

**IN RE PANOCHÉ ENERGY CENTER, LLC**

UIC Appeal No. 22-01

***ORDER DENYING REVIEW***

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Decided May 26, 2023

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## Syllabus

Panoche Energy Center, LLC seeks Environmental Appeals Board review of an Underground Injection Control (“UIC”) Class I non-hazardous waste injection well permit (“Final Permit”) issued by Region 9 of the U.S. Environmental Protection Agency. The Final Permit authorizes Panoche to continue to operate four existing injection wells located at its Facility site and to construct and operate up to two additional wells, subject to certain permit conditions. One permit condition requires ambient monitoring and directs Panoche to install a monitoring well in the vicinity of a nearby abandoned well, Silver Creek #18, located within the Area of Review (“AoR”), to perform chemical analysis and measure specific conductance and formation pressure. Panoche challenges the inclusion of this ambient monitoring requirement in the Final Permit.

Held: The Board finds that, based on the administrative record, Panoche has not demonstrated that the Region clearly erred or abused its discretion in requiring ambient monitoring in the Final Permit, or that review is otherwise warranted. The Board denies the petition for review in its entirety.

Panoche bears the burden of demonstrating that its injection activities will not be conducted in a manner that allows the movement of fluid into underground sources of drinking water (“USDW”). Panoche has not demonstrated that the Region clearly erred or abused its discretion by requiring ambient monitoring. Panoche argues the Region lacks factual support for its decision to require ambient monitoring, and the Region ignored record evidence undercutting that decision. The administrative record supports the Region’s determination that there is potential for fluid movement from the injection zone into the USDW and the ambient monitoring condition in the Final Permit. The Safe Drinking Water Act is preventative in nature, and the UIC regulations provide the Region with the authority and discretion to require ambient monitoring in the Final Permit. The ambient monitoring requirement is supported by the administrative record, including information Panoche provided, and is consistent with the UIC regulations and the Region’s statutory obligation to ensure USDW protection. The Region had a rational basis for the ambient monitoring requirement based on, among other things the: overpressured nature of the Panoche formation, uncertainty about the condition of wells in the AoR abandoned

decades ago that present a potential pathway for fluid migration, and potential value of the ambient monitoring condition to provide early warning of potential endangerment to the USDW. The record reflects extensive technical reviews and shows that the Region duly considered the technical and other issues raised by Panoche in its comments and chose an approach that is rational in light of all the information in the record.

***Before Environmental Appeals Judges Wendy L. Blake, Mary Kay Lynch, and Kathie A. Stein.***

***Opinion of the Board by Judge Lynch:***

***I. STATEMENT OF THE CASE***

Panoche Energy Center, LLC seeks Environmental Appeals Board review of an Underground Injection Control (“UIC”) Class I non-hazardous waste injection well permit (“Final Permit”) issued by Region 9 of the U.S. Environmental Protection Agency. Panoche (“PEC”) operates a simple cycle power generation plant in Firebaugh, California. The Final Permit authorizes Panoche to continue to operate four existing injection wells located at its Facility site and to construct and operate up to two additional wells, subject to certain permit conditions. One permit condition requires ambient monitoring and directs Panoche to install a monitoring well in the vicinity of a nearby abandoned well, Silver Creek #18, located within the Area of Review (“AoR”) to perform chemical analysis and measure specific conductance and formation pressure. Panoche challenges the inclusion of this ambient monitoring requirement in the Final Permit.

The issue before the Board is whether Panoche demonstrated that the Region clearly erred or abused its discretion by requiring the ambient monitoring condition in the Final Permit. For the reasons set forth below, the Board finds that Panoche failed to demonstrate that the Region’s decision to include the ambient monitoring condition in the Final Permit was clear error or an abuse of discretion. Accordingly, the Board denies Panoche’s petition for review.

***II. PRINCIPLES GOVERNING BOARD REVIEW***

The Board’s review of UIC permits is governed by Agency permitting regulations at 40 C.F.R. part 124, which authorize parties to file petitions for review of EPA permit decisions. 40 C.F.R. § 124.19(a)(1). EPA’s intent in promulgating these regulations was that this “review should be only sparingly exercised.” Consolidated Permit Regulations, 45 Fed. Reg. 33,290, 33,412 (May 19, 1980); *see also In re Beeland Grp., L.L.C.*, 14 E.A.D. 189, 195-96 (EAB 2008).

In any appeal from a permit decision issued under part 124, the petitioner bears the burden of demonstrating that review is warranted. “[A] petition for review must identify the contested permit condition or other specific challenge to the permit decision and clearly set forth, with legal and factual support, petitioner’s contentions for why the permit decision should be reviewed.” 40 C.F.R. § 124.19(a)(4)(i); *In re Jordan Dev. Co., L.L.C.*, 18 E.A.D. 1, 4 (EAB 2019).

In considering any petition filed under 40 C.F.R. § 124.19(a), the Board evaluates whether the petitioner has met threshold procedural requirements, including, among other things, whether an issue has been preserved for Board review. See 40 C.F.R. § 124.19(a)(2)-(4); see also *In re Penneco Env'tl. Sols., L.L.C.*, 17 E.A.D. 604, 617-18 (EAB 2018); *In re Seneca Res. Corp.*, 16 E.A.D. 411, 412 (EAB 2014). For example, a petitioner must demonstrate that any issues and arguments it raises on appeal have been preserved for Board review by being raised with “a reasonable degree of specificity and clarity” during the public comment period or public hearing. *In re City of Lowell*, 18 E.A.D. 115, 131 (EAB 2020) (citing *In re Westborough*, 10 E.A.D. 297, 304 (EAB 2002)); see 40 C.F.R. §§ 124.13, .19(a)(4)(ii); see also *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 230 (EAB 2000) (holding issue was not preserved when it was not presented in comments “with sufficient clarity to enable a meaningful response”).

Under 40 C.F.R. § 124.19, the Board has discretion to grant or deny review of a permit decision. *In re Avenal Power Ctr., L.L.C.*, 15 E.A.D. 384, 394 (EAB 2011); *In re Archer Daniels Midland Co.*, 17 E.A.D. 380, 382-83 (EAB 2017). The Board ordinarily denies a petition for 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 an exercise of discretion that warrants review under the law. 40 C.F.R. § 124.19(a)(4)(i)(A)-(B); see, e.g., *In re La Paloma Energy Ctr., L.L.C.*, 16 E.A.D. 267, 269 (EAB 2014). To meet this standard, it is not enough for a petitioner to simply repeat comments previously submitted on the draft permit. A petitioner must demonstrate why the permit issuer’s response to those objections is clearly erroneous or otherwise warrants review. 40 C.F.R. § 124.19(a)(4)(ii); *City of Lowell*, 18 E.A.D. at 131; see *In re City of Taunton*, 17 E.A.D. 105, 111, 180, 182-83, 189 (EAB 2016) *aff’d*, 895 F.3d 120 (1st Cir. 2018), *cert. denied*, 139 S.Ct. 1240 (2019).

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 “considered judgment.” *City of Lowell*, 18 E.A.D. at 132 (citing *In re Gen. Elec. Co.*, 17 E.A.D. 434, 560-61 (EAB 2018); *In re Ash Grove Cement Co.*, 7 E.A.D. 387, 417-18 (EAB 1997)). The

permit issuer must articulate with reasonable clarity the reasons supporting its conclusion and the significance of the crucial facts it relied on when reaching its conclusion. *E.g., In re Shell Offshore, Inc.*, 13 E.A.D. 357, 391 (EAB 2007). As a whole, the record must demonstrate that the permit issuer “duly considered the issues raised in the comments” and ultimately adopted an approach that “is rational in light of all information in the record.” *In re Gov’t of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 342 (EAB 2002); *see In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 568 (EAB 1998), *pet. for review denied sub nom. Penn. Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3rd Cir. 1999).

In reviewing an exercise of discretion by the permit issuer, the Board applies an abuse of discretion standard. *See In re City of Palmdale*, 15 E.A.D. 700, 704 (EAB 2012). The Board will uphold a permit issuer’s reasonable exercise of discretion if that decision is cogently explained and supported in the record. *See Ash Grove Cement*, 7 E.A.D. at 397 (“[A]cts of discretion must be adequately explained and justified.”).

On matters that are fundamentally technical or scientific in nature, including monitoring issues, the Board typically defers to a permit issuer’s technical expertise and experience, as long as the permit issuer adequately explains its rationale and supports its reasoning in the administrative record. *See In re Peabody W. Coal Co.*, 12 E.A.D. 22, 50-51 (EAB 2005); *Gen. Elec.*, 17 E.A.D. at 514-15; *In re Dominion Energy Brayton Point, L.L.C., (Formerly USGEN New England, Inc.) Brayton Point Station*, 12 E.A.D. 490, 510, 560-62, 645-47, 668, 670-74 (EAB 2006); *see also, e.g., In re Russell City Energy Ctr., L.L.C.*, 15 E.A.D. 1, 12, 39-42, 60-66 (EAB 2010), *petition denied sub nom. Chabot-Las Positas Cmty. Coll. Dist. v. EPA*, 482 F. App’x 219 (9th Cir. 2012); *NE Hub Partners*, 7 E.A.D. at 570-71. Clear 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.” *NE Hub Partners*, 7 E.A.D. at 567.

### III. LEGAL FRAMEWORK

Congress established the UIC program pursuant to the Safe Drinking Water Act (“SDWA”) and required EPA to promulgate regulations for underground injection control programs to protect underground sources of drinking water (“USDWs”). SDWA § 1421, 42 U.S.C. § 300h. Congress designed the program as a preventative program. *See SDWA § 1421(b)(1)*, 42 U.S.C. § 300h(b)(1) (“Regulations \* \* \* for State underground injection programs shall contain minimum requirements for effective programs to prevent underground injection which endangers drinking water sources \* \* \*”). EPA has promulgated such regulations, including minimum requirements for UIC permits. *See 40 C.F.R.*

pts. 144-148. EPA administers the UIC program in states such as California that are not authorized to administer their own UIC programs. *See* 40 C.F.R. §§ 144.1(e), 147.251(a).<sup>1</sup>

Central to the UIC regulations is protecting underground sources of drinking water from endangerment associated with underground injection activities. *See* SDWA § 1421(b)(1), (d), 42 U.S.C. § 300h(b)(1), (d); 40 C.F.R. § 144.1(g). The UIC program focuses on the protection of underground water that “supplies or can reasonably be expected to supply any public water system” from “any contaminant” that may be present as a result of underground injection activities. SDWA § 1421(d)(2), 42 U.S.C. § 300h(d)(2). The purpose of the UIC regulations is to prevent the movement of fluids containing contaminants into USDWs if the presence of those contaminants may cause a violation of a primary drinking water regulation or otherwise adversely affect human health. *See* 40 C.F.R. § 144.12(a). “[A]ll injection activities including construction of an injection well are prohibited until the owner or operator is authorized by permit.” *Id.* § 144.31(a).

