

September 12, 2018

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 40-8943-MLA-2
CROW BUTTE RESOURCES, INC.	)	
	)	ASLBP No. 13-926-01-MLA-BD01
(Marsland Expansion Area)	)	

NRC STAFF MOTION IN LIMINE TO EXCLUDE PORTIONS  
OF THE OGLALA SIOUX TRIBE'S TESTIMONY AND EXHIBITS

INTRODUCTION

In accordance with 10 C.F.R. §§ 2.319, 2.323, 2.337, 2.1204, and the Atomic Safety and Licensing Board's (Board) Orders dated May 21, 2018 and September 10, 2018,<sup>1</sup> the Staff of the U.S. Nuclear Regulatory Commission (Staff) files this motion *in limine* to exclude portions of the Oglala Sioux Tribe's (OST) initial testimony and exhibits filed on August 17, 2018.<sup>2</sup>

First, the Staff seeks to exclude portions of the testimony of Mr. Michael Wireman (Ex. OST004) and three other exhibits (Exs. OST009, OST011 and OST012), because they raise issues that are outside the scope of Contention 2 as admitted and clarified by the Board.<sup>3</sup>

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<sup>1</sup> Memorandum and Order (License Amendment Effectiveness Stay Application, In Limine Motions, and Site Visit/Limited Appearance Session/Evidentiary Hearing Scheduling) (May 21, 2018) ("May 21 Order") (unpublished). On September 10, 2018, the Board issued an order extending the time for filing motions in limine until September 12, 2018. Memorandum and Order (Concerning Party Late Filings and Scheduling Prehearing Conference) at 2-3 (September 10, 2018) (unpublished).

<sup>2</sup> As required by 10 CFR § 2.323(b), counsel for the Staff consulted with counsel for the OST and counsel for Crow Butte Resources (CBR) with regard to the exclusion of testimony requested in this motion. Counsel for CBR indicated that CBR supports the motion. Counsel for OST indicated that the OST consents to exclusion of Ex. OST009, the original petition to intervene, but opposes exclusion of any other testimony.

<sup>3</sup> *Crow Butte Resources, Inc.* (Marsland Expansion Area), LBP-18-3, 88 NRC \_\_\_, \_\_\_ (July 20, 2018) (slip op. at 42-43).

These out-of-scope topics include consumptive use of groundwater, adequacy of meteorological data, selection of baseline restoration wells, and groundwater restoration standards. None of these topics is encompassed by Contention 2, which focuses on the adequacy of the description of geologic setting and site hydrology specifically for determining CBR's ability to demonstrate confinement of the production zone aquifer and contain fluid migration at the MEA.

Second, the Staff seeks to exclude portions of the initial testimony of Dr. David Kreamer (Ex. OST003) and associated exhibits (Exs. OST005 to OST008) that pertain not to the Marsland Expansion Area (MEA) but instead to the Crow Butte main facility, including testimony and exhibits from the previous Crow Butte license renewal proceeding. These portions of testimony and exhibits should be excluded because the OST has not explained how this information is relevant or material to the MEA review and Contention 2.

Finally, the Staff seeks to exclude portions of the rebuttal testimony of Dr. Kreamer, Mr. Wireman, and Dr. Hannan LaGarry (Exs. OST014, OST015, and OST016) because they present new arguments which could have been raised in initial testimony; because they are out of scope; or because they are unreliable for lack of expert qualification or adequate basis.

In the discussion below, the Staff identifies the specific portions of testimony and exhibits to be excluded and the bases for their exclusion.

## DISCUSSION

### I. Legal Standards Governing Motions in Limine

In a hearing conducted under 10 C.F.R. Part 2, “[o]nly relevant, material, and reliable evidence which is not unduly repetitious will be admitted,” and “[i]mmaterial or irrelevant parts of an admissible document will be segregated and excluded so far as is practicable.”<sup>4</sup> Thus, “the presiding officer may, on motion or on the presiding officer’s own initiative, strike any portion of

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<sup>4</sup> 10 C.F.R. § 2.337(a).

a written presentation . . . that is irrelevant, immaterial, unreliable, duplicative or cumulative”<sup>5</sup> and may “[r]estrict irrelevant, immaterial, unreliable, duplicative or cumulative evidence and/or arguments.”<sup>6</sup>

The scope of a contention is limited to its bases.<sup>7</sup> The Commission has cautioned against allowing “distinctly new complaints to be added at will as litigation progresses,” thereby “stretching the scope of admitted contentions beyond their reasonably inferred bounds.”<sup>8</sup> In this regard, it is well established that if an intervenor proffers testimony or evidence outside the scope of the admitted contentions, it will be excluded.<sup>9</sup> As the Commission has explained:

The scope of a contention is limited to issues of law and fact pled with particularity in the intervention petition, including its stated bases, unless the contention is satisfactorily amended in accordance with our rules. Otherwise, NRC adjudications quickly would lose order. Parties and licensing boards must be on notice of the issues being litigated, so that parties and boards may prepare for summary disposition or for hearing. Our procedural rules on contentions are designed to ensure focused and fair proceedings.<sup>10</sup>

The Commission has further emphasized:

We have long required contention claims to be set forth with particularity, stressing that it should not be necessary to speculate about what a pleading is supposed to mean. Our proceedings would prove unmanageable—and unfair to the other parties—if an intervenor could freely change an admitted contention at will as litigation progresses, stretching the scope of admitted contentions beyond their reasonably inferred bounds. Petitioners must raise

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<sup>5</sup> 10 C.F.R. § 2.319(d).

