

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

\_\_\_\_\_  
In re: )  
)  
Wabash Carbon Services, LLC )  
Vermillion and Vigo, IN )  
Wells CCS#1 and CCS#2 )  
)  
Underground Injection Control )  
Permit Nos.: IN-165-6A-0001 and )  
IN-167-6A-0001 )  
\_\_\_\_\_ )

UIC Appeal No. 24-01

**EPA REGION 5 SURREPLY TO PETITIONERS' REPLY**

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None

## **STATEMENT OF COMPLIANCE WITH WORD LIMITATION**

Consistent with 40 C.F.R. § 124.19(d)(3), this surreply brief does not exceed 7,000 words exclusive of “[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.” *See also* 40 C.F.R. § 124.19(d)(1)(iv).

## **I. INTRODUCTION**

The United States Environmental Protection Agency (“EPA” or “Agency”), Region 5 (“Region”), hereby responds to the Reply filed on May 23, 2024 (“Reply”) with the Environmental Appeals Board (“EAB” or “Board”) by Andrew Lenderman, Ben Lenderman, Floyd Lenderman and Jessie Lenderman (“Petitioners”) supporting their Petition 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.* 40 C.F.R. Part 124 governs permit appeals before the Board and establishes that “Petitioner[s] may not raise new issues or arguments in the reply.” 40 C.F.R. § 124.19(c)(2). Here Petitioners have violated that requirement, and the Region respectfully asks the Board to disregard the new issues and new arguments raised within their Reply.

But even assuming these arguments were properly raised in the Petition, the Board should find that Petitioners fail to meet their burden of demonstrating that the Region’s decision is clearly erroneous, or otherwise warrants review. *See* 40 C.F.R. § 124.19(a)(4)(i); *In re City of Lowell*, 18 E.A.D. 115, 132 (EAB 2020). Petitioners’ new arguments in the Reply do not meet this burden. Petitioners argue for the first time in the Reply that the Permits were subject to the National Environmental Policy Act’s (“NEPA”), 42 U.S.C. §§ 4321-4370, environmental assessment (“EA”) and categorical exclusion requirements. Reply at 5-6. They also raise new arguments under their SDWA claim for why the Region allegedly failed to meet 40 C.F.R. § 146.93(c) and claim those arguments show that the Region has engaged in post hoc rationalization here. Reply at 14-16. Petitioners’ new arguments are inaccurate and fall far short

of demonstrating clear error. The Permits are not subject to these newly raised NEPA requirements either because they underwent the functionally equivalent process pursuant to the SDWA. *See e.g., In re Windfall Oil & Gas, Inc.*, 16 E.A.D. 769, 811 n.39 (EAB 2015) (“The UIC program is the functional equivalent of NEPA.”). The Region obtained site-specific data regarding the injection zone as required by 40 C.F.R. § 146.93(c) and the record is consistent with and supports the Region’s approval of the alternative PISC timeframe under the SDWA. The Board should deny review of the Petition, including the new arguments raised in Reply.

**II. THE BOARD SHOULD DENY REVIEW OF THE NEW NEPA ARGUMENTS PETITIONERS RAISE IN REPLY**

In violation of 40 C.F.R. § 124.19(c)(2), Petitioners raise new arguments under their NEPA claim in their Reply. The Board should disregard all new issues and arguments raised for the first time in their Reply. The Petition alleged that the Region violated NEPA by raising four arguments: (1) the SDWA UIC permit process is not functionally equivalent to NEPA; (2) EPA failed to consider cumulative impacts outlined in the environmental impact statement (“EIS”) procedures under 40 C.F.R. § 1502; (3) EPA failed to consider alternatives under the EIS requirements of 42 U.S.C. § 4332(C); and (4) EPA failed to take a “hard look” at environmental impacts. Pet. at 8, 10-11. Now that Petitioners have seen the Region’s response on the issue of NEPA—which the Region would have given in Response to Comments had NEPA been raised—Petitioners have pivoted to new claims. Petitioners assert for the first time in their Reply that the Region failed to comply with NEPA’s EA requirement and that EPA has never adopted a categorical exclusion for UIC permits. Reply at 6. In fact, the Petition does not



mention environmental assessments or categorical exclusions at all.<sup>1</sup> Since the new NEPA environmental assessment and categorical exclusion arguments were impermissibly raised in Petitioners' Reply and violate 40 C.F.R. § 124.19(c)(2), the Board should deny review of these untimely arguments.

