

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)	
)	Docket No. 40-8943-OLA
CROW BUTTE RESOURCES, INC.,)	
)	ASLBP No. 08-867-02-OLA-BD01
(License Renewal for the)	
In Situ Leach Facility, Crawford, Nebraska))	

NRC STAFF'S ANSWER OPPOSING CONSOLIDATED INTERVENORS'
PETITION FOR REVIEW OF LBP-16-13

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INTRODUCTION

The NRC Staff responds to Consolidated Intervenor's petition for review¹ of the Atomic Safety and Licensing Board's Second Partial Initial Decision in the license renewal proceeding for the Crow Butte Resources, Inc. (Crow Butte) in situ uranium recovery facility in Crawford, Nebraska.² Although Consolidated Intervenor's do not identify the specific rulings for which they seek review, the issues they raise appear to be related to Contentions A, C, D, 12A, and 14, which concern excursions, surface water quality, groundwater quality, tornadoes, and earthquakes, respectively. For the reasons discussed below, the Commission should decline review of the issues identified by Consolidated Intervenor's, because they fail to identify any legal or factual error in the Board's rulings, and therefore fail to meet the standard for review set forth in 10 C.F.R. § 2.341(b)(4).

¹ Consolidated Intervenor's Petition for Review (Jan. 3, 2017) ("Petition").

² *Crow Butte Resources, Inc.* (License Renewal for the In Situ Leach Facility, Crawford, Nebraska), LBP-16-13, 84 NRC __ (December 6, 2016) (slip op.) ("LBP-16-13").

BACKGROUND

The evidentiary hearing on the nine admitted contentions in this proceeding was held on August 24-28, 2015, with a supplemental hearing on hydrogeological issues on October 23, 2015.³ On May 26, 2016, the Board issued a Partial Initial Decision (LBP-16-7) on Contention 1,⁴ and on December 6, 2016, the Board issued LBP-16-13, in which it ruled on the remaining contentions. Consolidated Intervenors timely filed their petition for review of LBP-16-13 on January 3, 2017.⁵

DISCUSSION

Consolidated Intervenors generally argue that the Board abused its discretion in three ways: (1) by “provid[ing] its own evidence to supplement the Final EA”; (2) by mischaracterizing their expert’s testimony “as opposed to simply weighing evidence”; and (3) by using the entire administrative record “to amend and supplement the Final EA.”⁶ Consolidated Intervenors further state that the Commission should grant review “because there are substantial questions of law raised in the proceeding . . . as described in Section II [of the Petition].”⁷

As explained in detail below, Consolidated Intervenors do not identify any “substantial questions of law” that warrant Commission review. The single legal issue raised—use of the administrative record to supplement the staff’s environmental review document (in this case, an environmental assessment (EA))—is well-settled. The remainder of the Petition asserts error in several specific factual findings, each of which represents one of many pieces of evidence that

³ Tr. at 945-2,375, 2,404-2,640.

⁴ *Crow Butte Resources, Inc.* (License Renewal for the In Situ Leach Facility, Crawford, Nebraska), LBP-16-7, 83 NRC 340 (2016). The procedural history of this case is set forth in LBP-16-7. *Id.* at 347-49.

⁵ Crow Butte has also filed petitions for review of LBP-16-7 and LBP-16-13. See “Petition for Review of LBP-15-11 and LBP-16-07” (June 20, 2016), “CBR Petition for Review of LBP-15-11 and LBP-16-13” (Dec. 29, 2016).

⁶ Petition at 2.

⁷ *Id.*

the Board weighed in reaching its decisions on the contentions. As a result, Consolidated Intervenors' assertions fall far short of the "clear error" standard that the Commission has set for granting review.

I. Legal Standard for Commission Review

In deciding whether to grant a petition for review of a licensing board's initial decision, the Commission considers whether the petitioner has raised a substantial question with respect to one or more of the following:

- (i) A finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding;
- (ii) A necessary legal conclusion is without governing precedent or is a departure from or contrary to established law;
- (iii) A substantial and important question of law, policy, or discretion has been raised;
- (iv) The conduct of the proceeding involved a prejudicial procedural error; or
- (v) Any other consideration which the Commission may deem to be in the public interest.⁸

In addition, the Commission will not grant a petition for review "to the extent that it relies on matters that could have been but were not raised before the presiding officer."⁹

The Commission accords substantial deference to the Board's rulings on the merits of admitted contentions. Where the Board's decision rests on carefully made factual findings, the Commission typically will not disturb the decision.¹⁰ The Commission defers to the Board's

⁸ 10 C.F.R. § 2.341(b)(4).