<sup>6</sup> 10 C.F.R. § 2.319(e).

<sup>7</sup> *Crow Butte Resources, Inc.* (North Trend Expansion Area), CLI-09-12, 69 NRC 535, 553 (2009).

<sup>8</sup> *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 309 (2010).

<sup>9</sup> See, e.g., *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), CLI-10-5, 71 NRC 90, 100 (2010) (agreeing with the Staff that the licensing board had properly excluded the intervenors’ testimony and exhibits that were outside the scope of the admitted contention).

<sup>10</sup> *Id.* at 100-01 (internal footnotes omitted).

and reasonably specify at the outset their objections to a license application.<sup>11</sup>

For rebuttal testimony, the scope is further limited. The purpose of rebuttal testimony is “to respond to the prefiled direct testimony propounded by the other parties . . . not for witnesses to put forth new testimony of their own.”<sup>12</sup> Rebuttal testimony may only address matters which the party could not have raised earlier; it may not raise matters for the first time that reasonably should have been—but were not—raised in the party’s case-in-chief.<sup>13</sup>

In addition, an expert opinion is only admissible if the witness is competent to give an expert opinion and adequately states and explains the factual basis for the expert opinion.<sup>14</sup> The proponent of the testimony bears the burden of demonstrating that its witness is qualified to serve as an expert.<sup>15</sup> An admissible expert opinion must be “based upon sufficient facts or data to be the product of reliable principles and methods that the witness applied to the facts of the case.”<sup>16</sup> Where an expert testifies as to his or her conclusions, but does not explain the bases for those conclusions, a Board should accord no weight to these expert conclusions.<sup>17</sup> In other

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<sup>11</sup> *Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-12-01, 75 NRC 39, 55-56 (2012).

<sup>12</sup> *Louisiana Energy Services, L.P.* (National Enrichment Facility), Docket No. 70-3103-ML, Memorandum and Order (Ruling on In Limine Motions and Motion to Dismiss) at 17 (Oct. 4, 2005) (unpublished Licensing Board Order) (ADAMS Accession No. ML052770571).

<sup>13</sup> See, e.g., *Progress Energy Florida, Inc.* (Combined License Application for Levy County Nuclear Power Plant, Units 1 and 2), LBP-09-22, 70 NRC 640, 655 (2009) (“Being in the nature of rebuttal, the response, rebuttal testimony and rebuttal exhibits are not to advance any new affirmative claims or arguments that should have been, but were not, included in the party’s previously filed initial written statement.”).

<sup>14</sup> *Duke Cogema Stone & Webster* (Savannah River Mixed Oxide Fuel Fabrication Facility), LBP-05-04, 61 NRC 71, 81 (2005).

<sup>15</sup> *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 NRC 21, 27 (2004).

<sup>16</sup> *Savannah River*, LBP-05-4, 61 NRC at 80. “A witness may qualify as an expert by knowledge, skill, experience, training, or education to testify [i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue.” *Catawba*, CLI-04-21, 60 NRC at 27-28 (internal quotation marks omitted, alteration in original).

<sup>17</sup> See *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 735 (1985); *Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), LBP-83-81, 18 NRC 1410, 1420 (1983), *modified on reconsid. sub nom., Texas Utilities Electric Co.* (Comanche Peak Electric Station, Units 1 and 2), LBP-84-10, 19 NRC 509, 518, 532 (1984).

words, even where the witness is an expert in the relevant area, he or she must explain, at least to some extent, how any conclusions were reached. The proponent of a witness also has the burden to demonstrate that the expert's testimony will assist the trier of fact.<sup>18</sup>

II. Specific Requests for Exclusion and Supporting Bases

A. Portions of Mr. Wireman's Initial Testimony and certain OST Exhibits should be excluded because they are out of scope.

Contention 2, as admitted by the Board, is focused on the OST's assertion that CBR's MEA application and the Staff's Environmental Assessment (EA) fail to contain sufficient hydrogeological information to demonstrate the ability to contain fluid migration. For the reasons discussed below, the following portions of Mr. Michael Wireman's initial testimony (Ex. OST004) and other OST exhibits should be excluded because they address topics that are not within the scope of Contention 2:

1. Ex. OST004, page 2 (Opinion 1) – basis paragraph (1), 2<sup>nd</sup> sentence: “The TR [Technical Report] should discuss the relationship between . . . 500 acre-feet per year.”
2. Ex. OST004, page 2 (Opinion 1) – basis paragraph (2), last three sentences “The TR indicates. . . from the pumping center(s).”
3. Ex. OST004, pages 2-3 (Opinion 1) – basis paragraph (3), the following phrase: “potential perturbation of the potentiometric surface downgradient of the mine units and”
4. Ex. OST004, page 3 (Opinion 1) – basis paragraph (5) in its entirety
5. Ex. OST004, page 3 (Opinion 1) – basis paragraph (6) in its entirety
6. Ex. OST004, pages 5 and 6 – Opinions 4 and 5 and supporting basis paragraphs in their entirety
7. Exs. OST011 and OST012 in their entirety
8. Ex. OST009 in its entirety

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<sup>18</sup> See *Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-410, 5 NRC 1398, 1405 (1977).

