

**UNITED STATES OF AMERICA  
BEFORE THE NUCLEAR REGULATORY COMMISSION**

In the Matter of	)	
	)	Docket No. 40-8943
CROW BUTTE RESOURCES INC.	)	ASLBP No. 08-867-02-OLA-BD01
	)	
(License Renewal for the	)	January 3, 2017
In Situ Leach Facility, Crawford, Nebraska)	)	

**CONSOLIDATED INTERVENORS PETITION FOR REVIEW**

Pursuant to 10 CFR 2.341(b)(1), Consolidated Intervenors<sup>1</sup> (“CI”) hereby timely file this Petition for Review of LBP 16-13 issued on December 6, 2016<sup>2</sup>.

**I. Concise Summary.** Pursuant to 10 CFR 2.341(b)(2), CI hereby submit:

(i) A concise summary of the decision or action of which review is sought: CI submit that the ASLBP (“Board”) made errors of law and clearly erroneous findings of fact, and abused its discretion, including but not limited to providing its own evidence to supplement the Final Environmental Assessment (“Final EA”), and the mischaracterization of CI’s expert witness testimony, as specified below in Section II.

(ii) A statement (including record citation) where the matters of fact or law raised in the petition for review were previously raised before the presiding officer and, if they were

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<sup>1</sup> Western Nebraska Resources Council (“WNRC”), Owe Aku/Bring Back the Way, Debra White Plume, Beatrice Long Visitor Holy Dance (deceased), Joe American Horse & Tiospaye, Thomas Cook, Loretta Afraid-of-Bear Cook & Tiwahe. Debra White Plume, Joe American Horse and Loretta Afraid-of-Bear Cook are members of the Oglala Sioux Tribe (the “Tribe”) at Pine Ridge Indian Reservation.

<sup>2</sup> This Petition would have been due on Saturday, December 31, 2016 but pursuant to 10 CFR 2.306(a), this Petition is timely filed on January 3, 2017, the first day after that date which is not a Sunday or federal legal holiday.

not, why they could not have been raised: CI could not raise issues that were raised by the Board *sua sponte* at the Hearing or were revealed for the first time in the LBP 16-13 decision.

(iii) A concise statement why in the petitioner's view the decision or action is erroneous:

It was an abuse of discretion for the Board to provide its own evidence to supplement the Final EA and also for the Board to mischaracterize CI's expert witness testimony, as opposed to simply weighing evidence. Weighing evidence is clearly within the Board's powers but mischaracterizing testimony is an abuse of discretion. It was also an abuse of discretion and contrary to NEPA for the Board to amend the Final EA after the issuance of the license to delete material items such as the White River modeling, or to add material items such as earthquake and tornado and hydrogeological analyses in order to cure NEPA violations. Once the license was issued, the federal action occurred and it was too late to use the entire administrative record to amend and supplement the Final EA. Therefore, the NEPA violations were not cured and the Board erred in so finding.

(iv) A concise statement why Commission review should be exercised: This Petition for Review should be granted because there are substantial questions of law raised in this proceeding as provided in 10 CFR 2.341(b)(4) (i)-(iv), as described in detail in Section II below.

## **II. Detailed Explanation of 2.341(b)(4) Issues.**

### **A. 2.341(b)(4)(i) and (ii) Re: MU 6 and MU 8 Excursions.**

The Board abused its discretion and erred when it failed to make a factual finding

that the long term, continuing and unexplained excursions from MU 6 and MU 8 are mitigated by future performance of monitoring for Uranium as a special excursion parameter under License Condition 11.1. At pages 112-113 of the Board's decision, the Board finds that the Final EA 'SMALL' impact conclusion was well founded. However, it is impossible to legally justify that 'SMALL' impact conclusion when there have been long term, unexplained excursions in MU 6 and MU 8.