⁹ *Id.* at § 2.341(b)(5).

¹⁰ *Hydro Resources, Inc.*, CLI-01-4, 53 NRC 31, 45 (2001); *see also Pa'ina Hawaii*, CLI-10-18, 72 NRC 56, 72-73 (2010) (stating that the Commission refrains from making de novo findings of fact "in situations where a Licensing Board has issued a plausible decision that rests on carefully rendered findings of fact.").

factual findings unless they are “clearly erroneous.”¹¹ The clearly erroneous standard is by design “a difficult one to meet,” requiring a showing that the Board’s determination is “not even plausible in light of the record as a whole.”¹² As a result, the Commission “seldom grant[s] review” when a petition for review “relies primarily on claims that the Board erred in weighing the evidence in a merits decision.”¹³

II. Consolidated Intervenors Have Not Identified a Substantial Question of Law Warranting Commission Review

In Section II.B of the Petition, Consolidated Intervenors claim that the Board abused its discretion when it “provide[d] its own evidence,” or inserted information into the record, concerning “incorrect” information on tornadoes and additional information on earthquakes.¹⁴ Consolidated Intervenors claim that the Board should instead have required the Staff to issue for public comment a supplement to the EA containing the correct information.¹⁵

Consolidated Intervenors do not raise a substantial question of law or a departure from precedent for the Commission’s review. Under longstanding Commission practice, “a Board’s hearing, hearing record, and subsequent decision on a contested environmental matter

¹¹ *Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), CLI-13-1, 77 NRC 1, 18-19 (2013) (citing *David Geisen*, CLI-10-23, 72 NRC 210, 224-25 & n.61 (2010)).

¹² *Powertech (USA), Inc.* (Dewey Burdock *In Situ* Uranium Recovery Facility), CLI-16-20, 84 NRC __, __ (December 23, 2016) (slip op. at 10).

¹³ See, e.g., *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-14-10, 80 NRC 157, 162-63 (2014); *Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 45-46 (2012).

¹⁴ Petition at 4. Consolidated Intervenors’ references to tornadoes and earthquakes suggest that their arguments are directed at the Board’s rulings on Contentions 12A and 14. In Contention 12A, the Board considered testimony offered by the Staff and Crow Butte, information in NRC guidance documents, and analyses in the License Renewal Application (LRA) and Safety Evaluation Report (SER) in arriving at its conclusion that the Staff did not violate NEPA by failing to discuss tornadoes in the EA. LBP-16-13 at 203-05. In Contention 14, the Board weighed testimony and information offered by the Staff, Crow Butte and Consolidated Intervenors on the locations and magnitudes of historic earthquakes near the Crow Butte facility. *Id.* at 219-25. The Board found that Staff’s analysis in its testimony of the characteristics and hazards of all historic earthquakes within a 100-mile radius of the project area cured the deficiency in the EA. *Id.* at 225.

¹⁵ *Id.*

augment the environmental record of decision developed by the Staff with respect to this issue[.]”¹⁶ Further, Consolidated Intervenors have not shown that the additional information considered by the Board was substantial enough to require a supplement to the EA.¹⁷ Where, as here, the Board found that the additional information and analyses in the record did not materially affect the Staff’s ultimate determination regarding the impacts of tornadoes and earthquakes, it was appropriate for the Board to conclude in light of that evidence that the Staff had satisfied NEPA. For these reasons, the Commission should deny Consolidated Intervenors’ petition for review on this issue.

III. Consolidated Intervenors Have Not Identified “Clear Error” in the Board’s Factual Findings Warranting Commission Review

A. The Board Did Not Err in its Findings on Excursions in Mine Units 6 and 8

In Section II.A of the Petition, Consolidated Intervenors argue that the Board abused its discretion when it found that the EA correctly concluded that the long-term impacts on groundwater from excursions will likely be SMALL.¹⁸ Consolidated Intervenors claim that “long-term, unexplained excursions” in Mine Units 6 and 8 make the EA’s and Board’s conclusions “impossible to legally justify.”¹⁹

The Board’s conclusion that the EA correctly found that long-term impacts on groundwater from excursions will be SMALL rested on several findings: (1) Crow Butte has satisfactorily addressed its excursions, (2) no long-term impacts from those excursions have

¹⁶ *Strata Energy, Inc. (Ross In Situ Uranium Recovery Project)*, CLI-16-13, 83 NRC 566, 595 (2016); see also *Hydro Resources, Inc.*, CLI-01-04, 53 NRC 31, 53 (2001) (“[T]o the extent that any environmental findings by the Presiding Officer (or the Commission) differ from those in the [final environmental document], the [final environmental document] is deemed modified by the decision.”).