Testimony of Mr. Michael Wireman (Ex. OST004)

The first portion of Mr. Wireman's testimony listed above (basis paragraph (1) of Opinion 1) addresses the relationship between recharge of the Basal Chadron Sandstone aquifer and estimated consumptive use of water at the MEA. The second portion (in basis paragraph (2) of Opinion 1) discusses declines in potentiometric surface at the existing Crow Butte facility, estimated decline in potentiometric surface at the MEA, and possible drawdown in other areas. The third portion (in basis paragraph (3) of Opinion 1) refers to "potential perturbation of the potentiometric surface," which is synonymous with drawdown.

Contention 2 relates to potential impacts on groundwater quality, not on groundwater quantity (i.e., consumptive use and drawdown). The Board specifically considered and dismissed OST's challenges regarding groundwater quantity impacts in previously rejecting OST's Contention 3.<sup>19</sup> The three specified portions of Mr. Wireman's testimony identified above are solely related to groundwater quantity. These statements are therefore not within the scope of Contention 2 and should be excluded.

In the fourth portion of testimony listed above (basis paragraph (5) of Opinion 1), Mr. Wireman claims that CBR should collect additional meteorological data for the MEA because of abnormal amounts of rain in one month during the period that site-specific data were collected.<sup>20</sup> The meteorological data that Mr. Wireman points to are discussed in the EA to provide context for a general understanding of climatic conditions at the MEA site.<sup>21</sup> Mr. Wireman did not explain why higher than average rainfall in one particular month is relevant or material to the issues raised in Contention 2, which relate to the adequacy of the description of the geologic setting and site hydrology in the context of CBR's ability to demonstrate

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<sup>19</sup> *Crow Butte Resources, Inc.* (Marsland Expansion Area), LBP-13-6, 77 NRC 253, 295 (2013).

<sup>20</sup> Ex. OST004 at 3.

<sup>21</sup> Ex. NRC014 at A.8.

confinement of the production zone aquifer and to contain migration of ISR production fluids. Staff guidance documents state that site-specific meteorological data are collected for purposes of estimating atmospheric transport of radionuclides and potential impacts associated with such transport; Mr. Wireman's testimony provides no basis to demonstrate that atmospheric transport is relevant to hydrologic confinement.<sup>22</sup> For these reasons, the fourth portion of Mr. Wireman's testimony identified above should be excluded.

In the fifth portion of testimony specified above (basis paragraph (6) of Opinion 1),<sup>23</sup> Mr. Wireman states that "baseline restoration wells" have not been selected and thus no data are provided regarding background concentrations of applicable constituents.<sup>24</sup> However, the selection and sampling of "baseline restoration wells" is outside the scope of Contention 2. As explained in the TR and the EA, these wells are used to determine background water quality for use in determining whether groundwater restoration standards have been met.<sup>25</sup> As such, the selection and testing of water in these wells has no bearing on the ability to demonstrate confinement or contain fluid migration at the MEA. Furthermore, according to License Condition 11.1.3, CBR must establish background water quality data prior to injecting lixiviant.<sup>26</sup> This must necessarily be done after a wellfield is constructed, and construction cannot be started

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<sup>22</sup> Meteorological data that should be provided for Staff review are discussed in Section 2.5 of NUREG-1569 (Ex. NRC010 at 2-13 to 2-15). According to Section 2.5.2 of NUREG-1569, the main purpose of providing local and regional meteorological data is to allow estimation of airborne radionuclide transport. *Id.* at 2-13. Section 6.3.6 of NUREG-1748, which describes information on climate and meteorology that should be included in an applicant's environmental report, states a similar purpose (Ex. NRC011 at 6-12).

<sup>23</sup> Ex. OST004 at 3.

<sup>24</sup> In Section 6.1.3.1 of the TR, which Mr. Wireman appears to be referring to, CBR refers to "baseline restoration wells" that are sampled for "baseline groundwater quality" before operations begin in each mine unit. Ex. CBR006 at 6-5. On the same page, CBR states that these data are used "to establish the restoration standards for each mine unit." *Id.* The Staff refers to these as wells used to establish background groundwater quality data for purposes of defining background groundwater protection standards for restoration, as stated in License Condition 11.1.3 (Ex. NRC009 at PDF 16).

<sup>25</sup> Ex. CBR006 at 6-5; Ex. NRC006 at 6-2.

<sup>26</sup> Ex. NRC009 at PDF 16.

until authorized by the NRC (through approval of a license or license amendment). Because licensees cannot establish background levels for restoration prior to receiving a license, such data and the wells used to obtain them are not material to the NRC's review of an ISR license application, and Mr. Wireman's assertion is thus necessarily outside the scope of Contention 2.