**A. The UIC Permitting Process is Functionally Equivalent to NEPA Compliance**

If the Board decides to review the Reply's new NEPA arguments despite their untimeliness, the Board should deny review on the merits. Specifically, the Permits are not subject to NEPA's EA or categorical exclusion requirements, and the Region's orderly environmental review under the SDWA was functionally equivalent to NEPA. *Amoco Oil Co. v. EPA*, 501 F.2d 722, 750 (D.C. Cir. 1974) (explaining that functional equivalence exists when a statute "itself provides for orderly consideration of diverse environmental factors.") (internal quotation and citation omitted); *Windfall Oil & Gas*, 16 E.A.D. at 811.

Under NEPA, an EIS is required for "major [f]ederal actions *significantly* affecting the quality of the human environment." NEPA § 102(C), 42 U.S.C. § 4332(C) (emphasis added). When an agency determines that a major federal action is not likely to have significant effects or when the significance of the effects is unknown, the agency must prepare an EA. 40 C.F.R. § 1501.5(a). An EA assesses the significant effects of the proposed action and is used to determine whether the action has a significant effect and requires an EIS or has no significant effect and warrants a finding of no significant impact ("FONSI"). 40 C.F.R. §§ 1501.5(c)(1); 1508.1(h); 1501.6(a); 1502.3. An agency may also provide a categorical exclusion for "actions that normally do not have a significant effect on the human environment and therefore do not require

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<sup>1</sup> Nor did the Petition identify where these issues were raised in the public comments as Petitioners are required to do under 40 C.F.R. § 124.19(a)(4)(ii).

preparation of an environmental assessment or environmental impact statement.” 40 C.F.R. § 1501.4.

In their Reply, Petitioners argue that *Western Nebraska Resources Council v. EPA*, 943 F.2d 867 (8th Cir. 1991) and this Board’s precedent do not hold that the SDWA’s UIC program is the functional equivalent to NEPA. Reply at 7, 9. Moreover, Petitioners assert that the functional equivalence doctrine applies to only NEPA’s EIS requirement and not to its EA requirement and that EPA has not made a necessary categorical exclusion for UIC permits. Reply at 6. Petitioners are incorrect on both fronts.

As explained in the Region’s Response, federal courts and this Board have consistently recognized that certain EPA procedures under environmental statutes, which include SDWA, are functionally equivalent to a NEPA process, and thus exempt from NEPA. *See* Resp. Br. at 17-29. The Court in *Western Nebraska Resources Council* “agree[d] with the many circuits that have held that EPA does not need to comply with the formal requirements of NEPA in performing its environmental protection functions *under organic legislation* that mandates specific procedures for considering the environment that are functional equivalents of the impact statement process. We further agree that *SDWA is such legislation...*” (internal quotations and citations omitted) (emphasis added). 943 F.2d at 871-72. This Board has also concluded that, “[t]he UIC program is the functional equivalent of NEPA.” *Windfall Oil & Gas*, 16 E.A.D. at 811 n.39. The SDWA UIC program’s functional equivalence to NEPA is not an open question, and this Board should not entertain Petitioners’ arguments to the contrary.

Under the functional equivalence doctrine, when a regulatory program, such as the SDWA, is the “functional (though not the structural or literal) equivalent” to NEPA, *Alabama ex rel. Siegelman v. EPA*, 911 F.2d 499, 505 (11th Cir. 1990), the agency need not perform any of “the