¹⁷ While 10 C.F.R. Part 51 does not set forth any requirements for supplementing an EA, the requirements in 10 C.F.R. § 51.92 for supplementing a final environmental impact statement (EIS) are informative. Under those requirements, Consolidated Intervenors would have to show that the information in question was “new and significant.” 10 C.F.R. § 51.92(a)(2).

¹⁸ Petition at 3.

¹⁹ *Id.*

appeared to date, (3) the EA analyzed impacts from excursions during the prior license period, and (4) License Condition 11.12 requires Crow Butte to monitor for and resolve any excursion in the future.²⁰ Specifically, the Board found that Crow Butte successfully detected and controlled horizontal excursions in all but four instances, and that none of those four instances threatened groundwater quality in a drinking water source.²¹ The Board further found, contrary to Consolidated Intervenors' assertion that excursions are "unexplained," that the record demonstrated that all recorded vertical excursion events were caused by natural seasonal fluctuations in groundwater quality, with the exception of one event that was actually a spill that Crow Butte corrected.²²

Consolidated Intervenors do not directly take issue with any of the Board's findings, instead framing the concern as "long term, continuing and unexplained excursions . . . mitigated by future performance of monitoring for Uranium . . . under License Condition (LC) 11.1."²³ Consolidated Intervenors argue that the EA failed to include a discussion of mitigation measures, and that the excursion monitoring required by the license condition may not serve as a substitute for mitigation.²⁴ But the Board's findings did not rest on the categorization of excursion monitoring as a mitigation measure. Rather, the Board found that Crow Butte's operational history demonstrated that it has been successful at controlling excursions and preventing associated groundwater quality impacts.²⁵

²⁰ LBP-16-13 at 112-13.

²¹ *Id.* at 111-12.

²² *Id.* at 112.

²³ Petition at 3. Consolidated Intervenors have incorrectly stated the license condition that governs the additional monitoring for mine units 6 and 8. The correct license condition is LC 11.12. See Ex. NRC-012 at 14.

²⁴ *Id.* at 3-4.

²⁵ LBP-16-13 at 101-13.

Consolidated Intervenor's cite *Nat'l Parks and Conservation Ass'n v. Babbitt*²⁶ for the proposition that "[a] court must be able to review, in advance, how specific measures will bring projects into compliance with environmental standards."²⁷ Unlike the circumstances here, however, *Babbitt* concerned an EA that described the consequences of certain environmental effects as "unknown" and proposed a monitoring program to obtain necessary environmental impact information while the activities at issue would be allowed to proceed, a process that the court correctly described as "backwards."²⁸ Here, the EA's and Board's conclusion that long-term groundwater quality impacts from excursions will be SMALL is based on known information from Crow Butte's years of operational history, bolstered by additional monitoring that will ensure that Crow Butte continues to successfully identify and correct excursions.²⁹

For these reasons, Consolidated Intervenor's have not shown that the Board abused its discretion. Thus, the Commission should decline to take review of this issue.

B. The Board Did Not Err in Finding No Evidence of Contaminants Migrating Beyond the License Area

In Section II.C of the Petition, Consolidated Intervenor's claim that the Board's finding that there was no evidence of contaminants migrating beyond the License Area was unsupported because Crow Butte is not required to test for these contaminants as excursion

²⁶ 241 F.3d 722 (9th Cir. 2001).

²⁷ Petition at 4.

²⁸ *Babbitt*, 241 F.3d at 733-34.

²⁹ The remaining authority cited by Consolidated Intervenor's is largely inapplicable or inapposite. While Consolidated Intervenor's cite 40 C.F.R. §§ 1502.14, 1502.16, 1502.22, and 1502.24, 40 C.F.R. Part 1502 lists standards for Environmental Impact Statements. Here, the Staff prepared an EA, which the Council for Environmental Quality stresses is to be "a *concise* public document" that "[b]riefly provide[s] sufficient evidence and analysis" 40 C.F.R. § 1508.9 (emphasis added). Consolidated Intervenor's further cite *Carmel-By-The-Sea v. DOT*, 123 F.3d 1142 (9th Cir. 1997) and *Nw. Indian Cemetery Protective Ass'n v. Peterson*, 795 F.2d 688 (9th Cir. 1986), both concerning challenges to Environmental Impact Statements.