The sixth portion of testimony identified above, Opinions 4 and 5 of Mr. Wireman's testimony, addresses the topics of groundwater restoration standards and deep disposal wells (DDWs). In Opinion 4, Mr. Wireman states that "[t]here is too much uncertainty regarding the applicable groundwater restoration standards,"<sup>27</sup> addressing statements in Section 6.1.3 of the TR and raising several questions about differences between NRC and state standards.<sup>28</sup> As with the discussion of baseline restoration wells, issues related to the standards for groundwater restoration are outside the scope of Contention 2, which concerns the adequacy of the description of the geologic setting and site hydrology in the context of CBR's ability to demonstrate confinement of the production zone aquifer and to contain migration of ISR production fluids.<sup>29</sup> As such, this portion of Mr. Wireman's testimony should be excluded as well.

In Opinion 5 of his testimony (Ex. OST004 at 6), Mr. Wireman states, "There is inadequate information regarding the proposed wastewater disposal," claiming the TR does not include information about the proposed geologic formations to be used for DDWs; specifically, their status as underground sources of drinking water (USDWs).<sup>30</sup> He then states that CBR must either demonstrate there are no USDWs or request an aquifer exemption, and provide

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<sup>27</sup> Ex. OST004 at 5.

<sup>28</sup> *Id.*; see note 24 *supra*.

<sup>29</sup> Furthermore, License Condition 10.1.5 clearly articulates that the criterion in 10 CFR Part 40, Appendix A, Criterion 5B(5) apply (Ex. NRC009 at PDF 11).

<sup>30</sup> Ex. OST004 at 6. To the extent that Mr. Wireman suggests that the TR fails to describe the geologic formations proposed for DDWs, he is mistaken, for the reasons the Staff describes in its rebuttal testimony. Ex. NRC014 at A.14.



necessary hydrogeologic and water quality data. As Mr. Wireman correctly notes, CBR has indicated that these wells will be Class I Underground Injection Control (UIC) wells, which are regulated and approved by the Nebraska Department of Environmental Quality (NDEQ).<sup>31</sup> Because the NRC Staff does not review or approve DDWs, Mr. Wireman's statements concerning DDWs are outside the scope of Contention 2.

*OST Exhibits on Groundwater Restoration (Exs. OST011 and OST012)*

The seventh item listed above consists of two documents the OST also submitted as exhibits: a 2009 USGS report on groundwater restoration at ISR facilities located on the south Texas coastal plain (Ex. OST011); and a single page general discussion of issues related to groundwater restoration and remediation at ISR facilities (Ex. OST012). These documents should be excluded in their entirety because they address effectiveness of groundwater restoration, which is outside the scope of Contention 2. In addition, the OST has not explained how either document is relevant to the MEA.<sup>32</sup> In fact, these documents are not cited in the testimony of Mr. Wireman or Dr. Kreamer. Because effectiveness of groundwater restoration is unrelated to the demonstration of confinement or the ability to contain fluid migration at the MEA, and because the OST has provided no explanation of how these documents relate to the Staff's review of the MEA application, Exhibits OST011 and OST012 are outside the scope of Contention 2 and should be excluded.

*OST Petition to Intervene (Ex. OST009)*

The final item that should be excluded for being out of scope is the intervention petition the OST originally filed in 2013. This document should be excluded in its entirety for the following reasons: first, much of the pleading addresses contentions that were rejected by the

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<sup>31</sup> Ex. CBR005 at 3-99. Use of such wells requires a permit from NDEQ. Nebraska Admin. Code, Title 122, Ch. 7, Section 001.

<sup>32</sup> For example, the OST filings contain no discussion of how data about the south Texas coastal plain would be relevant to the characteristics of northwestern Nebraska and the MEA specifically.

Board and thus are demonstrably outside the scope of the admitted contention; second, none of the OST's witnesses has cited to or adopted this pleading as part of his testimony; third, the pleading also contains extraneous or repetitive information, such as legal arguments and excerpts from various documents that are irrelevant to Contention 2; and, finally, the document is a pleading that is already part of the record of this proceeding.<sup>33</sup> During consultation on this motion, counsel for the OST consented to exclusion of the intervention petition.

B. Portions of Dr. Kreamer's initial testimony and several associated exhibits should be excluded because the OST has not shown that they are relevant to the MEA.

In the testimony of Dr. Kreamer and several associated exhibits, the OST seeks to rely on information pertaining to aquifer pumping tests conducted not at the MEA but rather at the existing Crow Butte facility. Specifically, these include the following:

1. Ex. OST003, pages 3-5 (Opinion 2) – all of Opinion 2 with the following exceptions:
  - Page 3: “Dr. David Kreamer in testimony regarding. . . . same departure is evident in the MEA pumping test. [CBR016 at 80-96]”;<sup>34</sup>
  - Page 5: “The historic analytical mathematical approaches used by CBR, which are the same used at MEA for interpretation, assume *a priori* homogeneity and isotropy.”;
  - Page 5: “By making the unsupported statement. . . the Aqui-Ver report for MEA [] wrongly implies the local geology is simple. It further mistakenly presumes . . . homogeneous, isotropic subsurface conditions is appropriate.” (The square brackets indicate that the phrase “misrepresents past aquifer testing results and” should be excluded).
2. Ex. OST005 in its entirety
3. Exs. OST006 to OST008 in their entirety

These statements and associated exhibits should be excluded because the OST has not explained how this information is relevant or material to the MEA review and Contention 2.

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<sup>33</sup> See generally Ex. OST009.