Injection wells fall into six classes. *Id.* §§ 144.6, 146.5. Class I wells are used to inject hazardous and, like the wells at issue here, non-hazardous wastes. Waste is injected into deep, confined rock formations, and these wells are typically drilled thousands of feet below the lowermost USDW. *See id.* §§ 144.6(a), 146.5(a).

Among other things, applicants for an injection well permit must delineate an “area of review” (“AoR”) for the permit, and that delineation must be approved by the permitting authority. *Id.* § 146.6. The AoR denotes the area surrounding injection wells in which the pressures in the injection zone may cause migration of the injection or geological formation fluids out of the injection zone and into a USDW. *See id.* § 146.6(a)(1)(ii). Applicable to the permit process for all classes of wells, EPA’s regulations define the AoR as the area surrounding the proposed injection well that is determined using either a “zone of endangering influence” calculation or the “fixed radius” method. *See id.* § 146.6; *see also id.* § 144.3. The UIC regulations require that a well operator identify all known wells within the AoR that penetrate the proposed well’s injection zone and submit a corrective

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<sup>1</sup> The UIC regulations use the term “Director” to describe the permitting authority. 40 C.F.R. § 146.3 (defining “Director”). Because this matter involves an EPA-administered program, the Board will refer to the “permit issuer” or the Region, as appropriate, in places where the regulations use the term “Director.”

action plan to address any improperly sealed, completed, or abandoned wells in the area of review that otherwise might allow fluid to migrate into USDWs. *See id.* § 144.55(a). Further, the regulations require the permit issuer to ensure that the applicant takes corrective action, as necessary, to prevent fluid migration into USDWs. *Id.* § 144.55(a).

Monitoring is a key component in preventing endangerment of drinking water sources. *See* SDWA § 1421(b)(1)(C), 42 U.S.C. § 300h(b)(1)(C). The UIC regulations require that prior to authorizing injection, the permit issuer must ensure that Class I permits include, at a minimum, the following monitoring requirements:

- (1) The analysis of the injected fluids with sufficient frequency to yield representative data of their characteristics;
- (2) Installation and use of continuous recording devices to monitor injection pressure, flow rate and volume, and the pressure on the annulus between the tubing and the long string of casing;
- (3) A demonstration of mechanical integrity pursuant to § 146.8 at least once every five years during the life of the well; and
- (4) The type, number, and location of wells within the area of review to be used to monitor any migration of fluids into and pressure in the underground sources of drinking water, the parameters to be measured and the frequency of monitoring.

40 C.F.R. § 146.13(b).

In addition, the regulations specifically address ambient monitoring in a provision that EPA added in 1988, which provides as follows:

Based on a site-specific assessment of the potential for fluid movement from the well or injection zone and on the potential value of monitoring wells to detect such movement, the Director shall require the owner or operator to develop a monitoring program. At a minimum, the Director shall require monitoring of the pressure buildup in the injection zone annually, including at a minimum, a shut down of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve.

*Id.* § 146.13(d)(1).

And as explained in the preamble to the 1988 rule, EPA has “discretion in determining an acceptable [monitoring] program.” UIC Program: Hazardous Waste Disposal Injection Restrictions; Amendments to Technical Requirements for

Class I Hazardous Waste Injection Wells; and Additional Monitoring Requirements Applicable to all Class I Wells, 53 Fed. Reg. 28,118, 28,141, 28,145 (July 26, 1988). Accordingly, in addition to the minimum ambient monitoring requirements listed above, EPA may require that an ambient monitoring system include, among other things: “[c]ontinuous monitoring for pressure changes in the first aquifer overlying the confining zone,” periodic monitoring of the ground water quality in the first aquifer overlying the injection zone and in the lowermost USDW, and “[a]ny additional monitoring necessary to determine whether fluids are moving into or between USDWs.” 40 C.F.R. § 146.13(d)(2)(i), (iii)-(v).

#### IV. *FACTUAL AND PROCEDURAL SUMMARY*

##### A. *Panoche Facility and Permit History*

Panoche Energy Center is a 400-megawatt simple-cycle power plant, consisting of four natural gas-fired combustion turbine generators. Region 9, U.S. EPA, *Permit No. CA10600001 Fact Sheet*, at 2 (2021) (A.R. 58) (“Fact Sheet”). The Facility is located in an unincorporated area of western Fresno County, California. *Id.* The Region issued a permit to Panoche on April 25, 2008, which authorized Panoche to construct and operate a Class I nonhazardous waste injection well facility with a maximum of six injection wells for a ten-year period. Region 9, U.S. EPA, *Permit No. CA10600001*, at 4 (Apr. 25, 2008) (A.R. 50) (“2008 Permit”).<sup>2</sup> The 2008 Permit further authorized Panoche to inject into the Panoche Formation at depths ranging between approximately 7,199 to 8,897 feet below ground surface. Fact Sheet at 2. In October 2017, Panoche timely applied for renewal of the 2008 Permit seeking authorization to inject industrial wastewater from Panoche’s Facility into the four existing, and two potential, non-hazardous injection UIC Class I wells, for a ten-year period. Haley & Aldrich, Inc., *2017 UIC Permit Application: Panoche Energy Center, 43883 W. Panoche Road, Firebaugh, California 93622* (Oct. 20, 2017) (A.R. 3); Fact Sheet at 2. The Region deemed the application complete, which allowed for continued operation under an administrative extension. Fact Sheet at 2.

##### B. *Technical Review Leading up to Draft Permits*

Panoche and the Region engaged in a series of technical discussions and reviews in which the Region requested additional information to support the permit application and site-specific assessment. *See generally* Region 9, U.S. EPA, *Permit Renewal Application Technical Review* (May 18, 2018) (A.R. 31) (“May 2018

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<sup>2</sup> Panoche operated only four wells under the 2008 Permit. Fact Sheet at 2.

Technical Review Letter”); Panoche Energy Center, *Summary of Responses and Questions to the UIC Permit Renewal Application* (July 12, 2018) (A.R. 32); Region 9, U.S. EPA, *Permit Renewal Application Response to PEC Questions* (Sept. 7, 2018) (A.R. 33). As a result of these technical discussions, Panoche submitted an updated renewal application that included some of the technical information the Region had requested. Haley & Aldrich, Inc., *2019 Update and Re-submittal of PEC’s 2017 UIC Permit Renewal Application* (Mar. 1, 2019) (A.R. 1) (“2019 Application”). Relevant to this proceeding, one focus of the Region’s review was a series of abandoned wells in the AoR/zone of endangering influence. *See, e.g.*, May 2018 Technical Review Letter enclosure at 2; June 2019 Technical Review Letter enclosure at 1; 2019 Application attach. C (A.R. 1c). Several of the abandoned wells penetrate the injection zone. 2019 Application attach. C at C-4-C-8. The closest abandoned well to the injection zone is Silver Creek #18, which is drilled to a depth of 8,698 feet. *Id.* attach. C at C-7.

Following receipt of the updated permit application in March 2019, the Region continued its technical review of the application. In June 2019, it commented that the determination of the AoR in the application (that used the Zone of Endangering Influence or “ZEI” calculation) relied on the gel strength of the plugging mud in the abandoned wells, but the application lacked information about the properties of the plugging mud in the abandoned wells in the AoR over the long term and whether these wells could allow fluid movement into USDWs. *See, e.g.*, Region 9, U.S. EPA, *Comments on PEC’s March 2019 Updated Permit Application* enclosure at 1 (June 21, 2019) (A.R. 35) (“June 2019 Technical Review Letter”). The Region explained that five wells in the AoR had been abandoned without cement plugs between the injection zone and the base of the USDW, four of which were abandoned 55 to 68 years ago, and it was unknown if the plugging mud used in these abandoned wells had retained the properties it had before the wells were abandoned, or whether the mud had become stratified or lost volume to the surrounding formations. *Id.*; *see also* 2019 Application attach. C. The Silver Creek #18 well was plugged in 1974. 2019 Application attach. C at C-4; Panoche Energy Center, LLC’s Reply in Support of Petition for Review (“Reply Br.”), attach. 4 at 45 (Jan. 31, 2023) (“Silver Creek #18 Plugging Records”). The Region explained to Panoche that “empirical, depth-specific data would best demonstrate that the well(s) will not permit fluid movement that could endanger USDWs.” June 2019 Technical Review Letter enclosure at 1. The Region also requested that Panoche provide a sampling and testing protocol to collect test drilling mud samples in at least two wells in the AoR to support Panoche’s approach to identifying the ZEI and demonstrate that the abandoned wells will not allow fluid movement that could endanger USDWs. *Id.*



The Region and Panoche continued to engage in technical discussions. *See, e.g.,* Haley & Aldrich, Inc., *Response to EPA Comments on PEC's 2019 Update and Re-submittal of the 2017 Permit Renewal Application* (Oct. 2019) (A.R. 36); Region 9, U.S. EPA, *UIC Permit Renewal Application Class I Non-Hazardous Permit R9UIC-CA1-FY17-2R Technical Review* (Dec. 3, 2019) (A.R. 38) (“Dec. 2019 Technical Review Letter”). In the December 2019 Technical Review Letter, the Region informed Panoche that it did not share Panoche’s views on the accuracy of its modeling efforts to demonstrate that mud weight and gel strength in the abandoned wells will prevent fluid movement into the USDW and explained its rationale. Dec. 2019 Technical Review Letter enclosure at 2. The Region’s assessment of some of the studies Panoche presented during this review was included in the December 2019 Technical Review Letter. For example, the Region noted that a statement in the Barker Study “supports EPA’s view that there is uncertainty regarding the gel strength for the particular wells in question.” *Id.*, enclosure at 1; *see also* S.E. Barker, *Determining the Area of Review for Industrial Effluent Disposal Wells*, at 89 (Dec. 1981) (A.R. 43o) (“Barker Study”). With respect to the Hadaway statement, the Region “concur[s] that the mud column generally falls over time in an uncased wellbore.” Dec. 2019 Technical Review Letter enclosure at 2 (referencing Allen Hadaway, *Wellbore Re-Entry Mud Property Expert Opinion* (Nov. 7, 2019) (A.R. 37)). The Region proposed different approaches to evaluate the condition of the mud in the abandoned wells in the AoR. Dec. 2019 Technical Review Letter enclosure at 2-3. Given Panoche’s concerns with the Region’s proposal to re-enter one of the abandoned wells to evaluate the mud condition, the Region identified in the December 2019 Technical Review Letter an alternative approach under which Panoche would prepare to install monitoring wells to demonstrate that the abandoned wells are not serving as conduits for fluid movement. *Id.* at 3. Panoche and the Region did not reach agreement on an approach to monitoring during the technical review process. *See id.*; Panoche Energy Center, *Response to USEPA Comment No. 1d from letter dated December 3, 2019*, at 6-7 (Jan. 17, 2020) (A.R. 39) (“Panoche Response to Dec. 2019 Technical Review Letter”); Region 9, U.S. EPA, *Response to Comments*, at 5 (Cmt. #4) (Sept. 30, 2022) (A.R. 48) (“Resp. to Cmts.”). Further, Panoche did not provide the empirical data the Region requested during this process, or at any time thereafter. *See* Resp. to Cmts. at 6 (Cmt. #5).