parameters.³⁰ “As a result,” Consolidated Intervenors state, “no one is testing for the migration of contaminants that may be caused by lixiviant that leaks from the mining operation in the form of excursions or leaks.”³¹ Consolidated Intervenors claim that the Staff “has not justified not requiring [data on contaminant migration from lixiviant excursions or leaks] to be obtained and reported by Crow Butte in accordance with 40 C.F.R. § 1502.22.”³² They further state that the Board erred in failing to require the Staff to issue a supplemental NEPA document to confirm whether contamination off-site has occurred.³³

Consolidated Intervenors’ arguments are directed at the Board’s general findings on operational groundwater impacts from excursions and/or to private wells,³⁴ but they relate to the issues raised by Consolidated Intervenors in Contentions A, C, and D. Consolidated Intervenors do not specify the “contaminants” that they allege are not being monitored. The Board’s discussion on page 113 of LBP-16-13 describes operational groundwater impacts without reference to specific groundwater constituents.³⁵ However, on that page and in the section of the Board’s decision supporting its finding on these issues, the Board refers to sections of the EA, SER, and license describing requirements for Crow Butte’s environmental monitoring program.³⁶ The EA and SER state that Crow Butte is required to monitor groundwater quality at private water wells located within one kilometer of a wellfield as part of

³⁰ Petition at 4 (citing LBP-16-13 at 113).

³¹ Petition at 4.

³² *Id.*

³³ *Id.*

³⁴ On page 113 of LBP-16-13, the Board made findings on operational groundwater impacts from excursions and operational groundwater impacts to private wells. It is not clear from the Petition which of those findings Consolidated Intervenors are challenging.

³⁵ See *generally* LBP-16-13 at 111-13.

³⁶ *Id.* at 103 n.555, 112 n.611, 113 nn.612, 613.

the environmental monitoring program.³⁷ The parameters analyzed for this program are natural uranium and radium-226.³⁸

Contrary to Consolidated Intervenor's assertions, the Staff described, and the Board considered, requirements for Crow Butte to sample for natural uranium and radium-226 in order to determine whether groundwater contamination has occurred outside the License Area due to excursions or leaks.³⁹ Moreover, in Contention A, the Board considered Consolidated Intervenor's argument that uranium should be used as an indicator of excursions.⁴⁰ The Board weighed the evidence offered by the parties on whether uranium is as effective an excursion indicator as chloride, conductivity, and total alkalinity.⁴¹ The Board found "no record evidence" that adding uranium as an excursion indicator would provide any significant information beyond that obtained from using only chloride, conductivity, and total alkalinity.⁴² In addition, the Board found Crow Butte should not be required to test for uranium given that subsurface environment in the license area would likely retard the mobility of uranium in the groundwater⁴³ Clearly, therefore, the Board did not ignore the connection between the migration of contaminants outside the License Area and the excursion parameters that Crow Butte is required to monitor.

³⁷ See EA (Ex. NRC-010) § 4.6.2.2.6 at 94; SER (Ex. NRC-009) § 5.7.9.3.3 at 147.

³⁸ *Id.*

³⁹ LBP-16-13 at 103 & n.555, 139 & n.745.

⁴⁰ Contention A, as limited by the Commission, concerned "(1) whether Crow Butte's bi-weekly testing of monitoring wells is sufficient to identify the potential impacts of nonradiological contaminants, and (2) whether uranium should be routinely used as an excursion indicator." LBP-16-13 at 134 (citing *Crow Butte Resources, Inc.* (License Renewal for the In Situ Leach Facility, Crawford, Nebraska), CLI-09-9, 69 NRC 331, 346-347 (2009)). The use of other groundwater constituents or "contaminants" as excursion indicators was not within the scope of this contention as admitted.

⁴¹ See LBP-16-13 at 104-05, 137-39.

⁴² *Id.* The Board also noted that Crow Butte samples for uranium, radium-226, Th-230, and lead-210 both upstream and downstream from creeks in the License Area. *Id.* at 139.

⁴³ *Id.* at 140.