NEPA's implementing regulations require agencies to: [I]nsure the professional integrity, including scientific integrity of the discussions and analysis in environmental impact statements. 40 C.F.R. § 1502.24. Further, where data is not presented in the NEPA document, the agency must justify not requiring that data to be obtained. 40 C.F.R. § 1502.22. NEPA regulations require that a NEPA document: (1) "include appropriate mitigation measures not already included in the proposed action or alternatives," 40 C.F.R. § 1502.14(f); and (2) "include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f))." 40 C.F.R. § 1502.16(h). "Mitigation must be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Carmel-By-The-Sea v. Dept. of Transportation*, 123 F.3d 1142, 1154 (9th Cir. 1997) (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 353 (1989)). "A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA." *Northwest Indian Cemetery Protective Association v. Peterson*, 795 F.2d 688, 697 (9th Cir. 1986), rev'd on other grounds, 485 U.S. 439 (1988). Federal regulations define "mitigation" as a way to avoid, minimize, rectify, or compensate for the impact of a potentially harmful action. 40

CFR §§ 1508.20(a)-(e). A mitigation measure must be supported by analytical data demonstrating why it will constitute an adequate buffer against the negative impacts that may result from the authorized activity. The Crow Butte monitoring program, even with License Condition 11.1, fails this test as to MU 6 and MU 8, as it could detect impacts only after they have occurred. A court must be able to review, in advance, how specific measures will bring projects into compliance with environmental standards. See *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 733. Monitoring may serve to confirm the appropriateness of a mitigation measure, but that does not make it an adequate mitigation measure in itself. *Alaska Wilderness League v. Kempthorne*, 548 F.3d 815, 827-828 (9th Cir. 2008).

**B. 2.341(b)(4)(i), (ii) - Other Erroneous Findings of Fact; Errors of Law.**

At page 113 of the Board's decision, the Board finds that there is no evidence of contaminants migrating beyond the Licensed Area but fails to logically connect that finding to the fact that Crow Butte is not required to test for any such contaminants because they are not excursion parameters. As a result, 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. The NRC has not justified not requiring that data to be obtained and reported by Crow Butte in accordance with 40 C.F.R. § 1502.22. It was clearly erroneous for the Board to fail to require a supplemental NEPA document to confirm whether there has been contamination off-site. Likewise, there are **unexplained** increases in radioactive Lead-210 readings at the English Creek drainage. The Board abused its discretion and was clearly erroneous in its factual findings at pages 147-148 of

the Board's decision that the 'SMALL' impact conclusion was correct even though the increases in Lead-210 have never been explained at the hearing or elsewhere. See NRC-010, at 83-84; see also, OST and Consolidated Intervenors Joint Filing of Proposed Findings of Fact and Conclusions of Law dated November 23, 2015, at 4. The Board should have found that the Final EA 'SMALL' impact conclusion was incorrect and that the Final EA should be supplemented to state that there are unexplained increases in radioactive Lead-210 in the English Creek drainage. See 40 C.F.R. § 1502.22. This constitutes an clearly erroneous error of law and the Board should have required a supplemental NEPA document to explain the increases in Lead-210.

At pages 151-152, the Board summarized the testimony of Intervenor Expert McLean but did not refer to any opposing testimony that would overwhelm the direct testimony of Ms. McLean to the effect that the evaporation pond liners would deteriorate and leak below the evaporation ponds. At the hearing, no evidence was provided by NRC or Crow Butte of any monitoring underneath the evaporation ponds. Therefore, the Board erred in failing to find that the pond liners are subject to deterioration and that there may be unknown leaks through the bottom of the evaporation ponds. Based on that finding, the Board should have found that the Final EA 'SMALL' impact conclusion was incorrect and that the Final EA should be supplemented to state greater impacts as a result of such unknown but clearly possible and unmonitored leaks from the bottom of the evaporation ponds. Likewise, the Board abused its discretion and was clearly erroneous in making the factual finding at page 154 of the Board's decision that small chronic leaks are insignificant. Such a conclusion 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. There has never been any testing of the environmental consequences of this long term leak and the agency's unsubstantiated assumption that such chronic small long term leaks are insignificant fails the requirements of 'hard look' and is contrary to law. When these impacts are taken into account, the Board should have required the NRC Staff to withdraw its 'Finding of No Significant Impact' (FONSI) and to prepare a NEPA compliant environmental impact statement (EIS) or at least a supplemental NEPA document for the Crow Butte Renewal to provide public disclosure of these items.

