PISC submission, a permit applicant may request EPA approval of an alternative PISC timeframe.[14] 40 C.F.R. § 146.93(a)(2)(v). This is often an iterative process where the permit applicant may engage with EPA, in accordance with meeting the data and information requirements in the Class VI regulations. This permitting process begins with the submission of a demonstration by the permit applicant during the permitting process. 40 C.F.R. § 146.93(c); *see also FutureGen*, 16 E.A.D. at 725, 728 (holding Region 5 was not required to "'conduct' its own independent modeling and review of the area of review" where "EPA's regulations require the owner or operator of a Class VI permit to delineate the area of review."). Under 40 C.F.R. § 146.93(c), an alternative PISC timeframe demonstration must consider and document ten elements. 40 C.F.R. § 146.93(c)(1).[15] The regulations also outline eight criteria that the information submitted in the demonstration must meet. 40 C.F.R. § 146.93(c)(2). Prior to approval, EPA must ensure that the permit applicant's demonstration, comprised of information on each of the ten elements in accordance with the requirements for the eight criteria, meets two standards overall: 1) the demonstration must be based on significant site-specific data and information, including data and information collected in the permit applications and the siting

[14] To the extent Intervenor Permittee's statement, "These regulations contemplate that the owner or operator will make the demonstration that a shorter PISC timeframe is appropriate, which *must* be approved by EPA," Resp. Br. at 21 (emphasis added), could be understood to imply mandatory action by EPA, it is incorrect. EPA "may approve" an alternative PISC timeframe if a permittee's demonstration shows that the timeframe meets the requirements in 40 C.F.R. § 146.93(c), but EPA is not required to do so. *See* 40 C.F.R. § 146.93(c).

[15] Although not relevant to this appeal, there is an eleventh element: "Any additional site-specific factors required by the Director." 40 C.F.R. § 146.93(c)(1)(xi).

criteria; and 2) the demonstration must include substantial evidence to support a conclusion that the project will no longer pose a risk of endangerment to USDWs at the end of the timeframe.[16] 40 C.F.R. § 146.93(c). Site-specific data and information collected under these regulatory elements allows EPA to evaluate whether the applicant has demonstrated that the alternative PISC timeframe will not pose a risk of endangerment to USDWs. The ways in which these regulatory requirements work together is discussed in more detail in Sections (ii)(a)1 through (ii)(a)10 below.

EPA may reject a permit applicant's demonstration if any of the information provided indicates a risk of endangerment to a USDW, regardless of support for the alternative timeframe from modeling or any single regulatory requirement. *See* 40 C.F.R. 146.93(c) (stating that a demonstration must ensure non-endangerment of USDWs). EPA may also provide feedback and accept revisions to the demonstration as necessary. Once satisfied that the demonstration includes all of the required information, EPA may ultimately choose to approve the alternative PISC timeframe if the information provided in the demonstration provides a basis to do so, i.e., if the site-specific data and information indeed demonstrates "that an alternative post-injection site care timeframe is appropriate and ensures non-endangerment of USDWs." 40 C.F.R. § 146.93(c). The Agency's approval results in the alternative PISC timeframe's incorporation into the permit. 40 C.F.R. §§ 146.82(a)(17), 146.84(b)(2)(i), 146.93(a). Importantly, the initial PISC timeframe set at permit issuance is based on a projection or estimate and is not final. The initial PISC timeframe

[16] Throughout this brief and several places in the administrative record, the Region refers to finding that the alternative PISC timeframe "ensures non-endangerment of USDWs," 40 C.F.R. 146.93(c), rather than "will no longer pose a risk of endangerment to USDWs." *Id*. The Region uses the former phrase and similar phrases such as "protective of USDWs" or "will not pose a risk of endangerment to USDWs" because the Region considers these to be more protective findings since "no longer" could be misunderstood to imply that the Region approved a permit condition that once did pose a risk of endangerment to a USDW.

must be reconsidered and updated as appropriate prior to injection, during operation, after injection ceases, and at site closure. *See* 40 C.F.R. §§ 146.82(c)(9) (prior to injection), 146.84(b)(2)(i) (during injection), 146.93(a)(2)(ii) (during injection), 146.93(a)(3) (post injection), 146.93(b)(3) (site closure). This opportunity for reconsideration is built into the regulatory scheme to allow EPA to consider "increased knowledge and operational experience as permitting moves forward," and it creates "a mechanism for incorporating into the permit, as needed, any new research, data, or information." *ADM*, 17 E.A.D. at 385; *see also* 75 Fed. Reg. at 77,248 ("AoR modeling and reevaluation are important components of the overall proposed strategy to track the CO2 plume and pressure front through an iterative process of site characterization, modeling, and monitoring at GS sites. This approach addresses the unique and complex movement of CO2 at GS sites.").

Wabash originally submitted a demonstration to the Region requesting an alternative PISC timeframe of four years. Org. PISC. The Region rejected Wabash's Original PISC in the TRL because the demonstration did not accurately and adequately consider and document all of the required information under the regulations. *See* TRL at 3-8, 10-13. The Region determined that Wabash's demonstration did not sufficiently support a 4-year PISC timeframe because it did not demonstrate a sufficient monitoring period to protect USDWs. *See id*. at 13, item G.4. Among other problems, the Region's review concluded that any demonstration needed to identify and consider the point at which the modeling shows that the pressure front and dissolved CO2 plume would not grow larger and this one did not. *Id*. The Region wrote:

> The proposed alternative post-injection site care (PISC) period of 4 years is inadequate for the collection of data regarding the long-term stability of the CO2 and pressure front and to validate/calibrate the model. Figure 13, page 22 of the AoR narrative shows that the model doesn't predict asymptotic pressure front readings until after Year 20 and it shows growth in the modeled front through Year 62. Please address these issues in order to further support a

> PISC period of less than 50 years. Owners and operators may also petition for a reduction of the PISC monitoring and care period per 40 C.F.R. §146.93(a)(4).

Id.

Wabash submitted a revised demonstration for an alternative PISC timeframe that addressed the Region's concerns from the TRL. Rev. PISC; *see also* Rev. AoR; Rev. PGS. There is a direct one-to-one matchup on the objections raised by the Region and all of the re-submissions provided by Wabash. *Compare* A.R. ##2-7 *with* A.R. ##21-26 and TRL. The Rev. PISC included modeling results indicating when plume and pressure growth would cease, and that the plume and pressure would not pose a risk of endangerment to USDWs ten years after cessation of injection. *See* Rev. PISC at 10-11 (incorporating Rev. AoR at 22, Figure 13). The Region reviewed the Rev. PISC and referenced documents and found the demonstration to be a technically and scientifically accurate understanding of the modeling data that aligned with the Region's prior comments and analysis. Resp. to Cmts. at 5, 12-13, 18.

The Region received comments expressing general concern about the computational modeling and the PISC timeframe.[17] In the Response to Comments, the Region explained that "[t]he Area of Review (AoR) for Class VI wells is the region surrounding the geologic sequestration project where potential risks to [] USDWs [] are evaluated. The extent of the AoR is defined by computational modeling conducted to estimate the maximum extent of the carbon dioxide plume and pressure front (i.e., the area where pressure is greater than the natural pressure of the geologic

[17] For example, one commenter stated, "Weather forecasters use computer modeling and the accuracy rate is not even close to 100%. NASA used computer modeling when they determined there was no danger in launching the Challenger space shuttle. And to the best of my knowledge, I don't think Mother Nature or Planet Earth are honor-bound to behave according to computer modelling." Another stated, in an attachment, without further explanation or support, "Injected carbon dioxide has the potential to migrate or be released following the 10-year period."

formation)." *Id*. at 5. The Region explained that the modeling evidence showed that the pressure front and the CO2 plume will become stable vertically and horizontally 10 years post injection, and that the PISC timeframe will be protective of USDWs. *Id.* at 18. The Region also stated that it "reviewed the model" and "agrees with its inputs, outputs, variables, and assumptions" and "believes that the model accurately characterizes the projected behavior of the carbon dioxide plume and pressure front." *Id*. at 13.