<sup>34</sup> The first sentence in this portion of testimony should remain to provide context for the reference to “departure” in the second sentence. The references to Exhibits 1 and 2 (figures provided in discussion of Opinion 2 which are reproduced from Ex. OST005) and Ex. OST005 should be excluded.

Testimony of Dr. David Kreamer (OST003)

With the exception of three portions listed above that relate to the MEA aquifer pumping test, Opinion 2 of Mr. Kreamer's testimony should be excluded in its entirety. Contention 2, as admitted by the Board, concerns CBR's ability to demonstrate confinement and contain fluid migration at the MEA. In Opinion 2 of his testimony, Dr. Kreamer asserts that a statement about homogeneity and isotropic conditions at the existing Crow Butte facility, provided for historical context, is inaccurate. He then discusses previous pumping tests conducted at the existing site and his reanalysis of the data from those tests, which were presented as testimony in the Crow Butte license renewal proceeding. Dr. Kreamer fails to connect the conditions at the existing site or his discussion of previous tests at that site with the MEA aquifer pumping test, except to state that the MEA results show a departure from the classic Theis curve consistent with leakage (page 3), and that the analytical methods used at the MEA assume homogeneity and isotropy (page 5). These two observations could have been made without reference to tests conducted at a site 11 miles away from the MEA or testimony from a previous, different proceeding.<sup>35</sup> Because the Staff's review of the MEA application considered the site-specific data (and pumping test) performed at the MEA, the OST has not demonstrated why Dr. Kreamer's testimony about the conditions and previous aquifer pumping tests at the existing Crow Butte license area are relevant to the interpretation of the results of the MEA aquifer pumping test, or to the demonstration of confinement at the MEA.<sup>36</sup> Therefore, Opinion 2 of Dr. Kreamer's testimony should be excluded.

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<sup>35</sup> Notwithstanding the Staff's position that these portions of the OST filings are irrelevant and immaterial and should be excluded, the Staff addressed Dr. Kreamer's assertions about the main facility aquifer pumping test data in its rebuttal testimony (Ex. NRC014 at A.25), recognizing that the Board would not have the opportunity to rule on *in limine* motions until after rebuttal testimony was submitted.

<sup>36</sup> The OST's failure to explain the relevance of this information to the MEA review and Contention 2 is underscored by the fact that the arguments put forth by Dr. Kreamer in the license renewal proceeding concerning the previous aquifer pumping tests at the existing Crow Butte facility were unsuccessful in that proceeding. *Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), LBP-16-13, 84 NRC 271, 329-330 (2016).

Associated OST Exhibits (Exs. OST005-OST008)

The OST submitted several documents likewise reliant on data and assertions about the existing Crow Butte facility. These documents, which are all cited in Opinion 2 of Dr. Kreamer's testimony (Ex. OST003 at 3-5), should be excluded in their entirety. The first document is testimony by Dr. Kreamer from a supplemental hearing that was held as part of the Crow Butte license renewal proceeding (Ex. OST005), which discusses prior aquifer pumping tests at the existing Crow Butte facility.<sup>37</sup> The other three documents are reports from aquifer pumping tests performed at the existing Crow Butte license area (Exs. OST006, OST007, and OST008). Neither Dr. Kreamer nor the OST has explained why his previous testimony from the license renewal proceeding, or reports from aquifer pumping tests conducted at the existing Crow Butte license area, are relevant to the interpretation of the site-specific results of the MEA aquifer pumping test or, more generally, to the demonstration of confinement of the Basal Chadron Sandstone aquifer at the MEA.

Thus, because the OST has not demonstrated how these exhibits are relevant to the MEA or are material to the Staff's review of the MEA application, they should be excluded.

C. The OST witnesses' rebuttal testimony presents new arguments that could have been raised in their initial testimony.

In rebuttal testimony, the OST's witnesses raise numerous arguments or issues that, instead of rebutting CBR's or the Staff's initial testimony, constitute new information that could have been raised in their initial testimony. Allowing OST witnesses to introduce new arguments at this stage denies the Staff and CBR the opportunity to provide written rebuttal.

These portions of testimony include the following:

1. Ex. OST014, page 1 (paragraph 2 and supporting discussion) – in its entirety

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<sup>37</sup> See Ex. OST005 at 1-10. In addition, Dr. Kreamer's supplemental testimony discusses two other topics that are not only irrelevant to the MEA proceeding but also outside the scope of Contention 2: water levels in the Brule aquifer at the existing Crow Butte license area, and the modeling of the White River fault/fold, which is located northwest of the existing Crow Butte license area. Ex. OST005 at 11-14. Pages 11-14 of Ex. OST005 should be excluded for that reason as well.

2. Ex. OST014, page 2 (paragraph 4) – second supporting paragraph from “coupled with low permeabilities . . .” to end of paragraph.
3. Ex. OST014, pages 2-3 (paragraph 5 and supporting discussion) – in its entirety
4. Ex. OST014, page 3 (paragraph 6 and supporting discussion) – in its entirety except for last sentence of final supporting paragraph: “The pumping test analysis . . . with vertical leakage.”
5. Ex. OST014, pages 3-4 (paragraphs 7, 8 and 9 and supporting discussion) – in their entirety
6. Ex. OST015, page 3 (paragraph 3) – in the first sentence, the word “quantitative”
7. Ex. OST015, page 3 (paragraph 4 and supporting discussion) – in its entirety
8. Ex. OST016 – in its entirety

These portions of the OST’s testimony should be excluded because they relate to matters that the witnesses could have but did not raise in their case-in-chief, and because they do not rebut new information in the Staff’s or CBR’s initial testimony.