**C. 2.341(b)(4)(iv) Re: Board Evidence to Correct Final EA.**

It was an abuse of discretion for the Board to provide its own evidence to correct the mistakes in the Final EA where the NRC Staff 'cut and pasted' incorrect information from Crow Butte's License Renewal Application having to do with tornados and inserted it directly into the Final EA without reviewing or modifying it. During the hearing, the Board corrected the mistake and inserted the correct information into the record. Likewise, the Board corrected Final EA by inserting information concerning earthquakes into the record to 'cure' the deficiencies in the Final EA. The Board should instead have required NRC Staff to prepare and publish for public comment a supplemental NEPA document that contains the correct information.

**D. 2.341(b)(4)(i), (ii), (iv) Re: Hydrogeological Issues & Pump Tests.**

The Board's findings regarding aquifer confinement based on Pump Test #2 ["PT2"] misrepresent Intervenor's position, rely on mistaken interpretations of data by

CBR and NRC Staff, and are clearly erroneous. Without commentary or analysis, the Board accepts the proffered explanations from CBR and NRC Staff, regarding the evidence of a recharge boundary pointed out by Intervenor's expert, Dr. Kreamer in INT-079 at 7. The 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. CBR argued for the dismissal of early time data based on well bore dewatering and its misrepresentation of pumping test data evaluation and analysis methods described by Kruseman and de Ridder in both CBR-081 and NRC-110. The Board accepted CBR's calculations that dewatering a single pump well casing in Pump Test #1 ["PT1"] took 21 minutes. [LBP 16-13 at 63]. However, the Board erred in accepting this same calculation for PT2 where the pump rate was double the rate in PT1 [BD-02b at 19, document page 2.7(40)]. Applying the calculations accepted by the Board for PT1 would yield a maximum dewatering time less than 9 minutes for PT2. As pointed out by Dr. Kreamer in INT-079 at 7, the logarithmic plot seems to indicate such an effect that is moderated by about 5 minutes into the test. Dr. Kreamer points to the evidence of a recharge boundary appearing at a little more than 30 minutes into the test. There is no evidence to suggest, let alone support the Board's finding that well bore storage could influence PT2 so far into the test. Again, without comment, the Board's findings accept CBR's Supplemental Rebuttal Testimony. [LBP 16-13 at 74] regarding the discounting of early time data. In advancing its position, CBR presents a formula for calculating "u" values in CBR-074 at 14, taken from Kruseman and de Ridder. Importantly, CBR, and by extension, the Board, asserts the unsubstantiated proposition that "the Cooper-Jacob method is considered

invalid during early time...where  $u < 0.01$  (sic).” [Id.] Presumably, CBR intends to say that such data is invalid where  $u > 0.01$ . The Board’s findings also hinge on CBR and NRC Staff’s recitation of remarks from Kruseman and de Ridder page 64 directing that “one should, in general, give less weight to the early data.” [CBR-81 at 16 & NRC 110 at 2]. In contrast to CBR’s and NRC’s presentation, relied upon in the Board’s findings, Kruseman and de Ridder go on to explain on page 67 that, “The condition  $u < 0.01$  is rather rigid...For all practical purposes, therefore, we suggest using  $u < 0.1$  as a condition for Jacob’s method.” [CBR-81 at 19]. To support their conclusion, Kruseman and de Ridder point out on page 65, that for  $u < 0.05$ , the error would be less than 2%. [Id at 17]. Plugging the data provided by the PT2 Report [BD-02b at 35, document page 2.7(48)] into the formula advanced by CBR in CBR-074 at 14 yields a “u” value of .05 at the 30-minute mark where the recharge boundary identified by Dr. Kreamer appears. The authority advanced by CBR and echoed by NRC Staff unequivocally demonstrates that Dr. Kreamer’s conclusion regarding the existence of a recharge boundary at 30 minutes into PT2 is more than 98% accurate. The Board’s rejection of Dr. Kreamer’s conclusion in the face of this uncontroverted evidence is clearly erroneous.