Consequently, the Region approved the 10-year PISC timeframe as reflected in the Response to Comments and the Permits' inclusion of the findings from the Rev. PISC. Permits at Section G, Att. B (AoR and Corrective Action Plan), Att. E (PISC); Resp. to Cmts. at 18 ("EPA has determined that the alternate PISC period and the post injection monitoring plan are appropriate and will be protective of USDWs.").

ii. <u>The Region's approval of the 10-year PISC timeframe was not clearly erroneous</u>

As shown in the administrative record, the Region's approval of the 10-year timeframe was not clearly erroneous because it was based on the applicable requirements in 40 C.F.R. § 146.93(c). Petitioners ignore relevant documents in the administrative record and, after block quoting 40 C.F.R. § 146.93(c) for three pages in their Petition, broadly and baldly assert that "there is no indication in the administrative record that all the information gathering and analyses required by 40 C.F.R. § 146.93(c) were performed" and that "computational modeling alone is not sufficient to justify a modification of EPA's 'default' period of 50 years." Pet. at 14, 16. This is the only Regional finding or conclusion that Petitioners allege as clearly erroneous and since it is incorrect, they have not met their burden under 40 C.F.R. § 124.19(a)(4)(i). Petitioners mischaracterize the record and misunderstand the role of computational modeling. While it is "only one of the types of

analysis required" *id*. at 14, by the regulations; here all of the ten elements in 40 C.F.R. § 146.93(c)(1)(i)-(x) worked together such that each element provided independent value, but also provided information that serves as an input, output, variable, or assumption for the model. *See* EPA, *UIC Program Class VI Area of Review Evaluation and Corrective Action Guidance,* at ix, 50 (May 2013) ("Class VI AoR Guidance"); EPA, *UIC Program Class VI Well Plugging, Post-Injection Site Care, Site Closure Guidance*, at 34 (2016) ("Class VI PISC Guidance"). The record shows that, before approving the alternative PISC timeframe, the Region ensured that the demonstration addressed all of the regulatory requirements under 40 C.F.R. § 146.93(c). *See infra* Sections B.i through iii (citing Org. PISC; TRL; Responses to EPA TRL; Rev. PISC, among other record documents). Therefore, the Board should deny review of Petitioners' claim.

If the Board proceeds to review the scientific and technical basis for the PISC timeframe, the Board will find that the Region exercised "considered judgment" in its review of the 10-year PISC timeframe demonstration, *City of Lowell*, 18 E.A.D. at 132, and the Region's approval of the 10-year timeframe was "rational in light of all of the information in the record" concerning the applicable requirements in 40 C.F.R. § 146.93(c). *DC Mun. Separate Storm Sewer Sys*., 10 E.A.D. at 334; *see infra* Sections B.i through B.iii (citing Org. PISC; TRL; Region 5, U.S. EPA, Geological Review Memorandum to File (A.R. #61) ("Geo Review Memo"); EPA Review of AoR; EPA Review of PGS; Responses to EPA TRL; Rev. PISC, among other record documents). Notable among the record findings, the model showed that the increased vertical and horizontal pressure in the confining zone formation as characterized will dissipate almost entirely by five years post-injection and, as a result, the CO2 plume will reach equilibrium 10-years post-injection, and thus will not "pose a risk of endangerment to USDWs" after that time. 40 C.F.R. § 146.93(c); Rev. PISC

at 2-4; Permits at Att. B AoR at 8 (incorporating the data on the pressure front from the Rev. PISC); Resp. to Cmts. at 12-13, 18. These modeling results relied upon "significant site-specific data and information" from, *inter alia*, the other regulatory elements in 40 C.F.R. § 146.93(c), which among other things, ensured that the model accounted for conditions present in the geology as inputs, outputs, variables, and assumptions. 40 C.F.R. § 146.93(c); *see generally* Rev. PGS; *infra* Sections (a)1 through (a)10 below. After reviewing the demonstration's substantial evidence and site-specific data showing that the project will not pose a risk of endangerment to USDWs 10-years post-injection, the Region "adopted an approach in the final permit decision that is logical and supportable," namely approval of the initial 10-year PISC timeframe. *NE Hub*, 7 E.A.D. at 568; Resp. to Cmts. at 18; 40 C.F.R. § 146.93(a)(3).

Petitioners may disagree with the Region's decision to approve the alternative PISC timeframe. But "[c]lear error or abuse of discretion in a permit issuer's technical determination cannot be 'established simply because petitioners document a difference of opinion or an alternative theory.'" *Panoche Energy Ctr*., 18 E.A.D. at 821 (quoting *NE Hub*, 7 E.A.D. at 567). Typically the Board does not "second-guess the Region's technical [UIC] determinations based on Petitioners' bald assertion." *FutureGen*, 16 E.A.D. at 739, 743. Petitioners do not meet the "heavy burden" required to show that the Region's decision on this technical issue was clearly erroneous. *NE Hub*, 7 E.A.D. at 567.

a. Wabash's demonstration considered and documented all ten elements for an alternative PISC timeframe under 40 C.F.R. § 146.93(c)(1)(i)-(x) and those elements supported the Region's approval of the 10-year PISC timeframe

As described at length in Sections 1 through 10 below, the administrative record shows that the Region exercised its "considered judgement" in reviewing of each of the ten elements in 40

C.F.R. § 146.93(c)(1)(i)-(x). *City of Lowell*, 18 E.A.D. at 132. The entirety of the record, including exchanges between the Region and Wabash as well as Regional reviews on multiple topics and documents, shows that the Region ensured that Wabash adequately and accurately "considered and documented" each of the ten elements in 40 C.F.R. § 146.93(c)(1)(i)-(x) in its demonstration before the Region accepted it. *See e.g.*, Org. PISC; TRL; EPA Review of PGS; EPA Review of AoR; Geo Review Memo; Rev. PISC. As explained in Sections 1 through 10 below, the record documents on this point alone refute Petitioners' only alleged error: that there is "no indication in the administrative record" the required analysis were performed, other than computational modeling. Pet. at 16. Therefore, Petitioners have not met their burden under 40 C.F.R. § 124.19(a)(4)(i) and the Board should deny review of the Petition.

While not raised, the administrative record also shows that the Region's technical decision was not clearly erroneous. After accepting the demonstration, the Region approved the alternative timeframe, because, as explained in Sections 1 through 10 below, the site-specific results, data, and information regarding each of the ten elements demonstrated that a 10-year PISC timeframe will not pose a risk of endangerment to USDWs. 40 C.F.R. § 146.93(c). The Region's approval was "rational in light of all of the information in the record" and "logical and supportable" by the evidence in the record concerning each of the ten elements and therefore, not clearly erroneous. *NE Hub*, 7 E.A.D. at 568.

In the sections below, each of the ten elements begins with a brief explanation of the element itself and identification of where the element was considered and documented in the administrative record. If the Board proceeds further in its review, each section also provides an

explanation of how the Region's approval of the 10-year timeframe was logical and supportable in light of the information in the record concerning that element.

1. The results of the computational modeling performed for the AoR under 40 C.F.R. § 146.93(c)(1)(i)

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on the results of the computational modeling performed for the AoR as required by 40 C.F.R. § 146.93(c)(1)(i). The AoR is "the region surrounding the geologic sequestration project where USDWs may be endangered by the injection activity." 40 C.F.R. § 146.84(a). Permit applicants must perform computational modeling to delineate the AoR. *Id*. More specifically, computational modeling, as well as site characterization (element #4 below) and monitoring and operational data, are used to predict the migration of the dissolved CO2 plume caused by injection until the plume movement reaches its maximum and ceases (element #3 below) and until the pressure differentials (element #2 below) sufficient to cause movement of fluids into USDWs are no longer present. 40 C.F.R. § 146.84(c)(1). The regulation contains strict requirements for the computational modeling. *See* 40 C.F.R. § 146.84(c)(1)(i)-(iii).

Wabash submitted the computational modeling information to the Region in the Area of Review and Corrective Action Plan ("Original AoR") and the Permit Geologic Summary ("Original PGS"). WCS, *Original AoR* (April 10, 2021) (A.R. #3); WCS, *Original PGS* (Sept. 14, 2020) (A.R. #2 at 96) (containing a summary of the model). Before considering the results of the computational model for the AoR, the Region verified that the model itself met the applicable UIC requirements. *See* 40 C.F.R. § 146.84(c)(1)(i)-(iii). To that effect, the Region provided 43 comments to Wabash regarding the computational model that requested clarifications, additional information, and

revisions. TRL at 8-10. In response, Wabash submitted a Revised AoR and a Revised PGS providing more information and revisions to address the Region's critiques and concerns.