### C. Draft Permits

In late July 2020, the Region sent a pre-publication draft permit to Panoche. Region 9, U.S. EPA, *Underground Injection Control Program Draft Permit Class I Non-hazardous Waste Injection Wells Permit No. R9UIC-CA1-FY17-2R with comments* (Jul. 27, 2020) (A.R. 9) (“2020 Pre-Publication Draft”). In addition to

other monitoring, recordkeeping, and reporting requirements, the 2020 Pre-Publication Draft required corrective action be undertaken prior to injection at three abandoned wells in the AoR, which included plugging the Souza #2 well and drilling ambient monitoring wells (referred to as USDW Monitoring) near the Silver Creek #18 and England #1-31 wells. *Id.* at 9-10, 18.<sup>3</sup> Panoche sent written comments to the Region on this pre-publication draft opposing the corrective action and ambient monitoring requirements. Letter from Ankur K. Tohan, K&L Gates, to David Albright, Groundwater Protection Section, EPA Region 9, at 3 (Sept. 25, 2020) (A.R. 12) (“Pre-Publication Comments”).

Following a December 2020 meeting to discuss the comments and information Panoche provided, the Region revised the 2020 Pre-Publication Draft and published the draft permit for public comment in April 2021. Region 9, U.S. EPA *Underground Injection Control Program Draft Permit Class I Non-hazardous Waste Injection Wells Permit No. R9UIC-CA1-FY17-2R* (Apr. 12, 2021) (A.R. 10) (“2021 Draft Permit”). The 2021 Draft Permit eliminated the corrective action requirements, including the requirement to plug the Souza #2 well; the USDW/ambient monitoring requirement near the England #1-31 well; and the requirement to drill monitoring wells prior to injection.<sup>4</sup> *See* 2021 Draft Permit pts. II.C., at 9-10; II.E.2, at 17-18. The 2021 Draft Permit required no corrective action. Among other things, it required the drilling of one ambient monitoring well to perform chemical analysis and measure specific conductance and formation pressure near Silver Creek #18, the abandoned well closest to Panoche’s injection wells.<sup>5</sup> *Compare* 2020 Pre-Publication Draft pts. II.C.1, at 9-10; II.E.2, at 18 *with* 2021 Draft Permit pts. II.C., at 9-10; II.E.2, at 17-18. The Fact Sheet accompanying the 2021 Draft Permit noted that the abandoned Silver Creek Well #18 penetrates through the Panoche injection formation and does not have a cement plug between the injection zone and the lowermost USDW. Fact Sheet at 6. The ambient

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<sup>3</sup> In the Drafts and Final Permit, the ambient monitoring provisions are referred to as “USDW Monitoring.”

<sup>4</sup> The Region stated that it dropped the corrective action requirements, including plugging the Souza #2 well due to “the reduced injection volume” associated with the installation of Panoche’s enhanced wastewater system “and associated reduction of the size of the AoR.” Resp. to Cmts. at 6 (Cmt. #5).

<sup>5</sup> The 2021 Draft Permit added trace metals to the required chemical analysis. *Compare* 2021 Draft Permit pt. II.E.2., Monitoring Requirements subsection b, at 18 *with* 2020 Pre-Publication Draft pt. II.E.2.b, at 18.

monitoring requirement in the 2021 Draft Permit was in addition to other monitoring, recordkeeping, and reporting requirements, which are not contested in this matter.

The comment period for the 2021 Draft Permit opened on April 11, 2021, and closed on May 11, 2021. Region 9, U.S. EPA, *Permit No. CA10600001 Public Notice of Intent* (2021) (A.R. 59); Region 9, U.S. EPA, *Notice of Final Permit Decision* (Sept. 30, 2022) (A.R. 82). Panoche, the only commenter, filed comments opposing the ambient monitoring requirement for Silver Creek #18. Comment Letter from Ankur K. Tohan, K&L Gates, to Michele Dermer, Groundwater Protection Section, EPA Region 9 (May 11, 2021) (A.R. 43) (“Panoche Comments”).

#### *D. Final Permit and Petition for Review*

On September 30, 2022, the Region issued the Final Permit for a ten-year period, along with its response to comments document. Region 9, U.S. EPA, *Permit No. R9UICCA1-FY17-2R* (Sept. 30, 2022) (A.R. 84) (“Final Permit”); Resp. to Cmts. The Final Permit authorizes Panoche to inject industrial wastewater into the four existing wells and two potential wells subject to injection pressure and injection volume limitations. Final Permit at 4, 14; Fact Sheet at 2, 4. The Final Permit retained the ambient monitoring requirement from the 2021 Draft Permit, along with certain other monitoring, recordkeeping, and reporting requirements. Final Permit at 16-23. The USDW/ambient monitoring permit provision requires Panoche to (1) drill a monitoring well within 100 feet to the south-southwest of the Silver Creek #18 well; (2) equip the monitoring well with a transducer (to monitor pressure and specific conductance within the USDW) and water quality monitoring equipment (to allow sampling of the USDW); and (3) sample and perform baseline characterization of ground water chemistry. *Id.* pt. II.E.2 at 17-18.

Panoche filed a petition for review on October 28, 2022, challenging the inclusion of the USDW/ambient monitoring provision in Part II.E.2 of the Final Permit. And following extensions of time requested by the parties, briefing concluded on February 23, 2023, and the Board held oral argument via videoconference on March 30, 2023.

### V. ANALYSIS

According to Panoche, this case is about two things: the lack of factual support for the Region’s decision to require ambient monitoring, and the existence of record evidence undercutting such decision, which the Region ignored. The Region disagrees with both arguments. The Region maintains it had a rational basis

for the ambient monitoring requirement related to the overpressured nature of the formation, unknown condition of the abandoned wells in the AoR, and the potential for fluid movement, and that it clearly explained its rationale to Panoche and the public, all of which is reflected in the administrative record.

What the record reveals is that the dispute in this case is not about whether the Panoche Formation is naturally overpressured. The record shows that it is, and Panoche acknowledged this fact in its permit application and during oral argument. 2019 Application §1.2, at 3 & attach. A at A-1, attach. C at C-1 to C-8 & tbl. C-1; Oral Argument Transcript 32 (Mar. 30, 2023) (“Oral Arg. Tr.”). In fact, the dispute is not even about whether there is the potential for fluid movement into the USDW. Panoche specifically stated in its 2019 Application that with respect to Silver Creek #18, the abandoned well closest to the injection wells, “[t]he potential exist[s] for pressure to enter the wellbore and move fluids into the USDW.” 2019 Application attach. C at C-7. The dispute is about whether, based on this administrative record, the Region can require ambient monitoring and other actions to ensure that there is no movement of fluid from the injection zone into the USDW.

For the reasons explained below, the Board concludes, after a thorough consideration of the administrative record and the arguments raised by the parties, that Panoche has not carried its burden of demonstrating that the Region clearly erred or abused its discretion, or that review is otherwise warranted on any of the grounds presented.

*A. Panoche Has Not Demonstrated that the Region Clearly Erred or Abused Its Discretion by Requiring Ambient Monitoring in the Permit*

Following an extensive technical review and site-specific assessment of the Panoche Formation and the AoR, the Region explained it had two primary reasons for requiring ambient monitoring: (1) the Panoche Formation is naturally overpressured, such that any additional injection poses an increased risk of fluid migration through the old wells in the AoR that lack long string casing and cement plugs to isolate the injection zone from the base of the USDW;<sup>6</sup> and (2) Panoche’s

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<sup>6</sup> Casing is “a pipe or tubing of appropriate material, of varying diameter and weight, lowered into a borehole during or after drilling in order to support the sides of the hole and thus prevent the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent water, gas, or other fluid from entering or leaving the hole.” 40 C.F.R. § 146.3. The Region explains that long string casing is a “type of casing which is continuous from at least the top of the injection interval to the surface, and which is

application contained modeling and estimates, but no empirical data directly addressing the current conditions of the abandoned wells within the AoR. Resp. to Cmts. at 2-3 (Cmt. #1); EPA Region 9's Response to Petition for Review 13 (Dec. 23, 2022) ("Resp. Br."). This resulted in uncertainty regarding the current condition of the abandoned wells in the AoR and an increased risk of potential fluid movement into the USDW. Resp. to Cmts. at 2-3 (Cmt. #1); Resp. Br. at 13.

According to the Region, the permit's ambient monitoring requirement "will provide information about the existence or absence of water quality or pressure changes" that can confirm if the project is operating as expected (i.e., no fluid movement is occurring along the boreholes in the abandoned wells in the AoR that could affect water quality in the USDW), or "provide early warning of potential endangerment to USDWs before any significant impact on water quality could occur. No other monitoring in the Permit provides the information on pressure or water quality changes in the USDW that is needed to provide early indication of fluid movement that could endanger a USDW \* \* \*." Resp. to Cmts. at 3 (Cmt. #1).

As explained below, the Region's technical determination to require ambient monitoring is supported by the administrative record, including information Panoche provided, and is consistent with the UIC regulations and the Region's statutory obligation to ensure USDW protection. On the other hand, Panoche largely repeats comments it made previously and does not address the Region's response to comments document, or it raises new arguments not previously presented to the Region for consideration. Panoche has not met its burden of showing clear error or abuse of discretion for the Board to overturn the Region's well-documented technical determination. In fact, the record in this case reflects extensive technical reviews and shows that the Region duly considered the technical and other issues raised by Panoche in its comments and chose an approach that is rational in light of all the information in the record. Based on this record, a denial of the petition is warranted. *See NE Hub Partners*, 7 E.A.D. at 568.

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cemented in place." EPA Region 9's Response to Petition for Review 6 n.6 (Dec. 23, 2022) ("Resp. Br.").

1. *The Administrative Record Supports the Region's Determination That There Is Potential for Fluid Movement From the Injection Zone into the USDW and the Ambient Monitoring Condition in the Final Permit*

a. *Overpressured Formation*

The record shows that the Panoche Formation is naturally overpressured, and, as noted above, Panoche acknowledges this fact in its 2019 Application and as recently as the oral argument. 2019 Application §1.2, at 3 & attach. A at A-1, attach. C at C-1 to C-8 & tbl. C-1; Oral Arg. Tr. at 32. Injection rates and volume limits in a UIC permit provide important elements of USDW protection. Resp. to Cmts. at 13 (Cmt. #13). Every year, Panoche injects millions of gallons of industrial wastewater into the Panoche Formation, *see id.*, and the permit authorizes Panoche to inject a maximum of 635,229 gallons per day or 232 million gallons per year.<sup>7</sup> Final Permit pt. II.D.4.a, at 14; Resp. to Cmts. at 13 (Cmt. #13); Oral Arg. Tr. at 35-36. The Region explained that overpressured formations, like the Panoche Formation, present unique risks because subsurface pressures will continue to increase as injection activities occur. Resp. to Cmts. at 13 (Cmt. #13). Further, if the injection occurs when pressures are abnormally high, this can lead to new fractures or worsen existing ones that can serve as additional pathways for fluid migration and potentially endanger the USDW. Resp. Br. at 5 (citing Resp. to Cmts. at 13 (Cmt. #13) and U.S. EPA, *Class I UIC Program: Study of the Risks Associated with Class I Underground Injection Wells*, at 14 (Mar. 2001) (A.R. 49) (“Class I Wells Study”)); Class I Wells Study at 14 (observing that faults or fractures may form naturally, may be created by the waste dissolving the rocks of the confining zone, or by injecting wastewater at excessive pressures). In other words, an overpressured formation increases the risk of upward fluid movement that could endanger USDWs. *See* Resp. to Cmts. at 13 (Cmt. #13); Oral Arg. Tr. at 32 (noting that in an overpressured formation fluids naturally would migrate).