formal requirements of NEPA,” including preparation of “a formal Environmental Assessment or Environmental Impact Statement.” *W. Neb. Res. Council*, 943 F.2d at 871-72. This is because the purpose of the functional equivalence doctrine is to avoid repetitious environmental analysis in a decision-making process that is already infused with environmental considerations. *Amoco*, 501 F.2d at 749 (explaining that requiring NEPA’s EIS from “an agency whose raison d’etre is the protection of the environment and whose decision [on the topic] is necessarily infused with the environmental considerations” would be “a legalism carried to the extreme.”); *In re American Soda, LLP*, 9 E.A.D 280, 290 (EAB 2000) (recognizing that one purpose of the functional equivalence doctrine is to avoid adding “one more regulatory hurdle” to the decision-making process when NEPA’s primary goal for an agency to “consider the environmental consequences of its decision” is accomplished through another statutory program). The functional equivalence doctrine merely recognizes that another statute and its regulatory program fulfills the functional equivalent of NEPA. *Amoco*, 501 F.2d at 750 (holding that “the ‘functional equivalence’ test merely recognizes that the Clean Air Act itself provides for orderly consideration of diverse environmental factors”). Thus, the finding that a statute’s regulatory program is functionally equivalent to NEPA means that NEPA is inapplicable, i.e., nothing further is necessary under NEPA’s procedures. *Id.* (“Our rationale has been that the Clean Air Act provides, procedurally and substantively, for the ‘functional equivalent’ of compliance with NEPA.”); *see also Maryland v. Train*, 415 F. Supp. 116, 121-122 (D. Md. 1976). Therefore, once a statute’s process and regulatory program is determined to fulfill the functional equivalence of NEPA, there need not be any further inquiry under NEPA. *See Train*, 415 F. Supp. at 121-122 (explaining that “formal adherence to the NEPA requirements is not required” when another regulatory program is functionally equivalent to NEPA compliance). Because the

UIC program is the functional equivalent to NEPA, the Board need not conduct a requirement-by-requirement assessment of whether any individual NEPA requirement should be applicable. *Amoco*, 501 F.2d at 750 (explaining that a finding of functional equivalence “does not mean that the Clean Air Act literally requires EPA to go through all the motions involved in filing an impact statement; indeed, the fact that the Clean Air Act calls for extraordinarily expeditious decision-making is one reason for exempting this decision-making from NEPA’s time-consuming routine.”). In fact, it would be improper to do so.

Petitioners’ improper application of the functional equivalence doctrine, as expressed by their incorrect interpretation of *Western Nebraska Resources Council* and this Board’s precedent, would leave agencies and courts to guess as to which of NEPA’s requirements have been met and what other requirements remain. Petitioners’ reasoning would also perpetuate duplicative environmental reviews and undermine the purpose of the functional equivalence doctrine. In particular, Petitioners incorrectly assert that the Region was required to prepare a NEPA EA or a categorical exclusion even if the SDWA UIC program is the functional equivalent to NEPA. While the Board has not yet had the opportunity to address EAs and categorical exclusions specifically, as explained above, it need not so do. That said, the Board’s reasoning regarding NEPA’s EIS would apply with equal force to EAs and categorical exclusions. This Board has been clear that “in order to show functional equivalency to NEPA, EPA need not demonstrate that it has addressed all five elements of an EIS as set forth in NEPA.” *American Soda*, 9 E.A.D at 291. Following *American Soda*’s reasoning, if the Region’s “substantive and procedural standards” under the UIC program “ensure full and adequate consideration of environmental issues” thus meeting the functional equivalence of the higher threshold of an EIS, they also meet the lesser requirements of an EA or a categorical exclusion. *Id.* at 290-91. Because this Board

has concluded that the UIC program provides the functional equivalence to NEPA's detailed EIS requirements (which are triggered when a proposed federal action's environmental effects will be significant), this Board should also find that the UIC program provides the functional equivalence to NEPA's less detailed EA requirements (which are triggered when a proposed federal action's environmental effects are unknown or unlikely to be significant) and NEPA's categorical exclusion of a less detailed environmental analysis (which is permitted when a proposed federal action does not have a significant effect on the human environment).

In addition, precedent demonstrates that the functional equivalence doctrine exempts an agency from "formal compliance with NEPA," *Env'tl. Def. Fund, Inc. v. EPA*, 489 F.2d 1247, 1257 (D.C. Cir. 1973), which would include an EA or a categorical exclusion. The Court in *Western Nebraska Resources Council* held that "EPA does not need to comply with *the formal requirements of NEPA*" including "to prepare a *formal Environmental Assessment* or *Environmental Impact Statement*" because the SDWA provides the functional equivalent. (internal quotations and citations omitted) (*emphasis added*). 943 F.2d at 871-72. This Board has also concluded 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." *American Soda*, 9 E.A.D. at 290-91 (*emphasis added*) (internal citations omitted). A categorical exclusion, an EA, and an EIS are all formal requirements under NEPA that are inapplicable under the functional equivalence doctrine because the SDWA UIC Program's orderly review is sufficient. *See* 40 C.F.R. §§ 1501.4 (categorical exclusion); 1501.5 (EA); 1502.1 (EIS). Therefore, for these reasons, the Board need not inquire further and should deny Petitioners' new NEPA claims.