Upon reviewing the revised documents for the Permits, the Region determined that the model was sufficiently conservative and met the applicable UIC requirements as applied to this project. *See* EPA Review of AoR at 1, 5, 14 (finding the model complied with the regulatory requirements and was conservative); Resp. to Cmts. at 13 ("EPA reviewed the model. EPA agrees with its inputs, outputs, variables, and assumptions."); *see also* 40 C.F.R. § 146.84(c)(1)(i)-(iii) (listing requirements for the AoR computational model). For these Permits, the model was used to generate the results discussed at length in elements #2 through #5 below. *See* Class VI AoR Guidance at 49. The model results were informed by the characterization of the confining zones as explained in element #7 below. *See id.* at 48. Lastly, elements #6, and #8 through #10 below contained other items that are important for the protection of USDWs and can provide inputs, outputs, variables, and/or assumptions for the model, in addition to their own independent value.[18] *Id.*; Resp. to Cmts. at 13 ("EPA agrees with [the model's] inputs, outputs, variables, and assumptions.). As explained in elements #2 through #5 below, the results of the model in conjunction with the other site-specific data and information in elements #6 through #10 supported the demonstration's conclusion that the projects "will no longer pose a risk of endangerment to USDWs" after a 10-year PISC timeframe and supported the Region's approval of said timeframe.

[18] For example, consider element #8—conduits for fluid movement. Even if the model shows plume and pressure will reach equilibrium after 10 years and thus all things being equal, the plume will not pose a danger to USDWs, if there is an unknown conduit for fluid movement in the area, the plume could nevertheless migrate. Therefore, potential conduits for fluid movement must be assessed under element #8, in part, to ensure that the modeling results will be accurate and can be relied upon.

40 C.F.R. § 146.93(c); *see also* Resp. to Cmts. at 13 ("The permits require the collection of operation and monitoring data from the site to validate the model over time."); Class VI PISC Guidance at 46-47. Therefore, the Region's decision was not clearly erroneous.

2. The predicted timeframe for pressure decline within the injection zone under 40 C.F.R. § 146.93(c)(1)(ii)

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on the predicted timeframe for pressure decline within the injection zone as required by 40 C.F.R. § 146.93(c)(1)(ii). Pressure ripples out both vertically and horizontally from the point of injection, and dissipates or declines both over time and distance from the wells. Fluid movement outside of the rock formations can occur and thus pose a risk of endangerment to USDWs when pressure gets too high. *See Proposed Class VI Rule*, 73 Fed. Reg. 43492, 43519 (July 26, 2008) (explaining that "[a] record of the pressures in the injection formation can help the owner or operator determine that the injected fluid does not pose endangerment to USDWs.").

Wabash submitted a pressure decline prediction that was calculated using the computational model. *See* Original AoR. In the TRL, the Region rejected Wabash's original PISC demonstration and requested six changes and further explanation regarding Wabash's pressure decline predictions, including specifics on Wabash's critical pressure calculations and a map showing the maximum pressure extent. TRL at 10, items D.7.a- D.7.f; *see also* EPA Review of AoR at 14 (asking for further clarifications and analysis on the pressure front). Wabash resubmitted a revised pressure prediction that accurately and adequately incorporated the Region's feedback. *See* Rev. AoR at 29-30 (results of the differential pressure predictions); Rev. PGS at 52 (reporting the average pore

pressure of the confining zone—information from the permit application under 40 C.F.R. § 146.82(a)(3) that was used in the pressure decline prediction).

The revised pressure prediction showed that the vertical pressure will continue to increase until it reaches its maximum extent in year three of operation. Rev. PISC at 2-4. The model also showed that horizontal pressure will continue to increase until it reaches its maximum extent in year 12 of operation. *Id*.; *see also* Resp. to Cmts. at 13 ("[The pressure front] will grow quicker at the beginning of injection, growth will plateau, and will stop growing shortly after injection ceases"). The model results also showed that at the maximum extent, the pressure will not exceed the injection zone rock formation (element #7 below). *See* Rev. PISC at 2-4; *see also* Resp. to Cmts. at 13 ("The results of the modeling indicate that at the maximum extent, the carbon dioxide plume and the pressure front will be contained within the lowest portion of the Oneota Formation."). Once pressure reaches its maximum, it begins to decline. The model showed that the increased vertical and horizontal pressure in the formation will dissipate almost entirely by five years post-injection, and thus will not pose a risk of endangerment to USDWs after that time. *See* Rev. PISC at 2-4. Thus, the Region's decision to approve the 10-year PISC timeframe was logical and supportable based on evidence in the record regarding element #2 of the demonstration for an alternative PISC timeframe. Permits at Att. B at 8 (incorporating the data on the pressure front from the Rev. PISC). The revised pressure prediction was incorporated into the final Permits. *See* Permits at Att. B Table 7 (documenting the parameters and values used as inputs in the critical pressure calculation from the demonstration).

3. The predicted rate of CO2 plume migration within the injection zone under 40 C.F.R. § 146.93(c)(1)(iii)

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on the predicted rate of CO2 plume migration within the injection zone as required by 40 C.F.R. § 146.93(c)(1)(iii). Rev. PISC at 25-28. The CO2 plume refers to the injected CO2 in the subsurface, which can migrate even after injection ceases due to residual pressure (element #2 above). Migration of CO2 outside of the confining zone (element #7 below) could pose a risk to USDWs (element #10). In the TRL, the Region rejected Wabash's Original PISC demonstration and requested five changes and further explanation regarding Wabash's CO2 plume migration predictions, including clarification regarding the timing of maximum lateral extent cessation, i.e., the point at which the plume will not grow larger. TRL at 10, items D.6.a- D.6.c, D.7.f, and D.7.h; *see also* EPA Review of AoR at 14 (asking for further clarifications and analysis on the CO2 plume migration). Wabash resubmitted a revised plume migration prediction that directly addressed the Region's comments. Rev. AoR at 21-22, 26 (see graph showing the predicted behavior); Rev. PISC at 25-28.

In particular, the revised submission showed that, in 10 years post-injection, the plume would remain in the injection zone and reach equilibrium and, from the 10-year mark onward, would no longer expand in the injection zone. Rev. PISC at 25-28 (showing and explaining the predicted plume migration over time). The model showed that the CO2 plume will remain fully contained within the injection zone for years 10 through 50 post-injection and, thus will not pose a risk of endangerment to USDWs after year 10. Rev. AoR at 21-22 (graph showing the predicted behavior); Resp. to Cmts. at 13 ("[T]he carbon dioxide plume and pressure front will be fully contained within the deeper injection zone rock formations, as will any fluids or gasses displaced by

the injection."). The Region's approval of the 10-year timeframe was thus logical and supportable based on evidence in the record regarding element #3 of the demonstration for an alternative PISC timeframe. Permits at Att. B AoR at 6-8 (incorporating the data on the CO2 plume from the Rev. PISC).

4. A description of the site-specific processes that will result in CO2 trapping under 40 C.F.R. § 146.93(c)(1)(iv)

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on a description of the site-specific processes that would result in CO2 trapping as required by 40 C.F.R. § 146.93(c)(1)(iv). Rev. PISC at 28 (citing Rev. PGS). CO2 trapping occurs when CO2 is injected into the subsurface for capture and storage. *See* 75 Fed. Reg. at 77232 (defining trapping). Injected CO2 accumulates, i.e., becomes trapped, in one area or another due to variations in rock structure. Depending on the phase and rate of the trapping, it can prevent migration of the CO2 plume. Trapping can be concerning when it is uneven and excessive and occurs next to a fault or conduit because it may allow for unintended fluid movement, but no faults or conduits were identified here (see elements ##7-8 below).

The site-specific processes that will result in trapping are both physical and geochemical and Wabash documented them in the Rev. PISC and Rev. AoR. Here, the physical characteristics are the low permeability of the confining rock formations, which are made of shale and dolomite (see element #7), *see* Rev. PGS at 4-56; and the pore spaces in the rock where the CO2 is stored, which can result in immobile capillary trapping (see element #5 below), Rev. AoR at 19 (evaluating the pore spaces for capillary force trapping). The geochemical characteristics are the properties of the rock formations in the injection zone that will allow for dissolution, which can result in the

dissolved phase of trapping (see element #5 below) and mineralization, which can result in the mineral phase of trapping (see element #5 below). *See* Rev. PGS at 90-93. Here, dissolution refers to when CO2 goes from gaseous to aqueous (liquid-like) phase due to the presence of salty water (brine). Rev. PGS at 91. Mineralization refers to when elements in the injection zone chemically react with the CO2 to create a new element (primarily clay). *See id*. at 92.

As explained in Section V.B.ii.c. below, the Region confirmed that the model used site-specific and regional geologic information collected in the Permits' applications under 40 C.F.R. § 146.82(a)(6) to account for trapping. Rev. PISC at 27-8 (explaining that the model development included site-specific trapping processes and citing to data sources in the Permits' applications); Rev. AoR at 89-94 (identifying and explaining the data sources from the Permits' applications used to determine the Solid Phase Geochemistry, Geochemical Reactions and Mineral Trapping).