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<sup>7</sup> The Final Permit establishes maximum daily injection rates for each of the wells, the sum of which amounts to a total of 635,229 gallons per day and 232 million gallons per year when multiplied by 365. Final Permit at pt. II.D.4.a, at 14; Resp. to Cmts. at 13 (Cmt. #13). Panoche expressly requested the maximum daily injection rates the Final Permit authorized. 2019 Application attach. H tbl. H-1; Oral Arg. Tr. at 35-36. In its reply brief, Panoche argues its air permit limits the amount of wastewater Panoche can generate for injection to 84 million gallons per year and that there is no scenario in which it would produce 232 million gallons of wastewater in a given year. Reply Br. at 6-7. We find this argument late and inaccurate and address it in Part V.A.2 below.

The Region explained that in combination with the overpressured nature of the Panoche Formation, the presence of abandoned wells located in the AoR increase the risks of potential fluid movement from the injection zone into the USDW due to the age of the wells, their configuration and manner of plugging, and uncertainty about their current conditions. *See* Resp. to Cmts. at 5, 6-7, 8-11 (Cmts #4, 5, 9).

b. *Old-Abandoned Wells in the AoR Present a Reasonable Cause for Concern*

Abandoned wells present a potential pathway for fluid migration. Class I Wells Study at 14 (“[F]luids could potentially be forced upward from the injection zone through transmissive faults or fractures in the confining beds which, like abandoned wells, can act as pathways for waste migration to USDWs”); Oral. Arg. Tr. at 42-43. Here, Panoche identified twenty abandoned wells within a three-mile radius of the Facility. *See* 2019 Application at attach. A tbl. A-1, attach. B at B-1. The abandoned wells in the AoR here were of particular concern to the Region because several, like Silver Creek #18, lack cement plugs between the top of the injection zone and the base of the lowermost USDW, penetrate the injection zone, and lack long string casing. Resp. to Cmts. at 7, 9-10 (Cmts. #6, 9); *see* 2019 Application attach. A. tbl. A-1, attach. C at C-1 to C-8 & tbl. C-1. The abandoned wells in the AoR were also of concern to the Region because the condition of the mud used as a plugging agent is unknown. *See* Resp. to Cmts. at 2, 3-4, 9-10 (Cmts. #1, 2, 9-10).

The abandoned wells located within the AoR were plugged and abandoned decades ago. *See* Part IV.B above; June 2019 Technical Review Letter enclosure at 1; Reply Br. attaches. 2-5. The Region explained that “mud conditions and columns in wells abandoned decades ago can vary substantially, depending on well construction, depth of casing and plugs, formation pressures and permeabilities, and other factors.” Dec. 2019 Technical Review Letter enclosure at 2; *see also* Barker Study at 89. Panoche’s application did not provide empirical data on the condition of the mud, and as noted, Panoche later declined to provide empirical data in response to the Region’s request. June 2019 Technical Review Letter enclosure at 1; Dec. 2019 Technical Review Letter enclosure at 2; Panoche Response to Dec. 2019 Technical Review Letter at 3.

In addition, some of the abandoned wells in the AoR lack long string casing or cement plugs between the top of the injection zone and the base of the lowermost USDW and penetrate the injection zone. *See* Resp. to Cmts. at 7, 9-10 (Cmts. #6, 9); *see also* 2019 Application attach. A tbl. A-1, attach. C at C-1 to C-8 & tbl. C-1. Silver Creek #18, the closest of the abandoned wells in the AoR to the injection

wells, was plugged and abandoned in 1974, Silver Creek #18 Plugging Records at 45, has no long string casing installed, no cement plug between the injection zone and the base of the USDW, and was abandoned with a lighter-weight mud than the mud in the next closest well.<sup>8</sup> Resp. to Cmts. at 5, 12 (Cmts. #4, 11); Resp. Br. at 6-7. The Region explained that “[t]he lack of long-string casing increases the risk of fluids migrating laterally through the injection zone and into the abandoned wells” and the lack of a cement plug at the base of the USDW amplifies that risk because if the fluid reaches Silver Creek, or any of the abandoned wells, there would be no effective barrier preventing upward migration into the USDW. Resp. Br. at 6. Furthermore, lighter mud is less resistant to pressure increases, Resp. to Cmts. at 5 (Cmt. #4), and potential fluid movement. *See* Oral Arg. Tr. at 50. As noted above, Panoche itself acknowledged the potential for pressure to enter Silver Creek #18 and move fluids into the USDW. 2019 Application attach. C at C-7; Resp. Br. at 6.

The Region’s assessment of these multiple and interrelated site-specific factors pointed to a risk of potential USDW endangerment, a concern the Region needed to address in its permitting decision. *See* Resp. to Cmts. at 2-3 (Cmt. #1). The Region found its concerns about the uncertainty of the current condition of the wells supported by a U.S. Geological Survey study conducted in Utah. *Id.* at 10- 11 (Cmt. #9). The study states that: “in older wells that were not plugged and abandoned by current standards and procedures, or where the integrity of the cement and mud used to plug the wells has been compromised throughout time, [] water could potentially move uphole [] into the [] aquifer.” U.S. Geological Survey, *Water-Resources Investigations Report 96-4155*, at 58 (1996) (A.R. 25) (“USGS Utah Study”); *see also id.* at 29-30 (similar language).

To eliminate uncertainty as to the condition and efficacy of the mud in the abandoned wells and to evaluate the risk of potential fluid movement, the Region, as noted above, requested empirical data on the current condition of the mud and pressures in Silver Creek #18 and the other abandoned wells in the AoR. *See, e.g.*, June 2019 Technical Review Letter enclosure at 1; Dec. 2019 Technical Review Letter enclosure at 2; Resp. to Cmts. at 5 (Cmt. #4); Resp. Br. at 6. Panoche did

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<sup>8</sup> The Region noted that the Silver Creek #18 well has a cement plug from 1,437 to 1,700 feet, and explained that while this plug may be protective of fresh-saltwater interfaces, no cement plugs were placed to isolate the injection zone from the base of USDWs to prevent fluid migration outside of the approved injection zone. Resp. to Cmts. at 12 (Cmt. #11). The base of the USDW is located at approximately 3,000 feet. 2019 Application attach. D at D-3.



not provide the requested empirical data. Resp. to Cmts. at 6 (Cmt. #5). Instead, it reiterated its position that the abandoned wells were plugged consistent with procedures in place at the time the wells were abandoned decades ago. And Panoche estimated the mud column weight in each of the wells in the AoR and the pressure needed to overcome the mud weight and combination of gel strength and mud weight. It provided some studies that, among other things, discussed the relationship between gel strength and time, and the effectiveness and longevity of muds as plugging material. Panoche further claimed that its Facility operation would not increase pressure within the injection zone because its Enhanced Wastewater System (“EWS”) had reduced injection rates by up to eighty percent since its installation in 2016. *See, e.g.*, Letter from Ankur K. Tohan, K&L Gates, to David Albright, Groundwater Protection Section, EPA Region 9, at 2-3, 5-6 (Jan. 25, 2021) (A.R. 43e); Panoche Comments at 9-10 & attach. 7; Resp. to Cmts. at 8-11 (Cmt. #9).

After extensive review of the information Panoche provided, the Region found Panoche’s submissions misplaced and unpersuasive. As noted above, it observed that compliance with the procedures in place at the time the wells were abandoned does not provide information about the present condition of the mud, decades later, and whether that mud can prevent the potential movement of fluid into a USDW in an already overpressured injection zone. Resp. to Cmts. at 6-7 (Cmt. #5). It also found that Panoche’s modeling did not accurately represent the condition of the mud within the AoR. *See, e.g., id.* at 9 (Cmt. #9). It explained that Panoche did not calculate or otherwise determine the gel strength within the AoR, but rather, Panoche had “assigned the pressure needed at each borehole to exceed an assumed gel strength that is based on studies of other wells.” *Id.* And the estimates that Panoche used were not based on “empirical data about any of the wells in the AoR of the injection wells, including Silver Creek #18 well.” *Id.* (noting that while the assumed gel strength value Panoche used was on the conservative side of the values identified in the Barker Study upon which Panoche relied, the value is still an estimate based on assumptions). The Region also found the studies cited by Panoche to be of little relevance and applicability because they addressed mud strength at other locations, and none of them provided site-specific information that addressed all of the characteristics of the site. *Id.* at 8-11 (Cmt. #9); Resp. Br at 15. The Region’s assessment of the studies on which Panoche relied is described in its technical review as noted above, and at length in the response to comments document. The Region explained that the studies Panoche submitted to support the conservative nature of its mud strength evaluation described wells in other states, *e.g.*, Panoche Comments attachs. 7.1 & 7.11 (studies of wells in Texas), or non-injection applications that do not involve pressure buildup due to injection of fluids, *e.g.*, Panoche Comments attach. 7.12 (study of

the Waste Isolation Pilot Plant in New Mexico).<sup>9</sup> Resp. to Cmts. at 10 (Cmt. #9). Others, *see* Panoche Comments attachs. 7.2, 7.3, 7.10, 7.14, 7.17, & 7.18, are general studies “of the characteristics and effectiveness of clay-based muds, but are laboratory studies, recommended practices, or general reviews,” and the authors of some of these studies even acknowledged that the experiments cannot and were not intended to replicate long abandoned wellbore conditions, urging caution in applying their results to a field setting. Resp. to Cmts. at 10 (Cmt. #9) (citing Panoche Comments attach. 7.10); *see, e.g.*, Barker Study at 89 (“Since the gel strength varies with the mud type and the conditions that act on the mud it is difficult to determine the exact gel strength of the mud in a particular abandoned well bore.”); *id.* at 113 (“The 20 lb/100ft<sup>2</sup> ultimate gel strength was arbitrarily selected [in this study] to insure that a sufficient safety factor is built into the proposed procedure. The selection is the result of individual judgment prejudiced by the above discussion [in the study]”); R.E. Collins and D. Kortum, *Drilling Mud as a Hydraulic Seal in Abandoned Wellbores*, at 8 (1989) (A.R. 43u) (“Collins Mud Study”) (“direct application of this result to actual wells should be used with caution”); *see also* Panoche Energy Center, LLC Petition for Review attach. 11, at 136 (Oct. 28, 2022) (“Pet.”) (same study). The Region also found that the studies Panoche submitted to assert the maintenance of gel strength over time, *e.g.*, Panoche Comments attachs. 7.10, 7.20, & 7.21, described laboratory studies that attempted to evaluate the effects of temperature, but did not “provide the site-specific empirical data to address uncertainties about the wells in the AoR at their current age, or their ability to withstand increased pressures in the injection zone.” Resp. to Cmts. at 10 (Cmt. #9). Other studies, *e.g.*, Panoche Comments attachs. 7.7, 7.8, & 7.19, clarified that arguments about mud strength were predicated on the conditions described in the particular studies. *Id.* Studies, *e.g.*, Panoche Comments attachs. 7.8 & 7.16, cautioned that gel strength increases with time before leveling off and that “gel strength measured at the surface after a short period of quiescence will not be representative of downhole conditions in old, abandoned wells,” and concluded that “the gel strengths in abandoned wells are not usually known.” *Id.*