*Rebuttal Testimony of Dr. David Kreamer (Ex. OST014)*

In paragraph 2 of Dr. Kreamer’s rebuttal testimony and the supporting discussion (Ex. OST014 at 1-2), he asserts that the monitoring well array in the overlying Brule aquifer used in the MEA aquifer pumping test was area-limited and inconsistent with good professional practice.<sup>38</sup> The number of Brule monitoring wells and the observation of no drawdown in them during the aquifer pumping test is discussed in the TR and EA.<sup>39</sup> Dr. Kreamer did not raise this issue in his initial testimony and he does not identify any specific statement in the Staff’s or

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<sup>38</sup> Ex. OST014 at 1-2.

<sup>39</sup> Ex. NRC006 at 3-13 to 3-14; 3-31 to 3-33, Ex. CBR006 at 2-81 to 2-84.

CBR's initial testimony that he is rebutting. Therefore, because Dr. Kreamer could have raised this argument in his initial testimony, it should be excluded.<sup>40</sup>

In Paragraph 4 of his rebuttal testimony, Dr. Kreamer addresses the Staff's and CBR's initial testimony concerning the applicability of the Theis method. However, in the second supporting paragraph, beginning with "coupled with low permeabilities...", Dr. Kreamer asserts that the departures from the Theis curves are consistent with "the existence of secondary porosities and fracture flow." He states further that "[r]obust fracture analysis" has not been performed or required, and he asserts that fracture flow would "diminish the value of spatially limited monitoring wells in the shallow Brule Formation."<sup>41</sup> In paragraph 6 of Ex. OST014, Dr. Kreamer makes additional comments about fracture flow, saying CBR failed to consider fracture flow or conduct fracture analysis.<sup>42</sup> All of the information that Dr. Kreamer bases these arguments on—characteristics of the Brule and Upper/Middle Chadron formations, number and location of wells used in the aquifer pumping test, and analysis of aquifer pumping test data—is discussed in the TR and/or the EA,<sup>43</sup> and could have been raised in his initial testimony. Therefore, because he failed to raise these arguments in his initial testimony, the portions of testimony in paragraphs 4 and 6 referenced above, along with their supporting discussion, should be excluded.

In paragraph 5 of his rebuttal testimony (Ex. OST014 at 2), Dr. Kreamer states that CBR "does not address the omission of other forms of pumping test analysis," asserting that "analytical methods such as the De Glee Method, the Hantush-Jacob Method, the Walton

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<sup>40</sup> Furthermore, on pages 1-2 of Ex. OST014, Dr. Kreamer states that "NRC Staff concludes that there is no need for a robust environmental evaluation of diminished quality and quantity of groundwater in the Brule...." (emphasis added). As discussed previously, groundwater quantity impacts are outside the scope of Contention 2; therefore, the words "and quantity" should be excluded for this reason as well.

<sup>41</sup> Ex. OST014 at 2.

<sup>42</sup> *Id.* at 3.

<sup>43</sup> Ex. CBR006 at 2-47 to 2-49, 2-81 to 2-84; Ex. NRC006 at 3-9 to 3-10, 3-13 to 3-14, 3-31 to 3-33.

Method, or numerical analysis were not performed but are the more appropriate approaches indicated from the observed data.”<sup>44</sup> Despite having provided extensive testimony on the analysis of the MEA pumping test data in his initial testimony, Dr. Kreamer did not mention these or any other alternative analysis methods. Nor does Dr. Kreamer identify any specific portion of Staff or CBR initial testimony that this statement is intended to rebut. In short, because Dr. Kreamer is raising a new issue that could have been raised in his initial testimony, paragraph 5 and its supporting discussion should be excluded.

Paragraphs 7, 8, and 9 of Dr. Kreamer’s testimony likewise contain new arguments that could have been raised in OST’s case-in-chief. In paragraph 7, Dr. Kreamer asserts that CBR and the Staff rely on a presumption that transport processes are insignificant relative to groundwater velocity or advective movement, states that such processes assume homogeneity, and again raises fracture flow analysis. However, Dr. Kreamer does not identify a specific portion of CBR or Staff initial testimony that discusses transport processes, and the pages of Exs. CBR001 and NRC001 that he refers to make no mention of the topic.<sup>45</sup>

In paragraph 8 of his rebuttal testimony, Dr. Kreamer claims that the vertical differences in water quality between the Basal Chadron Sandstone aquifer and overlying aquifers are not a sound basis for confinement. Although the difference in water quality as a basis for confinement was discussed in both the TR and the EA,<sup>46</sup> neither of the OST witnesses addressed it in their initial testimony.<sup>47</sup>

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<sup>44</sup> Ex. OST014 at 2-3.

<sup>45</sup> *Id.* at 3 (citing Ex. CBR001 at 15, 22, 36-38 and Ex. NRC001 28-29, 42-43).

<sup>46</sup> Ex. NRC006 at 3-33, 3-34; Ex. CBR006 at 2-87.