In the TRL, the Region analyzed and rejected Wabash's original demonstration and requested changes and explanations regarding the trapping models. TRL at 8 item D.3.d, at 7 item C.10.d, at 10 items D.6.f and D.6.g; *see also* EPA Review of PGS at 15-16 (containing further review of Wabash's trapping modeling). Wabash resubmitted a revised trapping analysis that addressed and incorporated the Region's comments. *See* Rev. AoR at 27-29; Rev. PGS at 92-94. The revised document included results from multiple model runs using different assumptions for trapping and the phases. Rev. AoR at 27-29 (identifying the trapping models used and results). The modeling results show that the formation will accept the total volume of CO2 proposed for the operation. *Id*. It also predicts that the CO2 will move and interact within the intended zone in a manner in which no excessive or uneven trapping will occur, thus minimizing any risk of endangerment to USDWs. *Id*. Since "the actual time for CO2 plume stabilization" (under element

#3) is influenced by geological factors such as "the degree of capillary trapping," 73 Fed. Reg. at 34521, this result also confirms that the model's findings with respect to plume migration can be relied upon. Thus, the Region's approval of the 10-year timeframe was logical and supportable based on evidence in the record regarding element #4 of the demonstration for an alternative PISC timeframe.

5. The predicted rate of CO2 trapping in the immobile capillary phase, dissolved phase, and/or mineral phase under 40 C.F.R. § 146.93(c)(1)(v)

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on the predicted rate of CO2 trapping in the immobile capillary phase, dissolved phase, and/or mineral phase as required by 40 C.F.R. § 146.93(c)(1)(v). Rev. PISC at 28 (citing Rev. PGS). EPA considers trapping to help determine how CO2 will be confined in the subsurface. In other words, the modeling of the plume migration (element #1) may not be accurate if it does not account for the potential for trapping. As explained in element #4 above, immobile capillary phase, dissolved phase, and/or mineral phase are all types of trapping. The model scenarios described in element #4 above included predicted rates of CO2 plume migration that accounted for trapping in the immobile capillary phase, dissolved phase, and the mineral phase. Rev. AoR at 27 (discussing immobile capillary phase, meaning when CO2 is rendered immobile in pore space (vuggy intervals)); Rev. PGS at 90-91 (referring to the mineral phase as the solid phase, meaning the geochemical reactions with minerals in the rocks that could trap CO2); *Id*. at 92 (discussing the dissolved phase, meaning dissolution of carbonate rock and the minerals that would be produced); *Id*. at 91-92 (discussing mineralization as part of geochemical trapping). The predicted trapping rates showed that the maximum amount of trapping will occur by

year ten post injection. *See* Rev. PISC at 11-20 (depicting trapping within the AoR over time under the different modeling scenarios); *Id.* at 25-28 (rate of plume migration indicating the point of max trapping by year 10 post injection; showing max trapping for pressure at year 12). The modeling results also showed that uneven excess trapping of CO2 would not occur within the predicted rates for the immobile capillary phase, dissolved phase, or mineral phase. *See* element #4 above (citing Rev. AoR at 27-29); *see also* Rev. AoR at 33. Thus, the Region's approval of the 10-year timeframe was logical and supportable based on evidence regarding element #5 for an alternative PISC timeframe demonstration.

6. The results of laboratory analyses, research studies, and/or field or site-specific studies to verify the information required in elements #4 and #5 above under 40 C.F.R. § 146.93(c)(1)(vi)

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on the research used to verify the information required in 40 C.F.R. § 146.93(c)(1)(iv) and (v). Rev. PISC at 28 (citing Rev. PGS). Specifically, the Region requested this information in the TRL after Wabash's original demonstration did not adequately include it. TRL at 7, item C.9.j. When Wabash resubmitted the Revised PGS, it provided references to the research conducted and the sources and studies used to verify the information that went into the trapping analysis and model scenarios discussed in elements #4 and #5 above. Rev. PGS at 92-93 (providing the studies and references relied upon to verify the information). Additionally, as explained in Section V.B.ii.c. below, testing was conducted on the test hole to establish site-specific geochemical, petrological, and geological characteristics. *Id*. at 89. Relevant portions of these field and site-specific studies from the test hole were included in the trapping models. *See id*. at 92-93, Table 12 (showing that samples from the test well (Wabash #1)

were incorporated in the trapping analysis). Thus, the Region's approval of the 10-year PISC timeframe was logical and supportable based on evidence regarding element #6 because the PISC demonstration included the research and studies used to verify elements #4 and #5 above.

7. **A characterization of the confining zone including a demonstration that it will impede CO2 movement under 40 C.F.R. § 146.93(c)(1)(vii)**

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on a characterization of the confining zone, including a demonstration that it is free of transmissive faults, fractures, and micro-factures and of appropriate thickness, permeability and integrity as required by 40 C.F.R. § 146.93(c)(1)(vii). *See* Rev. PISC at 28-29 (citing Rev. PGS). Specifically, in the TRL, the Region analyzed and rejected Wabash's original demonstration and requested 23 changes and explanations regarding the characterization of the confining zone. TRL at 3-5, items C.1.a-k, C.3.a-e, C.4.b, C.5.a-d, and C.6.b-d. The Region agreed that the data showed that the injection zone formations "exhibit confining zone characteristics such as low porosity, interbedded shale layers and a lack of faults and fractures," but nevertheless requested additional information to confirm the detailed findings regarding the geology. EPA Review of PGS at 16-17 (note throughout the document the many requests for follow-up information related to Wabash' evaluation of the geology).

Wabash resubmitted a revised detailed assessment of the regional and site-specific geology of the area that addressed and incorporated the Region's comments. Rev. PGS at 4-28 (containing information on faults and fractures as well as the thickness, permeability, and integrity of the formations in the confining zone); *see also* Resp. to Cmts. at 5-6 (providing a thorough description of the confining zones). All known faults within the confining zone were identified and a 2-D

seismic survey was conducted to identify whether local subvertical faults were present. Resp. to Cmts. at 8. No faults were identified within the injection or confining zones. Rev. PGS at 20-24 and 94-96 (containing the assessment of the criteria for siting required under 40 C.F.R. § 146.83, which includes a demonstration regarding the characterization and integrity of the confining zones); *Id*. at 4-14 (explaining and concluding that seismic reflection data indicate that there are no faults penetrating the overlying units and confining unit within the AoR); Resp. to Cmts. at 6. In its review, the Region also documented information regarding the thickness, permeability, and integrity of the confining zone. *See* Geo Review Memo at 2-3 (wherein the Region noted the thickness, permeability, and porosity of the relevant formations). The Region found that Wabash's revised evaluation of the confining zone formations, and their faults, fractures, and potential for seismic activity as well as their thickness, permeability and integrity was accurate. Geo Review Memo at 5; Resp. to Cmts. at 8, 12, 19. These are characteristics conducive for the containment of CO2. *See* Geo Review Memo.

It is also important to note that the Region's evaluation of whether the demonstration included a characterization of the confining zone for these Permits was directly related to the Region's evaluation of the computational modeling results supporting the 10-year timeframe (element #1 above) in at least two ways. *See* 40 C.F.R. § 146.84(c)(1)(i) (requiring the AoR modeling to be based on a characterization of the confining zone). First, the modeling had to input the characteristics of the confining zones because CO2 moves differently in different rock formations. *See* Class VI AoR Guidance at 31; Geo Review Memo at 4 (containing the Region's review of the maximum injection pressure calculation based on the characteristics of the rock formations). Because the model is meant to predict the extent of the CO2 plume, it needed to

account for how the CO2 will migrate in the rock formations present in the confining zone. Second, the modeling had to input the characteristics of the confining zone because the goal of the modeling is to determine the full plume, at its maximum extent and confirm that it will remain contained at that extent. As the Class VI Rule explains, "[t]he confining system [element #7] should be of sufficient regional thickness and lateral extent to contain the entire CO2 plume [element #3] and associated pressure front [element #2] under the confining system following the plume's maximum lateral expansion [as modeled]." 73 Fed. Reg. at 43505.

The characterization of the confining zone here showed that the confining zone was free of faults and fractures and of sufficient integrity to impede CO2 movement such that the formations will be able to fully contain the CO2 plume at the 10-year mark as predicted by the model without inducing seismic activity. Resp. to Cmts. at 13 ("The results of the modeling indicate that at the maximum extent, the CO2 plume and pressure front will be contained within the lowest portion of the Oneota Formation (will not contact the bottom of the confining formation) and will extend laterally in an approximate 2-mile radius from the injection wells."); Rev. PISC at 2-4 (showing the modeling results given the confining zone characteristics).[19] The Region's approval of the 10-year PISC timeframe was thus logical and supportable based on evidence regarding element #7 for an alternative PISC timeframe demonstration.