The Region also examined studies Panoche referenced that provided field evidence of the longevity of mud as a plugging material demonstrated during well reentries, *e.g.*, Panoche Comments attach. 7.19 (presenting field data from a well in Texas), and concluded that the studies cannot be cited as evidence of the proper plugging of the Silver Creek #18 well or other wells in the AoR. *Id.* With respect to the only report that Panoche provided that addressed wells in the vicinity of

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<sup>9</sup> *See also* attachs. 7.7, 7.8, 7.19 (other studies from wells in Texas).

Panoche's Facility, Panoche Comments attach. 6 ("Mud Column Characteristics and Conditions in the Cheney Ranch Field"), the Region concluded that the three wells that Panoche selected from the Cheney Field are not analogous to the wells in the AoR. *See* Resp. to Cmts. at 10 (Cmt. #9). Specifically, the Region noted that the mud in the Cheney Field wells was inside long string casing in two of the wells, and that the third well was "sidetracked" in 1973 and the mud was in the open borehole for only a few weeks. *Id.* By contrast, the Region explained that "the abandoned wells in the AoR were drilled and abandoned decades ago without long string casing, or adequate cement behind the casing to isolate the USDW and with uncertain mud conditions today."<sup>10</sup> *Id.*

Further, the Region considered and addressed comments by Panoche that implementation of the EWS has reduced pressures within the injection zone. The Region observed that while the data obtained from Panoche showed an 80% decline in injection volumes during the EWS's first year of operation, the same data showed an increase in volume the following year, which has remained at that level. *Id.* at 13 (Cmt. #13). And Panoche provided no evidence to demonstrate that injection rates and volumes will continue to fall in the future. *Id.*

The uncertainty about the condition of the abandoned wells in the AoR and their ability to prevent fluid movement remained unresolved. The Region explained that "[w]ithout definitive information about the current condition of the mud, the impact of injection zone pressure increases on potential fluid movement cannot be ascertained to a level that ensures USDW protection." *Id.* at 9 (Cmt. #9). Therefore, the Region's technical judgment that ambient monitoring was necessary to provide empirical data on current conditions and potentially alert the permittee and the Region if injection activities are endangering the USDW, was reasonable

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<sup>10</sup> The Region acknowledged that the information Panoche provided supports the notion that drilling muds *could potentially* prevent fluid migration and observed that its decision to eliminate the corrective action requirements took this into account. Resp. Br. at 16 (emphasis added). But the Region reiterated that the information does not provide empirical data on the present condition of the mud in the abandoned wells. Resp. to Cmts. at 9 (Cmt. #9); Resp. Br. at 16.

It also explained that even if the wells in the AoR meet current California plugging requirements, that fact would not be dispositive of USDW protection. *See* Resp. to Cmts. at 12 (Cmt. #11) (explaining that California's 2020 Onshore Well Regulations relate to the protection of fresh-saltwater interfaces, not USDWs). The Region also noted that it does not need to show that wells were improperly plugged to require ambient monitoring. *Id.* at 8 (Cmt. #8).

and consistent with its obligations under the law. *See* SDWA § 1421(b)(1), (d), 42 U.S.C. § 300h(b)(1), (d); 40 C.F.R. §§ 144.1(g), .12, .55(a); *id.* § 146.13.

Recognizing the challenges related to mud sampling as originally proposed by the Region, and concerns expressed by Panoche that such sampling could potentially disturb the mud, the Region determined ambient monitoring to be the “best approach” to demonstrate that there is no potential endangerment to the USDW from Panoche’s injection activities (and provide an early warning, as discussed below). Resp. to Cmts. at 9 (Cmt. #9); *see id.* at 2-3 (Cmt. #1); *see*, Dec. 2019 Technical Review Letter enclosure at 2-3; Resp. Br. at 8. The approach adopted by the Region is fully consistent with the SDWA’s directives to prevent and protect USDWs from endangerment associated with underground injection activities. *See* SDWA § 1421(b)(1), (d), 42 U.S.C. § 300h(b)(1), (d); 40 C.F.R. §§ 144.1(g), .12(a). The statute focuses on the importance of prevention and avoiding failures that would result in USDW endangerment. Thus, including permit conditions such as ambient monitoring, which are designed to detect potential endangerment, falls squarely within the objectives of and authority delegated under the statute. The approach is also consistent with the UIC regulations, which prohibit fluid movement into the USDW, require the permit applicant to demonstrate such movement is not occurring, and authorize the permitting authority to require monitoring to detect any migration of fluids into and pressure in the USDW, based on the potential for such fluid movement to occur. 40 C.F.R. §§ 144.12, 146.13(a)(1), (b), (d).

In light of all the above, we conclude that the Region articulated a rational basis in the record for the inclusion of ambient monitoring in the Final Permit.

*c. The Potential Value of the Ambient Monitoring Condition*

The Final Permit requires Panoche to drill a monitoring well near Silver Creek #18, and to measure pressure and conduct water quality sampling on an ongoing basis. Final Permit pts. II.E.2-6, at 17-23. It also requires Panoche to obtain baseline data of ground water chemistry. Our review of the record shows that the Region duly considered the potential value of monitoring near Silver Creek #18 as required by the ambient monitoring regulation, the usefulness of the information that will be generated, and the role of other monitoring conditions in the Final Permit.

The Region selected monitoring near Silver Creek #18 because of the abandoned well’s proximity to the injection zone (about 1.25 miles to the northeast of the injection well), and its configuration and manner of plugging (i.e., Silver Creek #18 has no long string casing, was abandoned with a lighter-weight mud than

the mud in the next closest abandoned well, and has no cement plug between the top of the injection zone and the base of the USDW). Resp. to Cmts. at 5, 12 (Cmts. #4, 11). The Region anticipates the selected location would be the first place where an increase in subsurface pressures may be observed. *See id.* at 5 (Cmt. #4); Resp. Br. at 20. And because the Silver Creek #18 well was plugged in 1974 and there is uncertainty about the present condition of the mud and condition of the well, the Region considered monitoring near this well to be appropriate. *See* Resp. to Cmts. at 9 (Cmt. #9); *see also id.* at 11-12 (Cmt. #11) (explaining why Silver Creek #18 remained a concern to the Region even if it was abandoned in accordance with California Geologic Management Division (“CalGEM”) regulations in place when the well was plugged in 1974).<sup>11</sup>

With respect to the potential value of the information that will be generated by monitoring near Silver Creek #18, the record shows that the Region expects the information will assist both the Region and Panoche in determining whether there is hydraulic communication between the injection zone and the USDW. *Id.* at 14 (Cmt. #14). According to the Region, this information will either confirm that the project is operating as expected or will provide early warning of potential endangerment to the USDW (i.e., by detecting potential hydraulic communication between the injection zone and the USDW). *See id.* at 3, 13, 14 (Cmts. #1, 13, 14); Resp. Br. at 20. The Region explained that monitoring near Silver Creek #18 would provide information on whether water quality or pressure changes are occurring that could indicate an upward movement of fluid through the abandoned well and that information could be used to identify trends over time. If the abandoned wells are adequately plugged, no changes in the overlying formation should be observed when the injected fluids reach and pass the location of the abandoned wells. Resp. to Cmts. at 14 (Cmt. #14). By contrast, observed pressure changes would likely indicate fluids are moving upward along the borehole in the abandoned wells. *Id.* The Region explained that water quality may or may not change depending on the differences in the fluids in each formation. *Id.*; *see id.* at 13 (Cmt. #13).

The Region further explained that the ongoing pressure data and constituent monitoring results will be compared to the baseline data and that trends over time can provide an understanding of pressure and water quality conditions within the USDW. *See id.* at 14-15 (Cmt. #14); Resp. Br. at 20. The Region also addressed comments questioning how the pressure and constituent monitoring data will be used to identify issues resulting directly from Panoche’s injection activities and not

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<sup>11</sup> *See also* note 10.

from other activities, such as other water wells, irrigation wells, or pressure decreases due to large-volume groundwater withdrawals in the Fresno Irrigation District. *See* Resp. to Cmts. at 14 (Cmt. #14). In its response to comments document, the Region observed that because of the depth of the USDW (1,930 feet below the surface) “any changes would likely be associated with a deficient wellbore” in the AoR, that “it is unlikely that infiltration from the surface\* \* \* would affect water quality nearly 2,000 feet below the surface,” and that any changes would likely be the result of subsurface activity. *Id.* at 15 (Cmt. #14).

Finally, the Region explained that ambient monitoring will produce data that are different from what will be produced by the other monitoring provisions in the Final Permit, and that together these monitoring provisions will provide the data needed to ensure protection of the USDW. *See id.* at 2-4 (Cmts. #1, 2); Resp. Br. at 21-22 & n.14-15. In addressing Panoche’s comments, the Region explained that while Permit Conditions II.C.1 and II. D.2 are significant monitoring requirements that will provide information about the conditions at the location of the injection wells, they do not provide data or other information about the strength of muds in the Silver Creek #18 well or about potential pressure changes or water quality impacts in nearby USDWs.<sup>12</sup> Resp. to Cmts. at 2-4 (Cmts. #1, 2); Resp. Br. at 21- 22. The Region also observed that it has required USDW/ambient monitoring in other Class I permits, like it did here. Resp. to Cmts. at 8 (Cmt. #7).

The record shows that the Region addressed and considered the arguments Panoche raised during the comment period about the location and potential value of the ambient monitoring condition along with the role of the other monitoring conditions in the Final Permit.

In sum, the Region articulated why any injection could disrupt the already overpressured Panoche Formation, why the estimates Panoche provided to support its position that the mud was strong enough to eliminate the risk of fluid migration were not persuasive, and why ambient monitoring near Silver Creek #18 was appropriate within the meaning of the ambient monitoring regulation. Uncertainties as to the condition of the wells in the AoR remain. Panoche’s disagreements are technical disagreements and a disagreement as to how the Region exercised its considerable discretion with respect to developing a monitoring plan.