Further, the Board carefully considered evidence from all the parties concerning whether contamination has occurred from Crow Butte operations outside the License Area. During the hearing, the Board considered extensive evidence on potential pathways for contaminant migration.⁴⁴ The Board also considered extensive evidence on whether excursions, spills and leaks could cause impacts to area groundwater.⁴⁵ After reviewing the evidence, the Board reasonably concluded that the Staff and Crow Butte had demonstrated the confinement of ISR operations and that there was no evidence of contaminants migrating beyond the License Area as a result of excursions, spills and leaks.⁴⁶ Because the Board's decision was based on the record as a whole, Consolidated Intervenors have not demonstrated clear error that warrants Commission review of the Board's findings or its decision not to require the Staff to supplement the EA.⁴⁷

C. The Board Did Not Err in its Findings Concerning Potential Leaks from Evaporation Ponds

Consolidated Intervenors argue that the Board erred in failing to find that the evaporation pond liners are subject to leakage and deterioration, asserting that the Board did not refer to any testimony to overcome the direct testimony of their expert witness, Ms. McLean, on this matter, and that the Staff and Crow Butte did not provide testimony at the evidentiary hearing of any monitoring underneath the evaporation ponds.⁴⁸ They claim that the Board should have found that the Staff's impact conclusion of SMALL in the EA was unsupported and required the Staff to

⁴⁴ See LBP-16-13 at 16-101, 113, 119-20, 123-31, 132-33, 142-43, 160-61.

⁴⁵ See *id.* at 101-11, 113-20, 143-53.

⁴⁶ See *id.* at 97-99, 113, 120-21, 131-32, 134, 153-60, 161-66. In its summary of the evidence, the Board noted that the EA and SER state that data developed over 20 years of mining operations by Crow Butte has not shown Crow Butte's mining operations to have contaminated the surrounding or overlying aquifers. *Id.* at 84 (citing EA (Ex. NRC-010) § 3.5.2.3.2 at 51; SER (Ex. NRC-009) § 5.7.9.3.2 at 143).

⁴⁷ *Powertech*, CLI-16-20, 84 NRC at __ (slip op. at 10).

⁴⁸ Petition at 5 (citing LBP-15-13 at 151-52).

supplement the EA “to state greater impacts as a result of such unknown but clearly possible and unmonitored leaks from the bottom of the evaporation ponds.”⁴⁹ Finally, Consolidated Intervenor claim that the Board also erred and abused its discretion by finding that small chronic leaks are insignificant.⁵⁰

There is no merit to Consolidated Intervenor’s arguments. As explained by the Staff in Section III.B above, the Board considered extensive evidence provided by all the parties concerning whether leaks as a result of ISR operations could cause impacts to area groundwater.⁵¹ In its consideration of this issue, the Board weighed Ms. McLean’s testimony that the plastics used in liners for Crow Butte’s evaporation ponds would degrade soon after the elapse of its two-year warranty period, and her expectation that the liners would become brittle and leak once degraded.⁵² The Board also weighed the testimony of Staff witnesses that any leaks that may have occurred had not produced any impacts on shallow groundwater and that Crow Butte monitors the water levels in the evaporation ponds daily.⁵³ And contrary to Consolidated Intervenor’s claim that the Staff did not testify regarding monitoring underneath the ponds, the Board specifically noted the testimony of Staff witnesses that monitoring wells were installed around the evaporation ponds to detect any possible leaks.⁵⁴

With regard to the Board’s finding regarding small chronic leaks, Consolidated Intervenor misperceive the Board’s conclusions. The Board did not find that “small chronic leaks are insignificant;” rather, the Board found “no record evidence” that such leaks were likely

⁴⁹ *Id.*

⁵⁰ Petition at 5 (citing LBP-16-13 at 154).

⁵¹ *See supra* at 9-10.

⁵² LBP-16-13 at 151-52 (citing Ex. INT-048 at 24).

⁵³ *Id.* at 152 (citing Ex. NRC-001-R at 19).

⁵⁴ *Id.*

to occur in the future,” or that if they did occur, that they would have significant impacts.⁵⁵ While Consolidated Intervenor’s assert that the Board’s finding is contrary to “common sense and scientific realities that a long term leak had existed at the Crow Butte mine resulting in lixiviant leaking into the ground,”⁵⁶ this argument amounts to no more than a disagreement with the outcome of the Board weighing of the evidence.⁵⁷ In matters where the Board weighs complex and disputed evidence, the Commission typically defers to the decision of the trier of fact.⁵⁸ Accordingly, Consolidated Intervenor’s fail to show there is any issue requiring Commission review.⁵⁹

D. The Board Did Not Err in its Findings Regarding Aquifer Pumping Test Methods and Analyses

In Section II.D of the Petition, Consolidated Intervenor’s take issue with two specific factual findings related to one of the four aquifer pumping tests (“pump tests”) conducted at the

⁵⁵ LBP-16-13 at 154.