[19] *Id*. at 28-29 (concluding based on the confining zone characterization and the modeling results, that the CO2 plume is limited in its vertical migration to the Oneota Dolomite formation and that this limit in upward mobility combined with the very low porosity and permeability present in the rock layers above the Oneota Dolomite result in the CO2 being restricted to a depth far from the lowest USDW).

8. **The presence of potential conduits for fluid movement in proximity to the final extent of the CO2 plume and area of elevated pressure under 40 C.F.R. § 146.93(c)(1)(viii)**

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on the presence of potential conduits for fluid movement as required by 40 C.F.R. § 146.93(c)(1)(viii). Rev. PISC at 29. EPA evaluates the presence of potential conduits to determine whether there are any pathways that could allow the CO2 plume to migrate in an unintended way and endanger USDWs. Conduits for fluid movement typically occur in three scenarios. First, faults in the rock formations can create potential conduits for fluid movement. 73 Fed. Reg. at 43505. Second, wells that penetrate the confining zone can create conduits for fluid movement. 73 Fed. Reg. at 43515. As explained in full in Sections 7 above and 9 below, the demonstration addressed the first two of these scenarios by determining that there are no faults (see element #7 above) and there are no penetrating wells (see element #9 below) and thus there are no potential conduits for fluid movement under those two scenarios.

Under the third scenario, injection and monitoring wells associated with the project are intended to allow conduits for fluid movement by their design. 73 Fed. Reg. 43503. Fluid movement is necessary during the operating life of the Wells (i.e., the wells acting as conduits for the intentional act of injecting CO2 and monitoring wells to oversee such injection). *See* Class VI PISC Guidance at xi (definition of well plugging). So, while there is a potential conduit for fluid movement in the third scenario, the intentional fluid movement during the operating life of the wells is not a risk to USDWs. Unintended fluid movement during operation is mitigated by the proper construction (element #9) and operating parameters of the wells. Unintended fluid movement can also occur through the wells when operation ceases. To address the concern of unintended fluid movement post-injection, wells are plugged, meaning that the conduits are closed. *See* Class VI

PISC Guidance at ii ("After injection ceases at a Class VI GS project, the injection well must be plugged to ensure that the well does not become a conduit for fluid movement into USDWs.").

In the TRL, the Region required Wabash to provide injection well construction diagrams to confirm the Wells' construction plans (element #9 below), which include injection tubing and casing that is CO2 resistant and sealed from the surface to the point of injection to prevent any unintended fluid movement during operation. TRL at 3, item B.3; Permits at Section I and Att. H; Rev. PISC at 29. The Region also requested all information pertinent to the location, construction, and abandonment all of monitoring wells and incorporated relevant requirements into the Permits. TRL at 12, items F.5-F.7; Permits at Sections I.6, L.6, and Att. E at 1, 5-10, Att. D at 4-6, and Att. H at 2-4. In addition, mechanical integrity testing is required and used to test for, and confirm the absence of, any unintended fluid movement associated with the Wells. *See* 40 C.F.R. § 146.89; Permits at Sections L(2), P(2), and R(2) and Att. C. Both the Wells' construction and the mechanical integrity testing measures prevent conduits for fluid movement that could pose a risk of endangerment to USDWs during the operating life of the Wells.

As part of the Permits' applications under 40 C.F.R. § 146.92(a)(16), the Region ensured that all wells for the Permits (injection, shallow ground water monitoring, confining zone monitoring, and injection zone monitoring) have associated plugging plans. Rev. PISC at 31-39; Rev. AoR at 106 (narratives addressing plugging of injection and monitoring wells); and Plugging schematics (A.R. ##11-14, 27-29) (showing plugging schematics for all wells). The plans require plugging of the injection Wells once injection ends. *See* Permits at Att. D. The monitoring wells will continue to be used during the PISC timeframe to watch for unpredicted fluid movement. *Id*. The plans require the monitoring wells themselves to be monitored for mechanical integrity to

ensure that they do not become conduits for unintended fluid movement prior to their plugging. *See* Permits at Section L(6) and Att. C; Class VI PISC Guidance at 4 (recommending plugging practices for monitoring wells "to ensure that these wells do not become conduits for fluid movement that can endanger USDWs"). The Region evaluated the plugging plans and determined that they are appropriate under industry standards and meet the regulatory requirements such that none of the wells will act as conduits for unintended fluid movement. As a result, the Region incorporated the plugging plans into the Permits. *See* Permits at Section P and Att. D and E; *see also* 40 C.F.R. § 146.92(b).

By addressing any potential conduits for fluid movement from the injection wells, the PISC demonstration helped to ensure that "any fluids or gasses displaced by the injection … will be fully contained within the deeper injection zone rock formations." Resp. to Cmts. at 13; *id*. at 32 (recognizing that "improperly abandoned wells may serve as a conduit of fluid movement and thereby potentially endanger USDWs" and rejecting Wabash's comment to alter the well plugging requirements); *see also* Rev. PISC at 29 ("Modeling both injection wells and the resulting CO2 plumes indicate that at no point in the modeling timeframe (62 years) does the CO2 plume reach any known conduits that could result in the endangerment of USDW."). Consequently, the Region's approval of the 10-year timeframe is logical and supportable based on evidence in the record concerning element #8 for an alternative PISC timeframe demonstration.

9. **A description of the well construction and an assessment of the quality of plugs of all abandoned wells within the AoR under 40 C.F.R. § 146.93(c)(1)(ix)**

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on a description of the well construction and

all plugged abandoned wells in the AoR as required by 40 C.F.R. § 146.93(c)(1)(ix). Rev. PISC at 29 (citing Rev. PGS and Revised plugging plans). Specifically, a thorough description of the Wells' construction was included in the Permits' applications as required by 40 C.F.R. § 146.82(a)(11) and (12), and authorized in the Permits themselves. Permits at Section I and Att. H; Rev. PGS at 98-103. The well construction design authorized by the Permits requires that the Wells meet the standards of American Petroleum Institute, ASTM International, or comparable standards acceptable to the Region and must be constructed of corrosion resistant, compatible materials that completely seal the CO2 within the injection zone. *See* Permits at Section I and Att. H; *see also* Resp. to Cmts. at 7, 20-21; 40 C.F.R. § 146.86 (Class VI well construction requirements).

As required by 40 C.F.R. § 146.82(a)(4), the Permits' applications included "[a] tabulation of all wells within the area of review which penetrate the injection or confining zone." Unplugged or improperly plugged wells can act as fluid conduits that might endanger USDWs. *See* Class VI PISC Guidance at 1. In the TRL, the Region analyzed and rejected Wabash's demonstration and requested confirmation of wells within the AoR and a tabulation of construction characteristics (location, depth, type of well, etc.). TRL at 11-12, items D.8.a and D.8.b. Wabash submitted the requested information and identified all preexisting water, oil, and gas wells in the AoR. Rev. PGS at 17-18.

All seven oil and gas wells identified within the AoR were abandoned and plugged. *See* WCS, Oil and Gas List (March 15, 2023) (A.R. #39) (listing the relevant seven oil & gas wells in the AoR and their status). None of the wells within the AoRs for the Permits penetrate the confining zone for this project such that they could act as a conduit for fluid movement (element #8). *Id*.; *see also* Rev. PISC at 29 ("No wells have been identified that could be considered as

potential conduits of fluid movement that are not part of the [Wabash] project."). The Permits require new well surveys to be conducted during the life of the Wells. *See* Permits at Section G and Att. B.

The computational model accounted for the construction specifications of the Wells, including their depth and the materials designed to prevent release of fluids outside the injection zone. *See* Rev. PGS at 98-103; WSC, Update Injection Well Schematic (March 15, 2023) (A.R. #31); Rev. PISC at 28-29 (noting testing of the depth of the "primary seal" formation where injection occurs). Confirmation of the wells in the AoR is an input to the model. 40 C.F.R. § 146.84(c)(1)(iii) (requiring the AoR to consider artificial penetrations); EPA Review of AoR at 14-15 (explaining how a tabulation of wells in the area was considered in the model). Confirmation that the wells in the AoR are plugged thus affected the results of the modeling regarding the 10-year timeframe. 73 Fed. Reg. at 43503; Rev. PISC at 29 ("This plugging technique provides an impermeable barrier to any potential fluid or CO2 movement along the injection well."). The Region's approval of the 10-year timeframe was therefore logical and supportable based on evidence in the record regarding element #9 for an alternative PISC timeframe demonstration.