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<sup>12</sup> Permit Condition II.C.1 requires Panoche to review the zone of endangering influence calculation on an annual basis, and II.D.2, requires mechanical integrity testing of the injection wells. Final Permit at 10, 11-13.

See *Peabody*, 12 E.A.D. at 50-51. These disagreements do not amount to clear error or an abuse of discretion. *NE Hub Partners*, 7 E.A.D. at 570.

2. *Panoche's Petition Does Not Address the Region's Response to Comments Document, the Arguments Are Without Merit, and Some of the Arguments Are Untimely*

On appeal, Panoche claims that it demonstrated there will be no fluid movement from the injection zone into the USDW and the Region ignored the existence of record evidence that undercuts its decision. Pet. at 19-23; Reply Br. at 6-10; Oral Arg. Tr. at 8. We disagree. Many of Panoche's arguments in the petition repeat comments raised on the 2021 Draft Permit, do not address the Region's response to comments document, and are untimely. In any event, all of the arguments fail on the merits.

Panoche states it provided the Region with the following information that it argues demonstrates there will be no fluid movement, namely that: the injection zone goes deeper than 7,100 feet with two confining layers and an intervening buffer aquifer; every well within the AoR has sufficient mud column weight to resist fluid entry; Silver Creek has 10.03 pound per gallon mud between the injection zone and the lowermost USDW; the Panoche Formation pressure would need to exceed 4,007 psi to displace the mud and 4,054 psi to displace the mud and gel strength in Silver Creek; Panoche applied a conservative approach in its AoR and endangerment analysis; implementation of its EWS has reduced injection volumes by approximately 70-80% and pressure in the injection formation; and its air permit limits its ability to operate the Facility, resulting in an estimated maximum injection volume of 84 million gallons/year. Pet. at 19-20. According to Panoche, these factors led the Region to conclude that there is no potential for movement of fluid from the injection zone into a USDW and therefore no corrective actions are needed under the Final Permit. *Id.* at 20. In addition, Panoche argues that the ambient monitoring condition is not rational and will not provide advance warning of fluid movement. *Id.* at 26-29; Reply Br. at 18. Panoche makes these arguments despite acknowledging that there is the potential for fluid movement from the Silver Creek #18 well into the USDW, and ignores the Region's response to comments document, and explanation, discussed below, for why it decided to require ambient monitoring rather than corrective action in the Final Permit at this time.

a. *The Region Considered and Addressed Panoche's Comments and Panoche Failed to Address the Region's Responses or Otherwise Demonstrate Clear Error or Abuse of Discretion*

As discussed in Part V.A.1 above, the Region found that neither Panoche's modeling nor the studies, laboratory data, and other information Panoche provided described the current condition of the mud in the abandoned wells in the AoR (*e.g.*, strength of mud column); addressed uncertainties about the conditions of the wells in the AoR or their ability to withstand increased pressures in the injection zone; or provided direct proof that the mud in the abandoned wells in the AoR had retained its ability overtime to suppress fluid movement. *See* Resp. to Cmts. at 6, 8-11, 13, 14 (Cmts. # 6, 9, 13, 14). Moreover, the Region found support in some of those studies for its decision to require site-specific empirical data. *Id.* at 10 (Cmt. #9) (*e.g.*, identifying studies that cautioned about applying laboratory data to field settings, observed that gel strength varies with mud type and condition of the mud, making it difficult to determine exact gel strength, and acknowledged that gel strengths in abandoned wells are not usually known).<sup>13</sup> The record also shows that the Region considered and addressed Panoche's comments related to the impact of the EWS on injection volumes and pressure in the injection formation, and responded to questions about the information that would be obtained from ambient monitoring and the water quality data. *See id.* at 6, 13, 14 (Cmts. #6, 13, 14). Panoche's petition does not address the Region's response to comments document on these points. Instead, Panoche attempts to shift its burden, reiterates its earlier comments on the 2021 Draft Permit, mischaracterizes the Region's rationale for rejecting Panoche's modeling and eliminating corrective action from the 2020 Pre-Publication Draft, and raises new arguments in its petition and reply brief.<sup>14</sup> We address Panoche's arguments in turn.

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<sup>13</sup> *See, e.g.*, Collins Mud Study; Clark, P.W. Papadeaus, D.K. Sparks, and R.R. McGowen, *Gulf Coast Borehole Closure Text Well Orangefield, Texas* (Oct. 1991) (A.R. 43s); O.C. Johnson & B.K. Knape, *Pressure Effects of the Static Mud Column in Abandoned Wells* (Sept. 1986) (A.R. 43aa).

<sup>14</sup> Panoche's argument related to the limits in its air permit was not raised in its comments on the 2021 Draft Permit, but the Region addressed them in its response brief.

Panoche also argues that the Region did not address "any of the geologic features of this particular site that provide further protection to USDWs," and ignored "evidence in the record that these types of rock will naturally close and seal abandoned wellbores." Reply Br. at 9 (emphasis in original) (citing Pet. at 8, 12-13). Contrary to Panoche's claim,



b. *The Permittee Bears the Burden of Demonstrating That Injection Activities Will Not Be Conducted in a Manner That Allows Movement of Fluid into the USDW*

In its petition, Panoche argues that the Region's concerns about the condition of the abandoned wells in the AoR is based on speculation without factual foundation, or site-specific record evidence. Pet. at 20-23. It states that the Region relied on speculation, "unsupported by any site-specific record evidence or analysis" that older muds in properly plugged wells may fail. *Id.* at 21.<sup>15</sup> Along

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the record reflects that the Region considered the geology of the Panoche Formation in its decision-making. *See, e.g.*, May 2018 Technical Review Letter at 3-4; Resp. to Cmts. at 2 (Cmt. #1); Resp. Br. at 4 (observing that it "conducted a thorough site-specific assessment of the Facility's operations and injection activities, along with the geology of the injection and confining zones"); *see also* Oral Arg. Tr. at 70 (articulating how artificial penetrations weaken the benefits of the confining layer and the aquifer). In light of the overpressured condition of the Panoche Formation, the abandoned wells and uncertainty about their condition, the Region did not find that the confining layers and buffer aquifer would provide the safeguards Panoche claims. *See* Resp. to Cmts. at 2 (Cmt. #1); Oral Arg. Tr. at 70.

We also note that Panoche's comment and arguments during the comment period focused on the impact of reduced injection volumes on pressurization of the Panoche Formation and the strength of the mud in abandoned wells, not on the geological features or confining layers as additional safeguards. *See* Panoche Comments at 9-10. Panoche's comment letter mentioned "confining layers," but it did so in the context of the pressure in the Panoche Formation. *Id.* at 35 ("Given that there are 1,000s of feet of confining layers between the USDW and the Injection zone, with intervening pressure bleed-off zones, how will EPA account for that decrease in pressure with the proposed monitoring condition for the Silver Creek #18 well?"); *see* Oral Arg. Tr. at 83. The Region considered and addressed the actual comment Panoche raised. *See* Resp. to Cmts. at 13-14 (Cmt. #13) (interpreting comment as focused on "how the pressure dissipation will affect pressure monitoring and constituent monitoring results").

<sup>15</sup> Panoche also asserts that EPA's "speculative concerns are legally insufficient to impose costly monitoring requirements." Reply Br. at 10 (citing *In re Stonehaven, Energy Mgmt. L.L.C.*, 15 E.A.D. 817, 830-31 (EAB 2013) and *Amerijet Int'l, Inc. v. Pistole*, 753 F.3d 1343, 1350 (D.C. Cir. 2014)); *see generally* Pet. at 21-23. As discussed in Part V.B below, cost is beyond the scope of the UIC program and Board review. And neither case cited by Panoche provides support for its claims. Unlike in *Stonehaven*, the record here provides a rational basis for the Region's decision to require ambient monitoring, and *Stonehaven* does not discuss the cost of monitoring wells. *Amerijet* addresses

these lines, Panoche argues that the Region did not provide one example of older drilling muds failing. Reply Br. at 12; Oral Arg. Tr. at 32-33. But as shown in Part V.A.1, the administrative record fully supports the Region's concerns about the condition of the abandoned wells, in particular the condition of Silver Creek #18. *See also* Resp. to Cmts. at 2-3 (Cmt. #1). To the extent that Panoche is attempting to flip its burden of showing that its injection activities will not endanger the USDW, we note that this is contrary to the permit applicant's burden set forth in 40 C.F.R. § 144.12(a). The burden of showing that injection activities will not be conducted in a manner that allows the movement of injection fluid into USDWs, rests on the permit applicant, not the Region. 40 C.F.R. § 144.12(a).<sup>16</sup> Furthermore, the Region is neither required to demonstrate that a well is improperly plugged and abandoned, nor to provide examples of abandoned wells that have failed, as a precondition to, or justification for, requiring ambient monitoring in a Class I UIC permit. *Id.* § 146.13(b), (d). The Region has an obligation to prevent and protect USDWs from endangerment associated with underground injection activities and need not wait until a well abandoned decades ago in an overpressured formation fails or facilitates fluid movement before taking steps to detect or prevent endangerment. *See* SDWA § 1421(b)(1), (d), 42 U.S.C. § 300h(b)(1), (d); 40 C.F.R. §§ 144.1(g), .12(a).<sup>17</sup> Panoche has not met its burden of showing clear error or abuse of discretion.

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Transportation Security Administration denials of airline requests for alternative security procedures and has nothing to do with cost consideration or the UIC program. *Amerijet*, 753 F.3d at 1345-1346.

<sup>16</sup> At Oral Argument, counsel for Panoche agreed that this burden lies with Panoche. Oral Arg. Tr. at 18.

<sup>17</sup> In its response brief, the Region cites to 40 C.F.R. § 144.12(b) for the proposition that it has an obligation to impose permit conditions that will ensure that USDWs remain protected, and that in a situation where a permit applicant does not provide evidence to conclusively redress a known risk, the Region may require additional monitoring. Resp. Br. at 19. Panoche argues that the Region erred in citing to section 144.12(b) for support, because this is not a situation where there is actual movement of fluid into the USDW. *See* Reply Br. at 19. We find no clear error in the Region's statement. The Region cites section 144.12(b) for the proposition that it has a regulatory obligation to protect USDWs, which the provision supports. *See* 40 C.F.R. § 144.12(b). The Region is not claiming that the abandoned wells in the Panoche Formation are currently showing movement of contaminants into the USDW from the injection zone.

c. *A Permittee Must Do More than Reiterate Its Comments, It Must Address the Region's Response to Comments Document and Explain Why the Response Was Clearly Erroneous or Otherwise Warrants Review*

In addition to the arguments discussed above, the petition repeats, without more, the comments Panoche raised on the 2021 Draft Permit that the studies and other information it provided show that mud retains its properties over time and that the wells were properly plugged when they were abandoned. Pet. at 21-22 (claiming that the results of the laboratory and field studies it provided like the “Mud Column Characteristics and Conditions in the Cheney Ranch Field” apply to the abandoned wells in the AoR.); Reply Br. at 4, 10-11 (stating that “all of [the] wells within the AoR were properly plugged and abandoned”). As discussed in Part V.A.1 above, the Region explained at length why the Cheney Study and other laboratory studies Panoche provided are not relevant. Resp. to Cmts. at 8-11 (Cmt. #9). The Region also identified flaws in Panoche’s modeling (*e.g.*, it was based on estimates and assumptions, not on empirical data about the mud in wells in the AoR). *See id.* at 9, 11 (Cmts. #9, 10). And the Region explained that the manner of plugging at the time of abandonment says nothing about the current condition of the mud in wells that were abandoned several decades ago, *see id.* at 12 (Cmt. #12), and that the Silver Creek #18 well was abandoned with lighter mud than the next closest well and lacked cement plugs between the top of the injection zone and the base of the USDW, *id.* at 5, 12 (Cmts. #4, 11).