**III. THE BOARD SHOULD DENY REVIEW OF THE NEW SDWA ARGUMENTS  
PETITIONERS RAISE IN REPLY**

Petitioners attempt to add on a new SDWA argument under the guise of retrospectively recharacterizing their record-based SDWA claim as a substantive claim.<sup>2</sup> Petitioners had an opportunity in their Petition to argue that the analysis under 40 C.F.R. § 146.93(c) for the alternative PISC timeframe was inadequate or deficient. The Revised Post-Injection Site Care plan (“PISC”) contains an entire section labeled “Alternative Post-Injection Site Care Timeframe 40 CFR 146.93(c)” complete with subsections and cross- references to other Permits’ documents, including the Revised Area of Review (“AoR”). WCS, *PISC 40 C.F.R. 146.93(a) Wabash CCS Project* (Feb. 24, 2023) at 10 (A.R. #24) (“Rev. PISC”). But Petitioners did not advance any substantive arguments based on errors in the record in their Petition. Instead, Petitioners argued there was “no indication in the administrative record” that the analyses “were performed.” Pet. at 16. For the first time in their Reply, Petitioners engage with the record and identify a single sentence in the Revised AoR referring to core samples, which they allege is a deficiency in the record. Reply at 15 (citing WCS, *AoR and Corrective Action Plan 40 C.F.R. 146.84(b) Wabash CCS Project* (Feb. 24, 2023) at 19 (A.R. #22) (“Rev. AoR”). If Petitioners had raised this concern in their Petition, the Region would have no need for a surreply now to explain this misunderstanding of the record because the Region would have had the ability to do so in its Response. Petitioners’ approach not only violates 40 C.F.R. § 124.19(c)(2) but denied the Region an opportunity to address the alleged record deficiency in its Response. The Board should deny

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<sup>2</sup> Compare Pet. at 16 claiming 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,” with Reply at 13 claiming that the analysis (that they now recognize the Region performed) did not “adequately consider[] all of the criteria set out in 40 [C.F.R.] § 146.93(c).”

review of Petitioners' new arguments about the alternative PISC timeframe raised for the first time in Reply.

Petitioners also rely on the same sentence in the Revised AoR as their sole support to argue that "portions" of the Region's decision here are based on post hoc rationalization. Reply at 14. They claim that the cited sentence shows an unexplained gap in site-specific data that is inconsistent with the Region's decision. However, as explained below, Petitioners misunderstand this sentence. There is no gap in data and Petitioners' claim that the Revised AoR is inconsistent with the Region's decision is wrong. Because Petitioners' entire claim that the Region's position is post hoc rests on the single example from the Revised AoR that they have mischaracterized and misunderstood, Petitioners post hoc rationalization argument also fails. The Region's Response did not provide any justification for its decision on the Permits that is not otherwise contained in the factual findings and conclusions in the Record. The Board should deny review of Petitioners' post hoc rationalization argument as well.

**A. The Region's Consideration of the Alternative PISC Timeframe Included the Requisite Site-Specific Data and is not based on Post Hoc Rationalization**

If the Board decides to review the Reply's new SDWA claims despite Petitioners' violation of 40 C.F.R. § 124.19(c)(2), the Board should deny review on the merits because the Region thoroughly and adequately considered site-specific data in its assessment of the alternative PISC timeframe as required under 40 C.F.R. § 146.93(c). As a result, there is no contradiction in the record and Petitioners have not shown that the Region engaged in post hoc rationalization. In their Reply, Petitioners cherry pick a single sentence from the Revised AoR and a single public comment which they claim show a deficiency in the Region's assessment under 40 C.F.R. § 146.93(c) and as a result, a conflict with its Response. However, Petitioners misunderstand and

mischaracterize the record. There is not a deficiency. The comment and statement are both consistent with the Region's Response and the record citations contained therein, and therefore, do not demonstrate post hoc rationalization. Petitioners also ignore voluminous portions of the record providing justification for the Region's decision and showing that the Region addressed the new issues Petitioners raise regarding site-specific data.