10. **The distance between the injection zone and the nearest USDWs above and/or below the injection zone under 40 C.F.R. § 146.93(c)(1)(x)**

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because it was in part based on the distance between the injection zone and the nearest USDWs as required by 40 C.F.R. § 146.93(c)(1)(x). Rev. PISC at 29-30. Among other things, an understanding of the distance from the injection zone to the nearest USDW is

necessary to modeling the pressure required for the injected CO2 to travel through rock formations before reaching a USDW (calculated as the pressure differential). *See* Rev. AoR at 30.

In the TRL, the Region analyzed and rejected Wabash's original demonstration and requested 54 changes and explanations regarding the geologic characterization of the site as it related to USDWs. TRL at 3-7. Specifically, the Region required Wabash to identify all USDWs from near surface to lowest bedrock USDWs (TRL at 6, items C.8.a, C.8.b, and C.8.m) and to explain the methodology and data used to identify all USDWs (TRL at 6, item C.8.l). The Region accepted a revision from Wabash that included all the requested information. *See* Rev. PGS at 65-73.

The data provided by Wabash, showed that all injection for the Wells will occur below identified USDWs. Rev. PGS at 2-3, 108. There is approximately 2,100 feet of rock between the injection zone that is within the Oneota Formation and the lowest USDW that is within the Sexton Creek Formation. *See* Resp. to Cmts. at 6; Fact Sheet; Rev. PISC at 29-30 (noting there is approximately 1,600 feet from the very top of the Oneota Formation (top at 3970 feet below ground surface (ft bgs), above where injection occurs) to the very bottom of the Sexton Creek Formation (bottom at 2386 ft bgs, below where the USDW is located); Rev. PGS at 4-6; EPA Review of PGS at 1. The rock between the injection zone and the USDW is made up of the Maquoketa Group, Trenton Limestone, Platteville Group, Dutchtown Limestone, St. Peter Sandstone, and Shakopee Dolomite formations. Geo Review Memo at 2 (providing the full geologic stratigraphic column); Rev. PGS at 65-73 (referring to the Silurian-Devonian carbonate bedrock aquifer writ large as the lowest USDW; the Sexton Creek Formation is the lowest USDW in the Silurian system); IDNR, Bedrock Aquifer Systems in Vigo and Vermillion Counties (Sept. 2009) (A.R. ##52, 53) (showing

the USDWs in Vigo and Vermillion counties); ISGS, Generalized Stratigraphic Column of Indiana Bedrock (2016) (A.R. #54) (showing the USDWs in the pertinent stratigraphic column, including where the Sexton Creek Formation is located in the larger Silurian-Devonian systems); Resp. to Cmts. at 5-6. As explained in the next paragraph, this distance from the nearest USDW, when considered alongside the modeling results, was shown to be protective of USDWs.

Wabash assessed the qualities of the confining rock layers in between the injection zone and the USDW (see element #7), Rev. PGS at 3-4, and this information informed the computational model (see element #1), Rev. AoR. As explained in element #7 above, these formations consist primarily of shale and carbonate free of faults and fractures and as a result, "EPA reviewed site geology to determine that the wells are sited in such a fashion that they can inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review." Geo Review Memo at 1. The Region reviewed Wabash's use of this data in the modeling. *See id.* at 1, 3 ("EPA considered [and] reviewed the geology and modeling documents submitted by the applicant … Model results indicate that the injected carbon dioxide pressure and saturation front will move up into the Oneota Formation (approximately 95 feet) from the injection interval in the Potosi Formation (from 4396 to 5037 feet bgs))." The modeling showed that the CO2 plume will not leave the injection zone formations, i.e., not move beyond the Oneota Formation, which has six other formations and 1,600 feet between it and the nearest formation with a USDW. *See* Rev. PGS at 30-31; Rev. AoR at 22, figure 13 and 28-29, figure 18; Geo Review Memo at 2-3. The modeling showed the pressure front will not go above the Platteville formation at the end of the injection period and will dissipate thereafter. *See* Rev. AoR at 29, figure 19. The Plattesville formation has two other formations between it and the nearest

USDW. Geo Review Memo at 2-3. The Region's approval of the 10-year PISC timeframe was therefore logical and supportable based on evidence in the record concerning element #10 for an alternative PISC timeframe demonstration.

b. The information submitted to support the demonstration met the eight criteria under 40 C.F.R. § 146.93(c)(2)

As shown in the administrative record, the Region's approval of the 10-year timeframe was not clearly erroneous because the Region ensured that the demonstration included the information required by 40 C.F.R. § 146.93(c)(2). Petitioners similarly make the conclusory assertion that there is "no indication" in the administrative record that the PISC demonstration complied with 40 C.F.R. § 146.93(c)(2). *See* Pet. at 16. This provision outlines the eight criteria that the information needed to support the demonstration under 40 C.F.R. § 146.93(c)(1) must meet. *See* 75 Fed. Reg. at 77,267. Contrary to Petitioners' assertions, the administrative record shows that the information supporting the 10-year PISC timeframe meets all eight criteria required by 40 C.F.R. § 146.93(c)(2). Specifically:

1. Tests are accurate, reproducible, and meet quality assurance standards: *See supra* Section B.ii.a.1 on the Region's review of the accuracy and quality of the computational model used to support the PISC timeframe; *see also supra* Sections 2 through 6 regarding the modeling scenarios that were performed to ensure accuracy and reproducibility. All of the tests used by Wabash to support an alternative PISC timeframe adhered to industry and Agency standards for accuracy, reproducibility, and quality assurance because they were either: 1) Relevant tests performed by others that were peer-reviewed and published in reputable scientific journals or academia and were only referenced by Wabash, or 2) Site-specific tests

conducted by Wabash that the Region addressed in the TRL, such as the step rate test, fall-off test, multi-rate test, (TRL at 8 item D.3.a, at 9 item D.5.f), and the chemical analysis testing (TRL at 9 item C.9.j).

2. Use of appropriate or EPA-certified test protocols: The majority of Wabash's testing methodology is contained in the Quality Assurance and Surveillance Plan ("QASP") (A.R. #8), which cites to EPA and ASTM standards that are known to be accurate, reproducible and meet quality assurance standards. Permits at Att. C, T&M Plan;
3. Predictive models are tailored to site conditions: *See* Section B.ii.c. below on the Region's extensive collection and review of site-specific data and information;
4. Calibration of predictive models: *See* Rev. PISC at 27-29 (explaining among other items model calibration);
5. Account for uncertainty: *See* Rev. PISC at 27-29 (explaining among other items sensitivity analyses used to account for uncertainty);
6. Use reasonably conservative values and assumptions: *See* EPA Review of PGS (wherein the Region determined that the model and its inputs, outputs, variables, and assumptions were sufficiently conservative and met the requirements of 40 C.F.R. § 146.84(1)(i) to (iii)); *see also supra* Section 1;
7. Must have quality assurance and quality control plan: *See* QASP (A.R. #8) (containing the approved quality assurance and quality control plan);
8. Any additional criteria EPA requires: Resp. to Cmts. at 26-32 (wherein the Region denied Wabash's requests to remove to numerous additional requirements for approvals,

information, testing, reporting, and data validation that the Region required under the Permits, which Wabash characterized as not required explicitly in the regulations).

The administrative record as a whole makes clear that the Region "exercised [] considered judgement" regarding the information underlying the alternative PISC timeframe, and ensured that the requirements of 40 C.F.R. § 146.93(c)(1)(i-xi) and (c)(2)(i-viii) were adequately and accurately addressed when approving an initial 10-year timeframe in the Permits. *City of Lowell,* 18 E.A.D. at 132. Petitioners have not demonstrated clear error. *Id*.

c. The Region relied on significant site-specific data and information, utilizing information from the Permits' applications and siting criteria, as required by 40 C.F.R. § 146.93(c)

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because the PISC demonstration was based on "significant, site-specific data" as required by 40 C.F.R. § 146.93(c). Petitioners argue that "the regulations provide that significant, site specific data must be gathered before (not after) the default period is modified." Pet. at 14. (internal quotations omitted). The record shows that, prior to approving the 10-year PISC timeframe, the Region collected and considered significant site-specific data and information. As discussed in Sections 1 through 10 above, Wabash relied on site-specific data and information from the Permits' application documents[20] under 40 C.F.R. § 146.82 and the siting review under 40 C.F.R. § 146.83 to demonstrate that a 10-year alternative PISC timeframe will not pose a risk of endangerment to USDWs. *See e.g.*, Rev. PGS at 4-17 (explaining how site-specific data and information on Regional Geology, Hydrogeology, and Local Structural Geology were used in the

[20] Note that both the AoR delineation, which is the model used for the PISC, and the PISC are required components of a permit application under 40 C.F.R. § 146.82(a)(2) and (a)(16).

site characterization collected under the Permits' applications 40 C.F.R. § 146.82(a)(3)(vi)); *id*. at 2 (explaining that available site-specific data included a full suite of geophysical logs, petrological and geomechanical analyses of whole core and rotary sidewall core ("RSWC") samples, well test data from Step Rate Tests ('SRT"), Pressure Fall-Off Tests ("PFO"), and Multirate Tests ("MRT"), and geochemical analysis of brine swab samples collected from the test hole). The Region reviewed this data and information as appropriate for each of the ten elements and citations to such information are provided as relevant in Sections (B)(ii)(a)(1-10) above: *See supra e.g*., Section 4 (describing the site-specific processes that will result in trapping); Section 5 (describing the three trapping phases that could occur at the site and how they were modeled based on the site-specific geology); Section 7 (describing the assessment of the site-specific geology that was performed); Section 8 (describing how conduits for fluid movement were assessed for this site and the site-specific plugging plans); Section 9 (recognizing the construction specifications designed for this site and the assessment of other wells specific to this site); Section 10 (identifying the site-specific USDWs).