<sup>47</sup> The Staff discusses this line of evidence in A.21 its initial testimony, citing the EA and TR, and refers back to A.21 in other parts of the initial testimony (e.g., A.26, A.29) and in its rebuttal testimony (Ex. NRC014 at A.9-A.11, A.18, A.21, A.23).

Finally, in paragraph 9, Dr. Kreamer asserts that CBR and the Staff “rely on the presumption that lateral containment of mining solutions at the MEA has been demonstrated using WinFlow to simulate conditions at the MEA.” In the supporting paragraphs, he comments on the analysis and then states that CBR “had trouble reaching closure” at “its nearby mine site” because it initially relied on “rudimentary modeling” using homogeneous, isotropic conditions “as used in WinFlow.”<sup>48</sup> Paragraph 9 and its supporting discussion should be excluded for two reasons. First, there is no mention of WinFlow in either the Staff’s or CBR’s testimony at the pages Dr. Kreamer cites.<sup>49</sup> Therefore, Dr. Kreamer is not rebutting Staff or CBR testimony, but rather seeks to introduce a new argument.<sup>50</sup> Furthermore, the second supporting paragraph, which discusses “reaching closure” at the “nearby mine site” (presumably the existing Crow Butte facility), appears to be a reference to CBR’s restoration efforts at the existing site. That topic is not within the scope of Contention 2, and Dr. Kreamer provides no explanation to support the relevance of that paragraph or the accuracy of the statements he makes in the paragraph.

For the reasons stated above, paragraphs 7, 8 and 9 of Dr. Kreamer’s rebuttal testimony, along with their supporting discussion, should be excluded.

*Rebuttal Testimony of Mr. Michael Wireman (Ex. OST015)*

In paragraph 4 of his rebuttal testimony, Mr. Wireman discusses reasons why he believes there may be preferential flow pathways in the Basal Chadron Sandstone aquifer and overlying formations.<sup>51</sup> According to Mr. Wireman, this opinion is based on “the results of the

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<sup>48</sup> Ex. OST014 at 3.

<sup>49</sup> *Id.* (citing Ex. CBR001 at 13-14, 16, 22, 26 and Ex. NRC001 at 16, 21-23).

<sup>50</sup> CBR used WinFlow in Appendix AA-3 of the TR to demonstrate its ability to provide an inward hydraulic gradient for a single mine unit at the MEA. Ex. CBR012 at 4 and PDF 18-19.

<sup>51</sup> Ex. OST015 at 3.



2011 CBR aquifer test.”<sup>52</sup> Because this argument is not based on the Staff’s initial testimony and could have been raised in Mr. Wireman’s initial testimony, paragraph 4 should be excluded in its entirety.

In paragraph 3 of his rebuttal testimony, Mr. Wireman states, “No quantitative data/information on surface water hydrology at MEA is included in the TR or the EA.”<sup>53</sup> This statement is nearly identical to a statement in his initial testimony (Ex. OST004 at 3, Opinion 1, basis paragraph 4, first sentence), but adds the word “quantitative.” The word “quantitative” should be excluded because it is an attempt to enlarge his original statement, and therefore constitutes a new argument.

*Rebuttal Testimony of Dr. Hannan LaGarry (Ex. OST016)*

Dr. LaGarry’s rebuttal testimony consists entirely of arguments that could have been provided as initial testimony.<sup>54</sup> Although he purports to be responding to the Staff’s initial testimony, all of his general comments and responses to A.23, A.25, A.26, A.27 and A.28 could reasonably have been provided as part of the OST’s case-in-chief. His general comment refers to a license condition that is discussed in the SER.<sup>55</sup> The Staff’s initial testimony at A.23, A.25 and A.26 is based on discussion and information provided in the EA and TR, as well as Dr. LaGarry’s own 2013 opinion.<sup>56</sup> Finally, Dr. LaGarry’s response to A.27 and A.28 does not

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<sup>52</sup> *Id.*

<sup>53</sup> *Id.* (emphasis added).

<sup>54</sup> The OST’s August 18 filings included an opinion from Dr. LaGarry (Ex. OST010) that was prepared in 2013. The 2013 LaGarry opinion was provided in support of the OST’s original petition in this proceeding. Because the OST did not provide an affidavit from Dr. LaGarry indicating that his 2013 opinion represents testimony in this proceeding, the Staff considers Dr. LaGarry’s opinion to be an exhibit, but not testimony. Furthermore, because Dr. LaGarry’s 2013 opinion predates the EA by several years, it does not challenge the EA specifically. Nor does it challenge any specific portion of the MEA application.

<sup>55</sup> Ex. NRC008 at 139-40.

<sup>56</sup> Ex. CBR006 at 2-55 to 2-59; Ex. NRC006 at 3-11 to 3-14; Ex. OST010 at PDF 4-5.

identify what aspect of the Staff's testimony he is rebutting, and he provides no context or explanation as to how it relates to the cited portions of the Staff's initial testimony.

D. Portions of Dr. Wireman's rebuttal testimony should be excluded as out of scope.

In his rebuttal testimony, Dr. Wireman repeats several statements from his initial testimony that should be excluded as out of scope for the reasons discussed in Section II.A. First, in paragraph 1 of his rebuttal testimony, Mr. Wireman states that "[t]he TR should discuss the relationship between annual recharge to the Basal Chadron aquifer and the annual consumptive use estimated by CBR for MEA operations (maximum of about 500 acre-feet per year)." This sentence repeats a statement from his initial testimony that should be excluded, because it relates to groundwater quantity and is not within the scope of Contention 2.