Specifically, the public comment cited by Petitioners states, "One area of uncertainty is a lack of a sample of the Potosi Dolomite. This is still needed to determine capillary pressure, permeability, and lateral extent of the plume due to vuggy intervals." Comment of Ivan Buck (Sept. 7, 2023) (AR #661).<sup>3</sup> The statement in the Revised AoR cited by Petitioners is: "No core was obtained from the Potosi Dolomite from the Wabash #1 well, thus no site-specific laboratory measurements of relative permeability, capillary pressure, or rock compressibility were available." Rev. AoR at 19. According to Petitioners, both citations show a lack of "site-specific variables" for part of the injection zone (the Potosi Dolomite Formation) and that as a result, the Region did not determine certain geophysical characteristics in the Formation that relate to the assessment of CO<sub>2</sub> trapping rates. Reply at 15-16. Moreover, Petitioners claim that this

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<sup>3</sup> The comment is signed from "Ivan Buck"; however, the name associated with the email address it was sent from is Michael Watkins. The comment cited by Petitioners did not comment on the draft Permits; instead, it identified concerns from the Wabash CarbonSAFE Report prepared by the Prairie Research Institute under a cooperative agreement with the U.S. Dept. of Energy. The Report is not part of the Permits' applications documents. Rather it was a separate, independent, preliminary study that assessed the feasibility of CO<sub>2</sub> storage in the area with the identified next step to pursue a UIC permit. The study concluded in March of 2022, six months before the Region issued its technical review letter to Wabash and nine months before Wabash submitted the significantly revised Permits' application documents and additional information, all of which are in the administrative record.



information is inconsistent with the record and the Region’s Response and is indicative of post hoc rationalization. Reply at 15-16. None of these assertions are accurate.

In fact, as discussed in more detail below, the Region ensured that many types of site-specific data, including samples, measurements, and information regarding the Potosi Dolomite Formation were obtained and considered during its review of the alternative PISC timeframe.<sup>4</sup> In both the Response to Comments and many administrative record documents, the Region also *explained* how such site-specific data was used to determine the geophysical characteristics of the Potosi Dolomite Formation as raised by the commenter (capillary pressure, permeability, and

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<sup>4</sup> See e.g., Rev. PISC at 29 (core flood experiments were performed on *samples from* the Potosi Dolomite); WCS, *Class VI Permit Application Narrative 40 CFR 146.82(a) Wabash CCS Project* (Feb. 24, 2023) at 25 (A.R. #21) (“Rev. PGS”) (“Petrophysical analyses of *geophysical logs obtained at the Wabash #1 well* are the primary method of *determining injection and confining unit properties*. A detailed suite of geophysical logs collected in this well permit a continuous evaluation of mineralogical, lithological, and petrophysical characteristics across the injection formation and overlying zones. *In situ well tests were additionally conducted in the Potosi Dolomite injection zone to determine injectivity characteristics.*”); *id.* at 3 (“During testing of the Wabash #1 well a swab sample of formation fluid from the Potosi dolomite was collected and analyzed...”); *id.* at 10 (showing data from nearby projects (including the test well) regarding all the stratigraphic layers at the site, including the Potosi Dolomite); *id.* at 16 (citing reliance on “Leetaru, H. E., Smith, V., Adushita, Y., and Freiburg, J.T., 2014, An integrated approach to *evaluating the suitability of the Potosi Dolomite as a carbon sequestration target*: Interpretation 2, p. 125-133”); *id.* at 26 (detailing the “series of tests” completed in the Potosi Dolomite formation for the project and the data from a nearby Class I UIC well within the Potosi Dolomite formation that was considered); *id.* at 104-05 (explaining that the maximum injection pressure for the Potosi Formation was verified during testing of the Wabash #1 well); Rev. AoR at 15 (explaining two types of tests at the Wabash #1 well in the Potosi Dolomite and how they were used to *estimate permeability, initial pressure, and large-scale geological features* of the Formation); Region 5, U.S. EPA, *Geological Review Memorandum to File* (May 31, 2023) at 7 (A.R. #61) (“Geo Review Memo”) (wherein EPA requested additional site-specific information regarding the Potosi); Region 5, U.S. EPA, *UIC Class 6 [sic] Permit Applications WVCCS #1 and WVCCS #2* (Sept. 28, 2022) at 7 (A.R. #70) (“TRL”) (requesting clarification and further information regarding multiple sources and types of site-specific data as it relates to the Potosi Dolomite Formation and assessment of its geophysical characteristics); WCS, *Responses to EPA TRL* (Nov. 11, 2022) at 22, 84, 122, 123, 127, 165 (A.R. #71) (addressing the Region’s requests about the Potosi Dolomite); Rev. PGS at 2, 5, 26, 27, 69, 70-71, 90, 103 (incorporating the Region’s requests) (*emphasis added throughout*).