One use of site-specific data that is not discussed in detail above concerns test-hole data. To support the modeling in element 1 above, and ensure that the results in elements 2 through 5 above are based on site-specific conditions, Wabash collected site-specific data from a dedicated test hole specifically constructed to collect data for this project as part of the permit application. Rev. PGS at 89. After an evaluation of the geology, the Region concluded that the confining and injection zones are laterally continuous throughout the area between the test hole and the proposed injection Wells, meaning essentially that the same rock layers exist across the areas where the test hole and the proposed injection Wells are located. *See* EPA Review of PGS at 2 (showing the stratigraphic

column of the Illinois Basin in Indiana); Rev. PGS at 25 ("Regional cross-sections show lateral continuity of injection and overlying strata across 10's to 100's of miles."). Therefore, the test hole generated site-specific data under 40 C.F.R. § 146.93(c) that the Region relied on to determine whether Wabash's alternative timeframe included sufficient consideration and documentation of the ten elements under 40 C.F.R. § 146.93(c)(i)-(x).

1. **The initial PISC timeframe must be reconsidered based on site-specific data**

Consistent with the Class VI regulations, the Permits further ensure that the PISC timeframe is and will continue to be based on site-specific data throughout the life of the Wells to support non-endangerment of USDWs—a fact ignored by Petitioners that provides additional support for the Region's decision. *See* Permits at Section P(6)(a); 40 C.F.R. § 146.93(a)(3), (b)(3). There are at least four points after the initial PISC timeframe is set, at which site-specific data will be taken into account to decide whether to modify the timeframe. This is consistent with the "iterative permitting program" that the Class VI Regulations provide. *ADM*, 17 E.A.D. at 385, 405.

First, prior to receiving authorization to inject, Wabash must submit an update to the PISC timeframe demonstration as "necessary to address new information collected during the logging and testing of the well and the formation." 40 C.F.R. § 146.82(c)(9). Second, Wabash must submit an update to the PISC timeframe during the operation of the Wells if warranted in light of the review of the AoR that is mandated every five years based on monitoring data generated during operation. *See* 40 C.F.R. §§ 146.84(b(2)(i); 146.93(a)(2)(ii); *see also* Permits at Section P(6)(a), I(1), I(5), and N(3) (requiring that sampling data be continuously collected and evaluated once injection commences). Third, at the cessation of injection, Wabash must either submit an amended PISC or demonstrate to EPA "through monitoring data and modeling results that no amendment to the plan

is needed." 40 C.F.R. § 146.93(a)(3); *see also* Permits at Att. C Testing and Monitoring Plan (T&M).

Lastly, prior to authorization for site closure, Wabash must submit 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." 40 C.F.R. § 146.93(b)(3); *see also* Permits at Section P(6)(d). Even after this demonstration, the Permits ensure that the Region retains the ability to extend the PISC timeframe "if there is a concern that USDWs are at risk of endangerment." Permits at Section P(6)(d). Thus, in approving the 10-year timeframe, the Region considered that the PISC requirements are not frozen in place as of the Permits' issuance; there are multiple processes in place where the PISC timeframe must be reconsidered as more site-specific data is generated and if it warrants a change, consistent with the Class VI iterative permitting process. Permits at Section N and Att. C T&M Plan; *see also* 40 C.F.R. § 146.93(a)(3), (b)(3)-(4).

d. As required by 40 C.F.R. § 146.93(c), the Region's approval was based on substantial evidence that the Wells will no longer pose a risk of endangerment to USDWs at the end of the 10-year PISC timeframe.

As shown in the administrative record, the Region's approval of the 10-year PISC timeframe was not clearly erroneous because the alternative PISC timeframe demonstration provided substantial evidence that the project "will no longer pose a risk of endangerment to USDWs" ten years after cessation of injection, as required by 40 C.F.R. § 146.93(c). This substantial evidence is contained in the site-specific and verified data and information regarding the ten elements under 40 C.F.R. § 146.93(c)(1)(i)-(x) because these elements are designed to assess whether an alternative PISC timeframe is protective of USDWs. Contrary to Petitioners' only argument and as explained

in Sections 1 through 10 above, the administrative record contains substantial evidence that the alternative 10-year PISC timeframe will not pose risk of endangerment to USDWs. 40 C.F.R. § 146.93(c)(1).

To summarize from the ten elements above, some of the most important ways in which the data and information in the administrative record addressed risk to USDWs are as follows: the computational modeling (element 1) demonstrated that confining zone rock layers will allow for uniform capture, storage, and movement of the CO2 (elements 4-6), but will prevent vertical migration of the CO2 plume (element 2) and the pressure front (element 3) beyond the confining zone. There is significant separation (approximately 1,600 feet) between the top of the injection zone and the bottom of the lowest USDW (element 10); the well construction will ensure CO2 injection occurs only at depth within the injection zone; nearby abandoned wells are plugged (element 9); and the confining rock layers and the injection zone formation are free of fractures and faults (element 7) that could provide a pathway for fluid movement into a USDW (element 8). The Region exercised its considered judgment in review of this data and information and agreed that together, all these elements demonstrate that there will not be a risk of endangerment to USDWs after the 10-year PISC timeframe. Resp. to Cmts. at 5, 13, 18.

e. Conclusion on alternative PISC timeframe demonstration under 40 C.F.R. § 146.93(c)(1)

Petitioners do not challenge the information, data, or conclusions in the demonstration on any of the ten elements or eight criteria above. They simply allege that the required information and analysis does not exist in the record, which, as shown above, is false. The alternative PISC timeframe demonstration of 10-years "considered and documented" each of the ten elements under 40 C.F.R. § 146.93(c)(1)(i)-(x) and the supporting information met the eight criteria in 40 C.F.R. §

146.93(c)(2). The course of dealings in the record shows that the Region "exercised [] considered judgment" on review of these highly technical issues and confirmed that the demonstration used significant site-specific information and substantial evidence to determine that the project will not pose a risk of endangerment to USDWs 10-years post-injection. *See City of Lowell*, 18 E.A.D. at 132. Petitioners do not identify any other alleged clear error in the Region's findings or conclusions and regardless any challenge to a permit issuer's technical determinations are expected to support their claims "with references to studies, reports, or other materials that provide relevant, detailed, and specific facts and data about permitting matters that were not adequately considered by a permit issuer." *City of Keene*, 18 E.A.D. at 745 (quoting *In re Envtl. Disposal Sys., Inc.*, 12 E.A.D. 254, 291 (EAB 2005)). Here, Petitioners have provided no references, and therefore, have fallen far short of what is required to show that the Region is not entitled to the deference it is typically given on these matters. *NE Hub*, 7 E.A.D. at 568. Contrary to the Petition's claims, the Region's approval of the 10-year PISC timeframe "is rational in light of the information in the record." *Id*.

iii. **The financial assurance requirements in the Permits meet 40 C.F.R. § 146.85 and are not clearly erroneous**

Petitioners do not challenge the adequacy of the financial assurance or any of the calculations supporting them. The Petitioners' sole argument is that the financial assurance required by the Permits is allegedly incorrect because the PISC timeframe is "clearly erroneous." Pet. at 17. Because the Region did not clearly err in approving a 10-year PISC timeframe, it did not

clearly err in requiring commensurate financial assurance in accordance with the applicable regulations. [21]

Regardless, the Region's decision regarding financial assurance in the Permits complies with the SDWA and is supported by the administrative record. Financial assurance is required in order to assure that permit conditions can be met on an ongoing basis and that USDWs remain protected even if the permittee's financial condition worsens over time. Specific financial assurance requirements flow from the relevant permit requirements. Under the Class VI regulations, an owner or operator of a well must provide financial assurance that all UIC requirements will be met. *See* 40 C.F.R. § 146.85. This requirement includes financial assurance sufficient to ensure compliance with the PISC. 40 C.F.R. § 146.85(a)(2)(iii). The financial assurance must include an estimate of the cost for EPA to hire a third party to perform the PISC plan. 40 C.F.R. § 146.85(c)(1).