⁵⁶ Petition at 5-6.

⁵⁷ To support its finding on this issue, the Board referred to its other findings regarding evidence of plausible pathways for contaminant migration, as well as information documented in the EA concerning Crow Butte’s protective measures for preventing and minimizing the impacts of spills and leaks, and Crow Butte’s monitoring for and resolution of historical spills and leaks. LBP-16-13 at 154 & nn. 837-39.

⁵⁸ See *Pa’ina Hawaii*, CLI-10-18, 72 NRC 56, 72-73 (stating that the Commission refrains from making de novo findings of fact when a licensing board “has issued a plausible decision that rests on carefully rendered findings of fact.”).

⁵⁹ Consolidated Intervenor’s also claim that there are unexplained increases in lead-210 at the English Creek drainage and that, consequently, the Board erred in upholding the Staff’s conclusion that related impacts are SMALL. Petition at 4-5 (citing LBP-16-13 at 147-48). Consolidated Intervenor’s state that the Board should have required a supplemental NEPA document to describe and explain the unexplained increases in lead-210. *Id.* at 5. Consolidated Intervenor’s raised the issue of elevated lead-210 levels in proposed Contention 4, which was not admitted by the Board in this proceeding. See Consolidated Intervenor’s New Contentions Based on the Final Environmental Assessment at 32-49 (Jan. 5, 2015); *Crow Butte Resources, Inc.* (License Renewal for the In Situ Leach Facility, Crawford, Nebraska), LBP-15-11, 81 NRC 401, 418-19 (March 16, 2015). Had Consolidated Intervenor’s believed this information was relevant to an admitted contention, they could have raised it before the Board during the hearing. Because they did not do so, it should not be considered on appeal. *Crow Butte Resources* (License Renewal for In Situ Leach Facility, Crawford, Nebraska), CLI-15-17, 82 NRC 33, 40 n.46 (2015) (citing 10 C.F.R. § 2.341(b)(5)). Furthermore, the Board considered the monitoring results for English Creek, including the results for lead-210, in finding that the record evidence “indicates that contaminants from Crow Butte’s operations have remained within the License Area.” LBP-16-13 at 156.

CBR site between 1982 and 2002.⁶⁰ First, Consolidated Intervenors assert that the Board erred in accepting CBR's interpretation of "early time data" from a single observation well during pump test #2.⁶¹ Consolidated Intervenors argue that according to their expert, Dr. Kreamer, the data on one particular graph show a recharge boundary, and that the Board "misrepresented Consolidated Intervenors' position" and "relied on mistaken interpretation of data by CBR and NRC Staff."⁶² Consolidated Intervenors also claim that "[t]he Board's decision to disregard 'early time data' is based on an incomplete understanding of how to use 'early time data' in an aquifer pump test."⁶³ Finally, Consolidated Intervenors argue that no evidence was provided to counter their expert's interpretation, and, therefore, the Board's rejection of their expert's conclusion is "clearly erroneous."⁶⁴

The Board's decision and the evidentiary record contradict these assertions. As reflected in LBP-16-13, the Board considered testimony about the pump tests and appropriate data analysis methods, including Consolidated Intervenors' experts' criticisms of those methods.⁶⁵ The Board considered the positions of each party: Dr. Kreamer's interpretation of the data and his opinion that it demonstrated a recharge boundary;⁶⁶ CBR's view, shared by the

⁶⁰ These tests were conducted in 1982, 1987, 1996, and 2002, respectively. *Id.* at 73. The pump test results are one of the bases for concluding that there is adequate confinement of the mined aquifer (and thus no pathway for contaminant migration to overlying aquifers or surface water)—a key issue for Contentions C and D. See, e.g., LBP-16-13 at 97 & 121, 161.

⁶¹ Petition at 6-7 (citing LBP-16-13 at 74).

⁶² *Id.*

⁶³ *Id.* at 7.

⁶⁴ *Id.* at 7-8.

⁶⁵ See LBP-16-13 at 53-71.

⁶⁶ *Id.* at 64-65.

Staff, that using early time data is problematic;⁶⁷ and the Staff's view that drawdown from a recharge boundary would have been detected in the piezometer in the overlying confining layer.⁶⁸ During the hearing, the Board specifically questioned Dr. Kreamer and CBR's witnesses about the use of early-time data and Dr. Kreamer's interpretation of a recharge boundary.⁶⁹ The Board also questioned the witnesses, including Dr. Kreamer, about the effects of wellbore storage on early time data.⁷⁰ After considering the written and oral testimony and associated exhibits, the Board weighed the evidence and reasonably concluded that "relying upon early-time drawdown data is inconsistent with aquifer testing guidance, and that the use of later-time drawdown data is superior for estimating aquifer parameters and detecting leakage."⁷¹ Consolidated Intervenors have not identified any basis for seeking review on this issue other than their dissatisfaction at the Board's failure to adopt their expert's interpretation. As such, their claim does not rise to the level of "clear error" warranting Commission review.