lateral extent of the plume due to vuggy intervals) and the Petitioners (relative permeability, capillary pressure, or rock compressibility).<sup>5</sup>

Contrary to Petitioners' claims, the Revised AoR does not state, "without equivocation" or otherwise that no "site specific variables" were available or used when considering the rate of CO2 trapping at either injection well. The Reply misquoted the record when it stated:

"The Revised AoR states without equivocation that no "site specific variables" were available or used for considering the rate of CO2 trapping from the Wabash #1 well... the record cited by EPA shows that "site specific variables" were NOT used in predicting CO2 trapping rates for at least one of the injection wells."

Reply at 16 (emphasis in original). The phrase "site-specific variables" is not used in the Revised AoR at all. The statement in the Revised AoR is that "a core" sample was not obtained from the Potosi Dolomite Formation and as a result no site-specific "laboratory measurements" of certain geophysical characteristics were available. Rev. AOR at 19. As explained below, the

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<sup>5</sup> EPA, Region 5, *Response to Comments* (January 1, 2024) at 5 (A.R. #1014) ("Resp. to Cmts.") ("The injection zone is ... Potosi Formation. *Permeability estimates* for the injection interval of the Potosi Formation (from 4396 to 5037 feet bgs) calculated *through analysis of regional data and data obtained from the test well* ... indicate that the injection zone has sufficient *thickness and permeability* to accept the maximum carbon dioxide injection mass outlined in the permits."); *id.* at 12-13 (explaining site-specific geologic data was used in the model to *simulate the horizontal (lateral) extent of the CO2 plume in the injection zone*); *id.* at 5 (stating injection zone includes the Potosi formation); *id.* at 4-5 (containing an extensive description of the Potosi formation characteristics as they are known to exist in the area based on data collected from geological studies and other projects in the formation); *id.* at 21-22 (explaining how the fracture pressure of the injection zone was calculated based on a series of tests at the Wabash #1 well); Resp. br. at 44-47 (providing record citations addressing physical characteristics of the injection zone such as *capillary force trapping, i.e., pressure, permeability, and vuggy intervals* as related to CO2 trapping rates); Rev. AoR at 19 (explaining that *rock compressibility* of the Potosi Dolomite Formation was determined based on site-specific data from geophysical logs); *supra* n. 4 (emphasis added throughout).

lack of specific laboratory measurements on a core sample is not the same as “no site-specific variables” for the Potosi Dolomite Formation as misquoted by Petitioners.<sup>6</sup>

A “core” is a specific type of sample and the fact that it has not yet been obtained from the test well, as recognized in the Revised AoR, does not mean that no samples or site-specific data or “variables” were obtained regarding the Potosi Dolomite Formation to predict CO<sub>2</sub> trapping rates. To the contrary, as explained and cited above (*supra* n. 4 and 5), the Region ensured that extensive other site-specific data, measurements, and information, including from testing and samples of the Wabash #1 well, were obtained and included for the Permits. Laboratory measurements of a core sample are only one method of several options to assist in determining a rock formation’s geophysical properties (such as those raised by the commenter, like porosity used to determine capillary pressure, permeability, rock compressibility, and existence of fractures, vuggy intervals, etc.). Geophysical properties of a rock formation can also be determined by running tests in an open borehole using geophysical logging, which was exactly what was done in this case. *See* Rev. AoR at 19 (see the very next sentence in the Revised AoR after that quoted by Petitioners, which explains that the rock compressibility and porosity within