Panoche does not address the Region’s responses to these comments in its petition. Rather, it calls into question the relevance of the USGS Utah Study to the matter at hand, claims that all the wells within the AoR have cement plugs and certification records from CalGEM documenting that they were properly plugged and abandoned, and asserts that the Region “did not assess the additive benefits of those features.” Pet. at 23-26. But as the Region explained and the record shows, the USGS Utah Study is not the only piece of information the Region considered. Resp. Br. at 18 n. 13. As shown in Part V.A.1 above, and as noted by the Region, it considered site-specific factors, including the presence of old-abandoned wells near the Facility that lack long string casing and cement plugs between the top of the injection zone and base of the USDW, and the overpressured condition of the Panoche Formation. *See also id.* The USGS Utah Study supports the notion that old wells that may have been improperly plugged and abandoned by current standards, or where the integrity of the mud may have been compromised over time, provide a potential pathway for fluid migration into a USDW. Resp. to Cmts. at 10- 11 (Cmt. #9); USGS Utah Study at 29-30, 58; *id.* at 30 (providing examples of old abandoned wells that exhibited signs of potential fluid migration upward in

plugged wells).<sup>18</sup> Here, the abandoned wells were plugged several decades ago, and the Region reviewed the well records Panoche provided and correctly concluded that they do not provide data on the current condition of mud. *See* Resp. to Cmts. at 2-3, 8-9 (Cmts. #1, 9). Also, the record shows that the Silver Creek #18 cement plugs Panoche references are not located in a position to protect the USDW from fluid moving from the injection zone.<sup>19</sup> The Injection Zone is between approximately 6,500-8,500 feet, the base of the USDW is at approximately 3,000 feet, *see* Pet. at 9 fig., and the plugs in Silver Creek #18 are no lower than 1,700 feet. *See* Silver Creek #18 Plugging Records at 47; Resp. to Cmts. at 12 (Cmt. #11).

Panoche's argument that operation of its EWS reduced injection rates by 80 percent and has contributed to a decrease in formation pressures, Pet. at 13-14, 20; Reply Br. at 6, 14, is also a reiteration of comments the Region considered and responded to in the response to comments document, that Panoche's petition does not address. *See* Part V.A.1 above; Resp. to Cmts. at 13 (Cmt. #13) (explaining that the data obtained from Panoche showed an increase in wastewater volume the year after EWS implementation and has remained at that level and that Panoche provided no evidence to demonstrate that injection rates and volumes will continue to fall in the future); *id.* at 6 (Cmt. #5) (the Region eliminated the corrective action requirement contemplated under the 2020 Pre-Publication Draft in light of the reduced injection volume associated with installation the EWS).<sup>20</sup>

Likewise, Panoche's arguments that there is no nexus between the Region's concerns and the water quality data Panoche is required to obtain, and that water quality testing would not indicate one way or another whether a borehole plug has

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<sup>18</sup> Panoche dismisses the examples the Region points to in the USGS Utah Study, arguing that there is no evidence of similar pooling at the wells within Panoche's AoR, and that there is no evidence that the integrity of the muds used to plug and abandon the AoR wells has been compromised. Pet. at 25. But Panoche continues to miss the point; the Region is not claiming that there is fluid movement, but that the old wells in the AoR pose a risk, that there is uncertainty and the potential for fluid movement, and the risk needs to be evaluated and monitored.

<sup>19</sup> *See* note 8 above.

<sup>20</sup> At oral argument, counsel for Panoche pointed to a chart in the Petition on page 15, as evidence that it had "addressed" the Region's response on this point. Oral Arg. Tr. at 40. That chart, however, confirms the Region's observation in the response to comments document that injection volumes increased after the first year of the EWS, which Panoche's Petition does not address.

failed, Pet. at 26; Reply Br. at 18-19, do not address the Region's explanation in the response to comments document about the value of water quality testing. As shown in Part V.A.1, the information obtained under the ambient monitoring condition will assist in determining whether there is hydraulic communication between the injection activities and the USDW. The information will help to determine if water quality changes are occurring that could indicate an upward movement of fluid through the abandoned well and to identify trends over time. The fact that the Region observed that water quality may or may not change depending on the differences in the fluids in each formation, *see* Resp. to Cmts. at 14 (Cmt. #14), does not negate the utility of water quality testing. As the Region noted, trends over time can provide an understanding of water quality conditions within the USDW. *Id.* at 14-15 (Cmt. #14); *see* Resp. Br. at 20.<sup>21</sup>

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<sup>21</sup> We also find that Panoche repeats its comment that mischaracterized the Region's position and reasoning for eliminating the corrective action requirement included in the 2020 Pre-Publication Draft. The Region explained that following technical discussions with Panoche, and in light of the reduced size of the AoR and reduced injection volume associated with the EWS, it eliminated the plugging requirements for Souza #2 but retained ambient monitoring near Silver Creek #18, the well closest to the injection wells, to provide early detection of fluid movement. Resp. to Cmts. at 6, 12 (Cmts. #5, 12). With respect to Silver Creek #18 and the AoR, the Region explained that Panoche had not provided the Region with sufficient empirical data to show that the Silver Creek #18 well remains plugged with appropriately strong mud that has not degraded in the decades since it was plugged. In arriving at its determination, the Region "reviewed and considered, for each well in the AoR: completion and plugging records, abandonment procedures in effect at the time the well was abandoned, and hydraulic connections with USDWs." *Id.* at 12 (Cmt. #12). The Region further observed that the plugging certificates for the Silver Creek #18 well are from 1974 and "do not provide confirmation that the present-day conditions of the mud, four decades later, are strong enough to prevent the potential movement of fluid into a USDW, especially as pressures increase in the injection zone." *Id.* at 6-7 (Cmt #5). And the Final Permit makes clear that the Region may require corrective action in the future. Final Permit pt. II.C.2., at 10; Resp. Br. at 16 n. 10. Elimination of the corrective action requirement does not contradict or address the Region's concern about potential fluid movement associated with Silver Creek #18. As discussed above, the Region identified the potential for fluid movement, addressed it with the inclusion of the ambient monitoring provision in the Final Permit and provisions to determine the potential need for future corrective action. *See* Final Permit pts. II.C., at 10, II.E., at 17-18.

As stated in other cases before the Board: “[i]t is not enough to reiterate comments that were previously submitted during the public comment period without explaining why the Region’s response was insufficient.” *In re City of Keene*, 18 E.A.D. 720, 753 (EAB 2022) (citing 40 C.F.R. § 124.19(a)(4)(ii)). The failure to address the Region’s response to comments document on such central issues is fatal. *See id.* (citing *City of Taunton*, 17 E.A.D. at 154; *In re City of Pittsfield*, NPDES Appeal No. 08-19, at 10-11 (EAB Mar. 4, 2009) (Order Denying Review), *pet. for review denied*, 614 F.3d 7 (1st Cir. 2010)). Simply disagreeing with the Region and repeating concerns in a petition for review before the Board that previously were presented to and answered by the Region does not satisfy the regulatory requirement that petitioners address the Region’s responses and explain why said responses were clearly erroneous or otherwise warrant Board review. *City of Keene*, 18 E.A.D. at 753; *In re Windfall Oil & Gas, Inc.*, 16 E.A.D. 769, 797 (EAB 2015).

Based on the foregoing, we find that Panoche has failed to provide grounds for the Board to find clear error or an abuse of discretion for the Region’s decision to require ambient monitoring near the Silver Creek #18 well and testing for pressure and water quality at that location. We again observe that the UIC regulations give the Agency considerable discretion in determining an acceptable ambient monitoring program, and the Board typically defers to the Region on matters that are technical in nature, such as monitoring issues. *See* 53 Fed. Reg. at 28,141, 28,145; *NE Hub Partners*, 7 E.A.D. at 567-68, 580-81; *City of Keene*, 18 E.A.D. at 724; *Peabody*, 12 E.A.D. at 50-51 (noting the Board’s deference to “Regional decisionmakers on technical matters in general and monitoring issues in particular”). In addition, the record shows that the Region duly considered any competing technical opinions. *See NE Hub Partners*, 7 E.A.D. at 568.

d. *Panoche Raises New Arguments in Its Petition and Reply Brief*

Panoche raises a new argument in its petition that was not raised in its comments on the 2021 Draft Permit and raises new arguments in its reply brief.

Petitioners must raise specific arguments during the public comment period to preserve the arguments for review. This is “a particularly important requirement as to technical issues \* \* \* because ‘the locus of responsibility for important technical decisionmaking rests primarily with the permitting authority, which has the relevant specialized expertise and experience.’” *In re Tucson Elec. Power*, 17 E.A.D. 675, 690 (EAB 2018) (citing *Peabody*, 12 E.A.D. at 33). Furthermore, the Board has held that petitioners must raise arguments during the public comment period even where comments have been repeatedly raised prior to the comment period. *Gen. Elec. Co.*, 17 E.A.D. at 583 (explaining that requiring the Region to

“respond to all comments it ‘knew’ about – whenever they were filed – would be especially harsh \* \* \* given the Region’s extensive efforts at outreach to the public” between the start of the permit process and release of the draft permit). The failure to preserve issues and arguments for Board review is a fatal flaw. *See* 40 C.F.R. § 124.13; *City of Keene*, 18 E.A.D. at 743 n.19. And a petitioner may not raise new issues or arguments in the reply brief. 40 C.F.R. §§ 124.13, .19(c)(2); *City of Keene*, 18 E.A.D. at 747, 754, 760. The following arguments advanced by Panoche are rejected on these grounds. Moreover, as explained below, even if considered on the merits none of these arguments would demonstrate clear error or an abuse of discretion.