⁶⁷ *Id.* at 65-66. CBR and the Staff both cited information in the publication "Analysis and Evaluation of Pumping Test Data" by Kruseman and de Ridder as support for their positions on interpretation of early time data. See Ex. CBR-081, Ex. NRC-110.

⁶⁸ *Id.* at 65.

⁶⁹ Tr. at 2536-40. On appeal, Consolidated Intervenors argue that the Board erred in accepting CBR's views on the choice of a particular variable in analyzing pump test data. See Petition at 7-8 (discussing choice of "u" values). CBR's witnesses provided written testimony about this specific topic (Ex. CBR-074 at 14-15), and the Board questioned Dr. Kreamer and the CBR witnesses about it at the hearing. Tr. at 2536-40. However, Consolidated Intervenors' Petition provides additional explanation that goes beyond what was provided in the evidentiary record. Petition at 8. Because this information was not raised before the Board during the hearing, it should not be considered on appeal. *Crow Butte*, CLI-15-17, 82 NRC at 40 n.46.

⁷⁰ Tr. at 2525-26, 2539-40. Consolidated Intervenors also argue that the Board erred in accepting CBR's testimony regarding the duration of wellbore storage effects. Petition at 7 (citing LBP-16-13 at 63). Consolidated Intervenors claim that, based on the pumping rate, these effects would have lasted less than 10 minutes for pump test #2. *Id.* However, this claim is not reflected in the evidentiary record, and Consolidated Intervenors have not explained why their witnesses did not raise this argument during the hearing. Consolidated Intervenors' experts had access to the factual information needed to perform these calculations prior to the hearing, and their witness, Dr. Kreamer, was specifically asked about wellbore storage calculations during the hearing. Tr. at 2525-26. Again, because this information was not raised before the Board during the hearing, it should not be considered on appeal. *Crow Butte*, CLI-15-17, 82 NRC at 40 n.46.

⁷¹ *Id.* at 74.

Consolidated Intervenor's second claim of error is that the Board accepted "less than rigorous" pump test designs and interpretation of data.⁷² Consolidated Intervenor acknowledges as "partially true" the Board's finding that the pump tests were analyzed using "well-established and professional methods" that have been incorporated into American Society for Testing and Materials (ASTM) standards," but claim the Board erred in failing to mention that ASTM D4630 and D4631 were not used, and that CBR did not follow "the recommendations of ASTM D4043-96 . . . nor its stated limitations."⁷³

The Commission should deny review of this asserted error for two reasons. First, Consolidated Intervenor has not identified testimony or exhibits in the evidentiary record related to the three ASTM standards they cite. Because Consolidated Intervenor has not demonstrated that this information was provided to the Board, or explained why this information could not have been raised before the Board, it should not be considered on appeal.⁷⁴ Second, Consolidated Intervenor has not explained in their Petition why the Board should have discussed these three ASTM standards in its decision. The Board considered extensive testimony regarding the pump test and analysis methods, including Consolidated Intervenor's critiques of those methods. The Staff testified that these are well-established, widely used methods that have been incorporated into ASTM standards.⁷⁵ Consolidated Intervenor's

⁷² Petition at 8-9.

⁷³ Petition at 9, citing ASTM D4630, "Test Method for Determining Transmissivity and Storage Coefficient of Low-Permeability Rocks by In Situ Measurements Using the Constant Head Injection Test;" ASTM D4631, "Test Method for Determining Transmissivity and Storativity of Low Permeability Rocks by In Situ Measurements Using Pressure Pulse Technique," and ASTM D4043-96 (reapproved 2010), "Standard Guide for Selection of Aquifer Test Method in Determining Hydraulic Properties by Well Techniques." The last of these, ASTM D4043-96, is included in Ex. NRC-080, a Staff exhibit listing ASTM standards that incorporate the methods used by Crow Butte to analyze aquifer pumping tests. Consolidated Intervenor did not dispute the contents of that exhibit during the hearing.

⁷⁴ 10 C.F.R. § 2.341(b)(5); *Crow Butte*, CLI-15-17, 82 NRC at 40 n.46.