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<sup>6</sup> In addition, Petitioners confuse the test well called Wabash #1 well with the permitted injection wells. Within Wabash’s submissions, “Wabash #1 well” refers to the test well that was drilled for the purpose of obtaining site-specific data. Whereas the permitted wells are referred to in those documents as Geologic Sequestration Well #1 (WVCCS1) and Geologic Sequestration Well #2 (WVCCS1). This is clear in many administrative record documents. *See e.g.*, Rev. PGS at 2 (stating that the stratigraphic test well is called Wabash #1); Rev. AOR at 2 (referring to “samples collected from the Wabash #1 stratigraphic test well”); EPA, Region 5, *Evaluation of the Class VI Application Narrative for Wabash Valley Resources Class VI Permit Application* (Sept. 10, 2021) at 1 (A.R. #67) (“EPA Review of PGS”) (“The injection zone [Potosi Formation] was swabbed in the Wabash #1 stratigraphic test well.”).

the Potosi Dolomite Formation “was derived from a cross plot of neutron-porosity and density-porosity logs,” i.e., geophysical logging).

Specifically, as shown in the record, geophysical wireline logs were performed on and collected from the Wabash #1 test well, including down to and below the Potosi Dolomite Formation.<sup>7</sup> Rev. PGS at 25 (stating that the injection zone was identified and located based on downhole wireline logs from the Wabash #1 well); Rev. PGS at 27 (stating among other things that “Petrophysical analysis of the wireline log data suggests that only a few intervals in the Potosi Dolomite are porous and permeable.... The evaluation of the 20-ft test interval in Wabash #1 wireline log data (Figure 19) shows the zone to be primarily dolomite and quartz.”). The wireline logging of the Wabash #1 well borehole included, among other things, density-porosity and neutron density tests, gamma ray tests, resistivity tests, and sonic (acoustic) tests, all used to help to determine geophysical characteristics including but not limited to, porosity and permeability, and to identify things like vuggy intervals. Rev. AoR at Figures 12, 16, and 18 (depicting the results of the various geophysical logging tests of the Wabash #1 well); Rev. PGS at 32-49 (showing the geophysical logging reports, including results for the Potosi Dolomite Formation); Rev. AoR at 4 (noting that individual highly porous intervals in the Potosi are up to 10 feet thick in the density wireline logs of the Formation drawn from the Wabash #1 well). Such information was then used to assess capillary pressure in order to predict CO<sub>2</sub> trapping rates and to assess rock compressibility, among other things. Rev. AoR at 7, Tables 1 and 2 (listing the geologic interpretation from the resistivity logging as well as the permeability and

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<sup>7</sup> “Wireline logging is the process of using electric instruments to continuously measure the properties of a formation, in order to make decisions about drilling and production operations. Wireline logging is the measurement of downhole formation attributes using special tools or equipment lowered into the borehole.” Collins Dictionary, *Definition of Wireline Logging in the Oil and Gas Industry* (2024).

porosity averages); *id.* at 19. As recognized by Petitioners, the Region’s Response provided extensive record citations to other site-specific data and tests that were also considered when predicting CO2 trapping rates. Reply at 16. There is no contradiction between those record citations and the statement in the Revised AoR that a single type of site-specific data—a core sample—was not yet<sup>8</sup> available to conduct certain laboratory measurements of geophysical characteristics related to trapping. Resp. br. at 44-48 (containing numerous citations to places in the record where site-specific data and information was identified and explained with respect to trapping); *id.* at 50-62 (describing the Wabash #1 test well as the “test hole” that was used to collect site-specific data and information and providing record citations to the Region’s assessment of the test hole). Especially when, as explained above, those geophysical characteristics were determined based on other site-specific information, data, and tests. *supra* n. 4 and 5. The fallacies in Petitioners’ arguments illustrate the technical complexity of the issue here and underscore why the Board gives the Region deference on such topics. *DC Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 334 (EAB 2002) (citing *In re City of Moscow, Idaho*, 10 E.A.D. 135, 142 (EAB 2001) (“The Board traditionally assigns a heavy burden to petitioners seeking review of issues that are essentially technical in nature.”)). Petitioners’ new argument

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<sup>8</sup> The Region made clear in the Response to Comments and in the Permits that core samples from the injection zone, i.e., the Potosi Dolomite Formation, will be obtained. Resp. to Cmts. at 25; Permits at Section J(1)(b) (requiring pre-injection testing of the wells to include whole cores or sidewall cores of the injection zone, among other samples, that meet the requirements of 40 C.F.R. § 146.87(b)); *see also id.* at 22 (referencing core samples that will be obtained during well drilling or step rate tests conducted at the time of construction); *id.* at 33 (“Section J(1)(b) of the permits requires that samples (either sidewall [core] or whole core) are obtained from the confining system and the injection zone for both wells.”); *id.* at 5 (stating that the injection zone is both the Ordovician Oneota Formation and the Cambrian Potosi Formation). Prior to receiving authorization to inject, Wabash must submit an update to the alternative PISC timeframe demonstration, which must address any new information collected in the core samples. *See* 40 C.F.R. § 146.82(c)(9).