For the first time in its Petition, Panoche argues that its air permit limits its operations to a level that would not result in enough formation pressure to overcome mud, gel strength, cement plugs, and a steel plate over Silver Creek. Pet. at 28. Panoche could and should have raised this argument in its comments on the 2021 Draft Permit and failed to do so. Not only is this argument untimely, and should not be considered for that reason alone, it would be without merit if considered on substantive grounds. The Region addresses these alleged limitations in its response brief, despite the fact that Panoche had not preserved the argument for Board review. *See* Resp. Br. at 19-20. In its response brief, the Region explains that Panoche’s air permit “contains no provisions for the protection of USDWs,” that the “UIC Permit does not limit P[anoche] from injecting more than 84 million gallons/year or preclude [it] from injecting industrial wastewater during periods when the Facility is not operating, such as injecting wastewater held in on-site wastewater collection tanks.” *Id.* at 19. Panoche expands on this new argument in its reply brief and argues that the air permit limits the amount of wastewater Panoche can generate for injection to 84 million gallons per year. Reply Br. at 6- 7. It argues that there “is no scenario where [it] would produce 232 million gallons of wastewater in a given year.” *Id.* at 7. And we observe that the 84 million gallons per year figure Panoche claims is the maximum it can inject is not supported by the record and does not represent the maximum daily injection volumes authorized by the Final Permit, which Panoche itself requested.<sup>22</sup>

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<sup>22</sup> In its permit application, Panoche stated that the maximum daily injection volumes as seen in 2013 and 2014, which are the volumes Panoche requested and the Final Permit authorizes, “may occur when the EWS maintenance is required during a high electricity demand.” 2019 Application attach. H tbl. H-1; Final Permit pt. II.D.4.A at 14. Also, the method Panoche used for determining the 84 million gallons per year figure relies on estimates that do not necessarily show a decline as Panoche purports. *See* Reply Br.

And, for the first time in its reply brief, Panoche raises new arguments about the need for and value of long string casing. It argues that the lack of long string casing in the abandoned wells does not increase the risk of endangerment—rather that long string casing increases the risk of fluid movement, and the evidence the Region relies on to support its concern about the lack of long string casing in the abandoned wells contradicts the Region’s position. *Id.* at 14-15. Panoche also argues that dry exploration wells, like the abandoned wells in the AoR, “typically do not have long-string casing” because it “would be uneconomical and pointless to insert long-string casings to the bottom of the wellbore” and “CalGEM regulations do not require the insertion of long-string casing in order to seal and abandon a well.” *Id.* at 15. These arguments are untimely. Panoche could have raised them in its Petition but failed to do so. 40 C.F.R. § 124.19(c)(2); *City of Keene*, 18 E.A.D. at 747, 754, 760 (declining review of arguments raised in the reply brief for the first time that could have been raised in the petition but were not). In addition, the arguments would be without merit. With respect to the argument that long string casing increases the risk of fluid movement, Panoche’s reply brief provides a truncated sentence from the Class I Well Study cited by the Region. Reply Br. at 15. But examination of the entire sentence supports, rather than contradicts, the Region’s view on the importance of long string casing. *See* Class I Wells Study at 13 (“Contamination due to well failure is caused by leaks in the well tubing and casing or when injected fluid is forced upward between the well’s outer casing and the well bore *should the well lose mechanical integrity (MI)*. **Internal mechanical integrity** is the *absence* of significant leakage in the injection tubing, casing, or packer.”) (italics added). With respect to the argument that the CalGEM regulations do not require long string casing in order to seal and abandon a well, Panoche again cites to the Onshore Well Regulations, which as noted earlier in this decision apply to fresh-saltwater interfaces not USDW, and therefore, as the Region noted, those regulation are not dispositive of USDW protection. Resp. Br. at 16 n.9.

Panoche further claims for the first time in its reply brief that the Region’s actions violate EPA regulations and guidance because modeling is the foundation for how EPA assesses risk of endangerment; and when EPA promulgated the technical criteria and standards for the UIC program, it acknowledged that evaluating the efficacy of the program through the use of ground water-quality

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at 7; Oral Arg. Tr. at 37-40. Specifically, this figure is dependent upon the amount of water produced per engine fired hours, and that amount fluctuated between 2016 and 2022 with the peak of 4,200 gallons occurring just last year. *See* Reply Br. at 7.



wells would be ineffective. Reply Br. at 19-20 (citing Water Programs; Consolidated Permit Regulations and Technical Criteria and Standards, State Underground Injection Control Programs, 45 Fed. Reg. 42,472, 42,499 (June 24, 1980)). With respect to modeling, Panoche argues that the UIC program is based on modeling to determine pressure and risk of endangerment and indicates that the Region's requirement for ambient monitoring in the Final Permit is somehow contrary to its own regulations and guidance.<sup>23</sup> *Id.* at 19. Not only are these arguments untimely, but Panoche mischaracterizes the regulations, guidance, and the Region's position on modeling. As explained earlier, the Region found Panoche's modeling did not address its concerns for this site and the Region needs site-specific empirical data on current conditions. *See generally*, Resp. to Cmts. at 8-11, (Cmt. #9); Resp. Br. at 17; Oral Arg. Tr. at 51-52, 59-60. Obtaining site-specific empirical data about the USDW is one of the main reasons ambient monitoring was added to the regulations in 1988. *See* 40 C.F.R. § 146.13(d)(1), (d)(2)(i), (d)(2)(iii)-(v); 53 Fed. Reg. at 28,141, 28,144-45). Furthermore, the Region's position is not about the adequacy of modeling in the larger UIC program context, but specifically about the modeling Panoche conducted. Oral Arg. Tr. at 44, 51-53; *see* Resp. to Cmts. at 3, 8-11 (Cmts. #2, 9). As to Panoche's reliance on the 1980 Federal Register notice to support its claim that monitoring wells are not effective and the Region's requirement for such a well is contrary to the regulations and guidance, the Federal Register referenced EPA's evaluation of different approaches to determine the efficacy of the UIC program as a whole, not ambient monitoring. *See* 45 Fed. Reg. at 42,472, 42,498-99. Further, the ambient monitoring requirement at issue here was incorporated into the UIC regulations in 1988, not 1980. *See* 53 Fed. Reg. at 28,118. In addition, the 1988 Federal Register explained that "[t]he question of what might prove effective at a given site depends on the hydrogeologic setting and the characteristics of the operation"; "ambient monitoring requirements should be site-specific"; and EPA has "discretion in

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<sup>23</sup> Also, for the first time at Oral Argument, counsel for Panoche claimed that modeling is superior to the actual data from the field that would be gathered by a monitoring well, Oral Arg. Tr. at 78, and that modeling is the preferred approach to empirical data. *Id.* at 15. Not only are these arguments untimely, they are unsupported and in conflict with the UIC regulations that explicitly allow for ambient monitoring. 40 C.F.R. §§ 124.13, 146.13(d); *City of Keene*, 18 E.A.D. at 748; *City of Lowell*, 18 E.A.D. at 183 (rejecting argument as untimely when raised during oral argument). We further note that Panoche did not raise similar objections to the other monitoring provisions in the Final Permit.

determining an acceptable ambient monitoring program.” *Id.* at 28,141. This argument, even if it had been timely raised, would be without merit.

*B. Scope of Board Review*

Panoche largely repeats its comment on the permit that the ambient monitoring requirement is “impractical, and potentially impossible” because it requires Panoche “to install the well on land it does not own or control and to expend millions of dollars to do so.” Pet. at 29.<sup>24</sup> The Region cited to the SDWA and UIC regulations, as well as Board precedent holding that issues of property rights and access, as well as cost, are beyond the scope of the UIC program. Resp. to Cmts. at 4 (Cmt. #3); *see also* Resp. Br. at 22-23. Further, the Region explained that Panoche may be able to negotiate access to the area near Silver Creek #18. Resp. to Cmts. at 4 (Cmt. #3).<sup>25</sup> The Region also explained that the preamble to the 1988 rule acknowledged industry concerns regarding costs of ambient monitoring but noted that ambient monitoring was not expensive when compared to the information received. *Id.* at 7 (Cmt. #6) (citing 53 Fed. Reg. at 28,118); *see also* Resp. Br. at 24. The Region went on, however, to try to address Panoche’s cost concerns by eliminating the corrective action requirement and substantially reducing monitoring conditions, including reducing the depth at which ambient monitoring must be conducted. Resp. to Cmts. at 7 (Cmt. #6); Resp. Br. at 24 n. 18. The Board finds that Panoche’s concerns about property access and costs are beyond the scope of Board review.

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<sup>24</sup> Also for the first time in the reply brief, Panoche excerpts a portion of a preamble to a series of technical criteria and standards from 1980 to argue against the need to access adjacent property to install the monitoring well. Reply Br. at 21 (citing “Water Programs; Consolidated Permit Regulations and Technical Criteria and Standards; State Underground Injection Control Programs,” 45 Fed. Reg. 42,472, 42,481 (June 24, 1980) (“EPA agrees that it is inappropriate for these regulations to require an applicant to perform actions which may not be within his legal ability, as a condition or recondition of obtaining a permit.”)). Not only is this argument untimely, 40 C.F.R. § 124.19(c)(2), even if we were to consider it on its merits, it would fail. The preamble predates the 1988 ambient monitoring provisions in the UIC regulations and is not relevant to the proceedings here. Moreover, the Region is not requiring the injection activity or any illegal access to property. And Panoche is not claiming it is legally prohibited from negotiating access to property.

<sup>25</sup> At oral argument Panoche indicated it had not made attempts to negotiate access with the property owner. Oral Arg. Tr. at 77.

The UIC permitting process is “narrow in its focus and the Board’s review of the UIC permit decisions extends only to the boundaries of the UIC permitting program, which is limited to the protection of underground sources of drinking water.” *In re Sammy-Mar, L.L.C.*, 17 E.A.D. 88, 98 (EAB 2016) (quoting *In re Bear Lake Props.*, 15 E.A.D. 630, 643-44 (EAB 2012)). The SDWA and the UIC regulations establish the only criteria EPA may use in establishing permit requirements. *In re Envotech, L.P.*, 6 E.A.D. 260, 264, 276 (EAB 1996); *In re Federated Oil & Gas*, 6 E.A.D. 722, 725 (EAB 1997). The Region is not required to take ownership of land into account before issuing a final UIC permit decision. *See In re Suckla Farms*, 4 E.A.D. 686, 694-95 (1993); *In re Archer Daniels Midland Co.*, 17 E.A.D. 380, 404 (EAB 2017) (“[a]ny available remedy for potentially impacted property rights or neighboring landowners lies elsewhere, and not in a challenge to [a] permitting decision.”). Panoche offers the Board no reason to depart from this long-established precedent.

## VI. CONCLUSION

The Safe Drinking Water Act is preventative in nature, and the UIC regulations provide the Region with the authority and discretion to require ambient monitoring in the Final Permit. The Board finds that, based on the administrative record, Panoche has not demonstrated that the Region clearly erred or abused its discretion in requiring ambient monitoring in the Final Permit, or that review is otherwise warranted. The Board denies the petition for review in its entirety.<sup>26</sup>

So ordered.

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<sup>26</sup> We have considered all the allegations in the petition and deny review as to all of them, whether or not they are specifically discussed in the opinion.