Despite the numerous arguments proffered by CBR and NRC Staff regarding the minimization of early time data, no evidence was introduced to counter Dr. Kreamer’s identification of corroborating evidence for the recharge boundary identified in COW-3 in the residual time-drawdown data in BD-02b at 33, document page 2.7(47) discussed in INT-079 at 7. This clear evidence supporting the existence of a recharge boundary was ignored by the Board, yet remains obvious in the record. Also on pages 73-75, the Board

found that the pump test results were analyzed using “well established and professional methods that have been incorporated into the American Society of Testing Materials [“ASTM”] standards.” While this is partially true, it neglects to mention ASTM D4630 “Test Method for Determining Transmissivity and Storage Coefficient of Low-Permeability Rocks by In Situ Measurements Using the Constant Head Injection Test” or the standard ASTM D4631 “Test Method for Determining Transmissivity and Storativity of Low Permeability Rocks by In Situ Measurements Using Pressure Pulse Technique” methods that were clearly not used. The techniques employed by CBR also do not follow the recommendations of ASTM D4043-96 (reapproved 2010) Standard Guide for Selection of Aquifer Test Method in Determining Hydraulic Properties by Well Techniques nor its stated limitations. The Board accepted less than rigorous pump test designs and interpretations for the characterization of pre-mining aquifers, as is clearly demonstrated here by the analysis of the PT2 data. Even the Board’s reference to “industry standard” practice as reflective of best management practices is clearly erroneous. [LBP 16-13, at 57]. The ISL mining industry, like any regulated industry, only implements those standard practices imposed upon it by regulations. Agency approval of NRC Staff’s methodology creates an environment whereby aquifer characteristics are not adequately understood prior to mining and are thus incapable of being restored post mining. This raises a substantial question of law.

CBR is stuck in just such a negative feedback loop as demonstrated by its necessary adoption of a Model Based Restoration Program that incorporates far more accurate numerical modeling of actual aquifer conditions. Even with the MBRP, the

CBR facility is effectively in stand-by, where so-called “active” mine units are operated as such only until mine units currently in restoration demonstrate contamination levels sufficiently reduced to allow CBR to make a straight-faced request for the inevitable ACLs. All of this represents an end-run around the NEPA requirement to take a “hard look” at the actual impacts of the licensed activity on natural resources and the environment. The more accurate aquifer characteristics revealed by requiring more rigorous methodology and data interpretation not only fulfills NRC’s NEPA requirements, but also actually serves CBR by enforcing the development and operation of its mining units with a clear picture of the actual conditions presented. Conditions that will have to be restored at the conclusion of mining activities.

**Conclusion**

The Petition for Review should be granted for the reasons set forth above. A reversal of the Board's findings on off-site contamination would also require a reversal of the Board's ruling on the Environmental Justice Contention D.

Dated this 3rd day of January, 2017.

Respectfully submitted,

\_\_\_\_\_/s/\_\_\_\_\_  
Thomas J. Ballanco  
Counsel for CI  
945 Taraval Ave. # 186  
San Francisco, CA 94116  
(650) 296-9782  
E-mail: [HarmonicEngineering@gmail.com](mailto:HarmonicEngineering@gmail.com)

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David Frankel  
Counsel for CI  
1430 Haines Ave., Ste. 108-372  
Rapid City, SD 57701  
Tel: 605-515-0956  
E-mail: [arm.legal@gmail.com](mailto:arm.legal@gmail.com)

## CERTIFICATE OF SERVICE

Pursuant to 10 C.F.R. § 2.305 (as revised), I certify that, on this date, copies of the foregoing were served upon the Electronic Information Exchange (the NRC's E-Filing System), in the above-captioned proceeding.

Dated: January 3, 2017.

*Signed (electronically) by David C. Frankel*

David Frankel  
Counsel for Consolidated Intervenors  
1430 Haines Ave., Ste. 108-372  
Rapid City, SD 57701  
Tel: 605-515-0956  
E-mail: [arm.legal@gmail.com](mailto:arm.legal@gmail.com)