about site-specific data in Reply does not meet their heavy burden to show that the Region clearly erred under the SDWA. To the contrary, the entirety of the record demonstrates that the Region exercised its considered judgement and “adopted an approach in the final permit decision that is logical and supportable.” *NE Hub Partners LP*, 7 E.A.D. 561, 568 (EAB 1998).

Petitioners’ post hoc rationalization argument also fails because it relies entirely on Petitioners’ new argument that the Region lacked the requisite site-specific data. The Reply claims that “portions” of the Region’s arguments are nothing more than post hoc rationalization and that the Region has not explained a “contradiction” in the record. Reply at 14, 17. But the Reply identifies only one “portion” of the Region’s argument and only one alleged “contradiction” to support these new arguments and they are one in the same. Petitioners cite to the very same sentence from the Revised AoR (regarding core samples and laboratory measurements) addressed above to argue that site-specific variables were not used to evaluate CO2 trapping. Reply at 16; Rev. AoR at 19. They claim this is evidence of post hoc rationalization because this finding would be contrary to other statements in the record and the Region’s Response on the issue. However, this example cannot carry the day on their post hoc rationalization claim because, as explained above, the cited statement in the Revised AoR is not contrary to either the record or the Region’s Response. *See supra* pp. 12-15; Resp. br. at 44-48 (containing numerous citations to places in the record where site-specific data and information was identified and explained with respect to trapping); *id.* at 50-62 (referring to the Wabash #1 test well as the “test hole” that was used to collect site-specific data and information and providing record citations to the Region’s assessment of the test hole). The Region identified and explained the site-specific data gathered about the Potosi Dolomite Formation in its Response to Comments, in multiple places, and included a description of how the data was used

to determine geophysical characteristics related to trapping, such as those the commenter raised and those described in the cited portion of the Revised AoR. *See supra* n. 4 and 5 and accompanying text; *see also NE Hub*, 7 E.A.D. at 583 (holding that the permit issuer is not required to respond to each comment in an individualized manner nor to include a response of the same length or level of detail as the comment, even when the comments are “primarily technical in nature” so long as the Region addresses “the essence of each issue”). Outside of this one faulty example, Petitioners acknowledge that the remainder of the Region’s analysis on CO2 trapping is contained in the record. Reply at 16 (acknowledging that the Region “cites numerous application documents” about CO2 trapping rates in its Response). Under Petitioners’ own standard—“When an agency structures its decision solely by summarizing evidence presented by the contending parties and describing the parties’ opposing views, without making specific factual findings in support of its own conclusions, it fails to meet its statutory obligation.” Reply at 14-15 (citing 2 Am. Jur. 2d Administrative Law § 548)—there is no clear error. As identified in the Response, the Region’s decision here is based on countless “specific factual findings” in the record supporting its “own conclusions,” which are also contained in the record. *Id.*

In its Reply, Petitioners make other vague and conclusory assertions that the Region engaged in post hoc rationalization in its Response. Tellingly, however, Petitioners do not provide any examples of this purported “post hoc rationalization,” apart from the one flawed example discussed above. The Region’s Response did not engage in post hoc rationalization. To the contrary, it merely advanced arguments responding to Petitioners’ allegations, described the technical analysis contained in the record, and identified where that analysis is located. In other words, the Region did not advance any new justification for its decision beyond what is contained in the record. Accordingly, Petitioners’ post-hoc rationalization argument fails.

Petitioners fail to meet their burden to demonstrate clear error. The Board should deny review of the Petition.

#### **IV. CONCLUSION**

For the reasons set forth above, the Region respectfully requests that the Board disregard the new arguments and topics raised for the first time by Petitioners in Reply and otherwise deny the claims raised in the Petition because the administrative record contains ample evidence that the Region exercised its considered judgment in its review and issuance of the Permits.

Respectfully submitted,

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