⁷⁵ LBP-16-13 at 59.

witnesses had ample opportunity to challenge this testimony during the hearing.⁷⁶ Therefore, the Board's acceptance of the test and analysis methods was reasonable, and Consolidated Intervenors have not shown that this issue warrants Commission review.

Finally, in the assertions of error discussed above, Consolidated Intervenors have taken issue with two specific factual findings that the Board made in the context of its rulings on Contentions C and D.⁷⁷ Consolidated Intervenors have not explained how these purported errors affect the Board's rulings on these contentions, which are supported by over 100 pages of discussion and numerous other findings.⁷⁸ Consolidated Intervenors did not take issue with any of the Board's other findings concerning the pump tests.⁷⁹ Nor did they take issue with the Board's findings regarding other bases for the Staff's conclusions regarding confinement of the mined aquifer,⁸⁰ or the Board's findings and conclusions regarding the lack of viable pathways for contaminants to reach surface water or groundwater features outside the Crow Butte License Area.⁸¹ The Board's findings and conclusions, and its rulings on Contentions C and D, are clearly "plausible" when viewed in light of the entire record. Accordingly, Consolidated

⁷⁶ See, e.g., Tr. at 1298-99. When Dr. Kreamer was asked about other tests he would recommend, he did not mention the three methods identified in the Petition.

⁷⁷ Based on the subject matter of the claimed errors, it appears that Consolidated Intervenors are challenging the Board's rulings on Contentions C and D, which concern potential impacts to surface water and ground water from Crow Butte's operations.

⁷⁸ *Id.* at 35-134 (discussing and findings on overarching hydrogeological issues common to several contentions, including C and D), 141-60 (discussion and findings on Contention C), 160-68 (discussion and findings on Contention D).

⁷⁹ *Id.* at 53-75.

⁸⁰ These bases include the thickness, composition, and physical properties of the geological formations that serve as confining layers; the differences in potentiometric surface between the overlying and mined aquifers; differences in geochemical properties between the overlying and mined aquifers, and the lack of connected fractures, joints or faults in the license area. *Id.* at 20-25, 73-101. After considering all of the evidence, including the pumping test results, the Board concluded that the upper confining unit "provides more than adequate containment of the contaminants associated with Crow Butte's mining operations. . . ." *Id.* at 161.

⁸¹ *Id.* at 113-34.

Intervenors' assertions that a few discrete factual findings are erroneous do not constitute clear error,⁸² and the Commission should decline review on these issues.⁸³

CONCLUSION

Consolidated Intervenors have not identified any legal or factual error in the Board's decision warranting review under 10 C.F.R. § 2.341(b)(4). Therefore, the Commission should deny the petition for review.

Respectfully submitted,

/Signed (electronically) by/

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Dated at Rockville, Maryland
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⁸² *Powertech*, CLI-16-20, 84 NRC at ___ (slip op at 10).

⁸³ In their Petition, Consolidated Intervenors touch on two additional claims of error that are not sufficiently explained or supported to warrant Commission review. See *Strata*, CLI-16-13, 83 NRC at 592 (stating that the Commission "do[es] not consider cursory, unexplained legal arguments, and . . . will not speculate about what a pleading is supposed to mean"). First, Consolidated Intervenors assert that the Board's reference to "industry standard" practices as reflective of best management practices is clearly erroneous. Petition at 9 (citing LBP-16-13 at 57). There is no such statement on the cited page of the Board's decision. Second, Consolidated Intervenors assert that CBR "is stuck in . . . a negative feedback loop" because it adopted a Model Based Restoration Program to model aquifer conditions more accurately, and claim that this represents an "end-run" around the NEPA hard look requirement. Petition at 9-10. However, Consolidated Intervenors do not identify Board error associated with this assertion, nor do they provide further discussion or explanation as to why the Commission should review the issue.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)	
)	Docket No. 40-8943-OLA
CROW BUTTE RESOURCES, INC.,)	
)	ASLBP No. 08-867-02-OLA-BD01
(License Renewal for the)	
In Situ Leach Facility, Crawford, Nebraska))	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "NRC STAFF'S ANSWER OPPOSING CONSOLIDATED INTERVENORS' PETITION FOR REVIEW OF LBP-16-13" in the above captioned proceeding have been served this 30th day of January, 2017, via the NRC's Electronic Information Exchange ("EIE"), which to the best of my knowledge resulted in transmittal of the foregoing to those on the EIE Service List for the above captioned proceeding.

Signed (electronically) by

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