Next, in the third supporting paragraph of paragraph 1,<sup>57</sup> Mr. Wireman reiterates statements from his initial testimony concerning deep disposal wells. Again, as discussed in Section II.A, these statements are outside the scope of Contention 2 and this paragraph of Mr. Wireman's rebuttal testimony should be excluded in its entirety.

Third, in the supporting discussion for paragraph 2 of his rebuttal testimony, Mr. Wireman refers to "perturbation of the potentiometric surface downgradient of the mine units." and unwanted changes in aquifer discharge.<sup>58</sup> As discussed in Section II.A, this phrase should be excluded, as these arguments concern consumptive use, which is not within the scope of Contention 2.

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<sup>57</sup> Ex. OST015 at 2.

<sup>58</sup> *Id.* (second sentence of the paragraph). Mr. Wireman also adds in his rebuttal testimony a reference to "unwanted changes in discharge for the Basal Chadron Sandstone aquifer." This also appears to be a reference to groundwater quantity rather than quality, and should therefore be excluded as out of scope.

- E. Portions of Dr. LaGarry's rebuttal testimony should be excluded as unreliable because they present opinions that he is unqualified to make or lack foundational basis.

In the first sentence of Dr. LaGarry's general comments (Ex. OST016 at 1), he testifies as to his understanding of the National Environmental Policy Act's (NEPA's) requirements concerning license conditions and completion of aquifer pumping tests. In the second sentence of his response to A.26 (Ex. OST016 at 2), Dr. LaGarry similarly testifies that "cherry-picking or suppression of adverse data" must be reported "according to NEPA." Because the OST has not demonstrated that Dr. LaGarry is an expert on NEPA issues, he is not qualified to opine on the requirements of NEPA. Therefore, these two sentences should be stricken from his rebuttal testimony as unreliable.

In his responses to A.23, A.25, and A.27 and A.28 (Ex. OST016 at 1-3), Dr. LaGarry refers to and discusses documents that were not provided as exhibits. These references include the last two sentences of his response to A.23 (discussing Maher and Shuster) and the citation to Maher and Shuster that follows; the reference "(see Lewis and Haeni [1987])" in his response to A.25 and the citation that follows; and the entire response to A.27 and A.28, which contains text "[r]eproduced from Hallum & others (2018)" with a citation to that document. Dr. LaGarry's statements based on these documents cannot be considered reliable without the actual documents as a foundational basis. This is particularly the case for Dr. LaGarry's response to A.27 and A.28, which consists entirely of an excerpt from a document with no explanation of the relevance of this document or the excerpted statements to the MEA and, in particular, to A.27 and A.28 of the Staff's initial testimony. Furthermore, the failure to provide the basis documents is contrary to the Board's specific instructions:

Citations in witness testimony to documentary material (other than citations to legal authorities, such as statutes, regulations, and NRC Issuances) . . . must be accompanied by a PDF evidentiary exhibit, submitted with its own exhibit

number, that includes the relevant portions of the referenced supporting material.<sup>59</sup>

For the reasons stated above, these specific portions of Dr. LaGarry's rebuttal testimony should be excluded as unreliable.

#### CONCLUSION

For the reasons discussed above, the NRC Staff respectfully requests that the Board exclude the portions of the testimony and exhibits identified above from consideration as evidence in this proceeding.

Respectfully submitted,  
**/Signed (electronically) by/**  
Robert G. Carpenter  
(301) 287-9118  
[robert.carpenter@nrc.gov](mailto:robert.carpenter@nrc.gov)

**/Executed in Accord with 10 CFR 2.304(d)/**  
Marcia J. Simon  
(301) 287-9176  
[marcia.simon@nrc.gov](mailto:marcia.simon@nrc.gov)

Counsel for the NRC Staff  
U.S. Nuclear Regulatory Commission  
Office of the General Counsel  
Mail Stop: O-14 A44  
Washington, D.C. 20555-0001

Dated at Rockville, Maryland  
this 12th day of September, 2018.

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<sup>59</sup> Memorandum and Order (Providing Administrative Directives Associated with Evidentiary Hearing and Limited Appearance Session) at 3 n.4 (July 27, 2018) (unpublished).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 ) Docket No. 40-8943-MLA-2  
CROW BUTTE RESOURCES, INC. )  
 ) ASLBP No. 13-926-01-MLA-BD01  
(Marsland Expansion Area) )

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "NRC STAFF MOTION IN LIMINE TO EXCLUDE PORTIONS OF THE OGLALA SIOUX TRIBE'S TESTIMONY AND EXHIBITS" in the above-captioned proceeding have been served via the Electronic Information Exchange ("EIE"), the NRC's E-Filing System, this 12th day of September, 2018, 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/**

Robert G. Carpenter  
Counsel for the NRC Staff  
U.S. Nuclear Regulatory Commission  
Office of the General Counsel  
Mail Stop: O-14 A44  
Washington, D.C. 20555-0001  
(301) 287-9118  
[robert.carpenter@nrc.gov](mailto:robert.carpenter@nrc.gov)