Wabash obtained and submitted cost estimates for operation, monitoring, repair, well plugging, site restoration, and corrective action to the Region. A.R. ##7, 13-16, 19-20 (showing Wabash's cost estimates); Org. FA Calc at 1. These estimates included the required PISC cost estimates under 40 C.F.R. § 146.85(a)(2)(iii) and (c)(1), including the necessary third-party estimates. *See* EPA, Region, *WCS Class VI Project Review of Financial Responsibility Information*

[21] In addition, Petitioners have not met the procedural thresholds for this claim. The Region addressed financial assurance in its Response to Comments. *See* Resp. to Cmts. at 15-16. The Petition does not recognize the Region's responses regarding financial assurance at all nor explain why they are clearly erroneous or otherwise warrant review. Pet. at 17. Failure to do so ordinarily results in denial of review. *Indeck-Elwood*, 13 E.A.D. at 170 ("[A] petitioner's failure to address the permit issuer's response to comments is fatal to its request for review."); 40 C.F.R. § 124.19(a)(4)(ii).

at 3 (Jan. 10. 2023) (A.R. #69) ("EPA Review of FA") (stating "[t]he applicant provided a detailed third-party cost estimate"). Due to the Region's many comments and requests for additional analysis in the TRL, Wabash had to revise many of its Permits' application documents and in turn, Wabash also submitted a revised proposed financial assurance demonstration. *See* TRL; WCS, *Revised Financial Assurance Demonstration* (March 17, 2023) (A.R. #26) ("Revised FA Calc"). The revised costs Wabash proposed for USDW remediation, reporting, and emergency and remedial response were modeled and found to be consistent with the applicable requirements. Resp. to Cmts. at 15-16; Revised FA Calc at 2. All covered costs were included through the end of the 10-year PISC timeframe and site closure procedures. Revised FA Calc. at 3-4. The Region utilized a cost model using various cost scenarios to development a low, mid, and high range estimate of all potential costs required under the Permits for the entire project. *Id.* at 2. The revised costs proposed by Wabash were within the acceptable range of costs from the model and the Region incorporated them into the Permits. *Id.* at 1; EPA Review of FA at 2; Permits at Att. I, FA.

The total amount of financial assurance required under the Permits is approximately $35,000,000 (with about $14,000,000 monetized at the beginning of injection). *See* Permits at Section H and Att. I. The Permits require that the duration of the financial assurance must be sufficient to cover the duration of the approved PISC timeframe. *See id.* at Section H(1)(c). In the unlikely event that impacts to USDWs are detected, the Permits require adequate financial assurance for emergency remedial response and groundwater remediation. *See id.* at Att. F ERRP at 6; Att. I FA at 5; Revised FA Calc. at 8. As part of the PISC timeframe evaluation (discussed above), if the PISC timeframe is modified (either shortened or lengthened) the alternative PISC timeframe will be matched by required financial assurance for the entire period. *See* Permits at

Sections P(6)(a); H(1)(c); Resp. to Cmts. at 15-16. The financial assurance must be reassessed and updated every five years. *See* Permits at Sections H(2); G(1).

The Region exercised its considered judgement in approving the financial assurance calculations provided by Wabash and setting the financial assurance conditions in the Permits. *Gen. Elec.*, 17 E.A.D. at 446. The financial assurance conditions in the Permits are "rational in light of all of the information in the record." *NE Hub*, 7 E.A.D. at 568. Therefore, Petitioners have not met their burden to demonstrate that the Permits' financial assurance conditions are based on a finding of fact or conclusion of law that is clearly erroneous and the Board should deny review. *See* 40 C.F.R. § 124.19(a)(4)(i).

C. **Review of Petitioners' APA Claim Should be Denied**

Petitioners tacked a three-sentence APA claim onto their NEPA and SDWA claims, adding nothing further of substance. Pet. at 17. As a threshold matter, the Board should deny review of the Petition's APA claim because, as related to the SDWA claim, section 706 of the APA sets forth a standard that is relevant to only reviewing federal courts, not to the EAB. *See* 40 C.F.R. § 124.19(a)(4)(i). In addition, as demonstrated above, the UIC permitting process is functionally equivalent to NEPA, and therefore exempted from NEPA requirements. Thus, Petitioners' APA claim based on a violation of NEPA lacks merit. Without that claim, nothing remains of the APA claim and the Board should deny review of such claim.[22]

[22] As with their claims under NEPA, Petitioners failed to raise APA concerns during the public comment period. Because this issue was not raised in the public comments, Petitioners did not preserve it on appeal. *See* 40 C.F.R. §§ 124.13; 124.19(a).

Regardless, the Region's issuance of the Permits was neither arbitrary nor capricious. Petitioners argue that " EPA arbitrarily and capriciously failed to consider cumulative effects and alternatives as required by NEPA and failed to require a proper PISC plan and financial assurance." Pet. at 17. However, as discussed above, the Region has shown, and Petitioners have failed to meet their high burden to disprove, that the Region's decision to issue the Permits is logical and supportable and complied with SDWA both for NEPA functional equivalence purposes and for the PISC timeframe and financial assurance requirements for these Permits.

When determining whether an Agency's decision is arbitrary or capricious, the Seventh Circuit has explained that the agency's "decision will be accorded a high degree of deference," *Mt. Sinai Hosp. Med. Ctr. v. Shalala*, 196 F.3d 703, 708 (7th Cir. 1999), especially if it involves a scientific or technical determination, *Indiana v. EPA*, 796 F.3d 803, 811 (7th Cir. 2015). Under this highly deferential standard of review, the Seventh Circuit will uphold the Agency's decision "if the agency's path may be reasonably discerned." *Bagdonas v. Dep't of Treasury*, 93 F.3d 422, 426 (7th Cir. 1996) (quoting *Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc*., 419 U.S. 281, 286 (1974)). The degree of explanation needed by the agency therefore depends on whether the court can "reasonably discern[]" the agency's path based on the administrative record. *Mt. Sinai Hosp. Med. Ctr*., 196 F.3d at 708. If there is a "'logical bridge' between the evidence and [the agency's] conclusion," that is sufficient. *Dubnow v. McDonough*, 30 F.4th 603, 610 (7th Cir. 2022) (an agency determination is disturbed by a court under the arbitrary and capricious standard "only if it lacks a 'rational basis'") (citation omitted)). Similar to the Board's clear error standard, courts "ask only if the agency's decision was 'based on a consideration of the relevant factors and whether there has been a clear error of judgment.'" *Protect Our Parks, Inc. v.*

Buttigieg, 10 F.4th 758, 764 (7th Cir. 2021) (quoting *DHS v. Regents of the Univ. of Cal.*, 140 S. Ct. 1891, 1905 (2020)).

The Region's NEPA functional equivalence review, as well as its approval of the PISC timeframe and the financial assurance conditions are technical determinations that all have the requisite "logical bridge" to the evidence in the record for all of the reasons explained in Section V.A. and V.B. above. *Dubnow*, 30 F.4th at 610. The Agency's path on these issues is supported by, and "reasonably discern[able]" from, the administrative record. *Bagdonas*, 93 F.3d at 426.

The Permits are also consistent with the single APA case cited by Petitioners, *Motor Vehicle Mfrs. Ass'n of U.S. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 43 (1983), which held that an agency's decision is arbitrary and capricious if it "failed to consider an important aspect of the problem" and "offered an explanation for its decision that runs counter to the evidence before the agency." Here, consistent with the EAB review standards set forth above, the Region considered all of the "important aspects" relating to NEPA, the SDWA PISC timeframe, and financial assurance. Petitioners have not met their burden of demonstrating otherwise. Furthermore, the Region's decision on the PISC is consistent with every piece of evidence before the Agency and Petitioners fail to identify any piece of evidence in the administrative record or otherwise that "runs counter" to the Region's approval of the 10-year PISC timeframe. Accordingly, if the Board considers Petitioners' APA claim, it should find that Petitioners have not demonstrated that the Agency's decision is clearly erroneous or otherwise violated the APA, and the Board should deny review of the claim.

C. CONCLUSION

For the reasons set forth above, EPA respectfully requests that the Board dismiss and/or deny the claims raised in the Petition.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that copies of the foregoing EPA Region 5 Response to the Petition for Review of EPA Permit Decisions and Attachments were filed in the Environmental Appeal Board's electronic filing system and sent to the following persons in the manner indicated.

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