

September 7, 2018

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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| In the Matter of: |) | |
| |) | Docket No. 40-8943-MLA-2 |
| CROW BUTTE RESOURCES, INC. |) | |
| |) | ASLBP No. 08-867-02-OLA-BD01 |
| (Marsland Expansion Area) |) | |

CROW BUTTE RESOURCES' REBUTTAL STATEMENT OF POSITION

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CROW BUTTE RESOURCES' REBUTTAL STATEMENT OF POSITION

INTRODUCTION

Pursuant to 10 C.F.R. § 2.1207(a)(1), Crow Butte Resources, Inc. ("Crow Butte" or "CBR") hereby submits this Rebuttal Statement of Position on Contention 2. This Rebuttal Statement of Position is supported by rebuttal testimony from Crow Butte witnesses and the exhibits submitted concurrently. For the reasons set forth below, Crow Butte's license amendment application ("LAA"), including the Technical Report ("TR"), satisfies the Atomic Energy Act and the Commission's regulations. In addition, the NRC Staff's Environmental Assessment ("EA") satisfies the requirements of the National Environmental Policy Act ("NEPA"). Contention 2 should be resolved in favor of Crow Butte and the NRC Staff.

PROCEDURAL BACKGROUND

Crow Butte's rebuttal testimony focuses on the opinions of Dr. Kreamer, Mr. Wireman, and Dr. LaGarry provided in OST's direct testimony on Contention 2. Rebuttal testimony is presented by Robert Lewis, Walt Nelson, Doug Pavlick, and Jim Striver.¹ Through the direct and rebuttal testimony and supporting exhibits, Crow Butte's witnesses demonstrate

¹ See CBR033. The witnesses' professional qualifications were provided previously, CBR002, CBR003, and CBR004, with the exception of Mr. Striver, whose professional qualifications are provided in CBR037.

that that Crow Butte’s equipment and procedures for use at its facility are adequate to protect public health and minimize danger to life or property and that the NRC Staff’s EA is reasonable and reflects a “hard look” at the potential environmental impacts of issuing the license amendment for the Marsland Expansion Area (“MEA”). The TR and EA include an extensive description of the geologic setting, surface water hydrology, and groundwater hydrology at the MEA, including information and analysis supporting the conclusion that there is confinement of the Basal Chadron Sandstone aquifer where mining will occur.

DISCUSSION OF CONTENTION 2

A. Summary of Crow Butte Position on Contention 2

CBR provides in-depth and extensive discussion of the environment at the MEA in its application, including groundwater resources and site hydrogeology. The ER and TR describe the data collected, the analyses performed, and the conclusions reached. The TR includes extensive discussion of the data and methods used to determine effective porosity, hydraulic porosity, hydraulic conductivity, and hydraulic gradient. This information is presented in narrative form in the TR and further described in tables and figures. Based on this information, the NRC Staff rightly concludes that “the information provided by the applicant, as supplemented by the requirements of the erosion concern and drawdown license conditions . . . meets the applicable acceptance criteria of Section 2.7.3 of NUREG-1569.”²

The site conceptual model, and the evidence supporting that model, are presented in extensive detail in the ER and TR and provide an acceptable basis for assessing operational and restoration performance. CBR’s conclusions are further buttressed by its experience at the Central Processing Facility. There also is extensive data and analysis supporting multiple lines

² SER, Section 2.4.4.

of evidence, all of which lead inexorably to the conclusion that the ore-bearing zones at the MEA are hydrologically isolated. The NRC Staff reviewed that data, performed its own assessment of the data, and reach the same conclusions in its EA and SER.

Overall, the EA and the record satisfy NEPA with respect to hydrogeology and the potential impacts of Crow Butte's operations at the MEA on groundwater and nearby surface water. NRC Staff has independently assessed the information provided by Crow Butte in reaching its conclusions in the EA and SER. The NRC Staff in the EA has taken the requisite hard look at the impacts of issuing a license amendment at the MEA on groundwater and surface water. The NRC Staff addresses the significant aspects of the probable environmental impacts of the proposed action. Moreover, each of the concerns raised by OST has been considered by Crow Butte in the ER and TR, addressed by the NRC Staff in the SER and in the EA, and discussed in the testimony of the witnesses.

B. Crow Butte Response to OST Testimony on Contention 2

The Marsland application (Technical Report and Environmental Report) present sufficient information to support the NRC Staff's conclusions in its EA and SER that mining fluids will not migrate offsite and contaminate surface or groundwater resources. An EA is adequate if it "comes to grip with all important considerations."³ It is not the Board's role to "'flyspeck' environmental documents or to add details or nuances."⁴

As discussed below, none of the deficiencies alleged by OST's witnesses calls into question the adequacy of the TR, ER, or SER or the reasonableness of the EA. Instead, the intervenors' witnesses rely on over-broad, unsupported assertions regarding geology or

³ *Exelon Generation Co., LLC (Early Site Permit for Clinton ESP Site)*, CLI-05-29, 62 NRC 801, 811 (2005)

⁴ *Id.*

hydrogeology and vague claims that additional (or alternative) analyses should be performed. But, the intervenors' witnesses do not identify any specific deficiency in the NRC Staff's environmental analysis or in the TR regarding confinement or Crow Butte's ability to effectively control mining fluid at the site. The intervenors' witnesses do not engage with the detailed site-specific information or multiple lines of evidence provided in the application and supporting documents. Their generalized complaints do not provide support for resolving the contention in favor of OST. To the contrary, the lack of any meaningful disagreement with the information presented in the TR and EA reinforces, rather than detracts from, the rigor of the analyses and conclusions of Crow Butte and the NRC Staff.

1. Dr. Kreamer's Testimony

Dr. Kreamer claims that the site characterization is deficient and mischaracterizes the hydrogeologic environment at the MEA site. He alleges (OST003 at 1) that "much of the collected pumping test data was selectively ignored, the solitary pumping test covered very little of the MEA site leaving the majority of the site hydrogeologically undefined, and the single pumping test that was analyzed was influenced by conditions outside the site boundary." Crow Butte's witnesses explain that the pumping test report (CBR016) does, in fact, provide the detailed discussion and explanation for how data was used to characterize the aquifer response, including the basis for concluding that adequate confinement exists and the overall adequacy of the pumping test report.

Apart from the pumping test, Crow Butte witnesses explain that there are multiple lines of evidence supporting confinement, in addition to the pumping test results, including: (1) hydrologic characteristics of the upper and lower confining units; (2) aquifer pumping test results; (3) the potentiometric surface of the Basal Chadron Sandstone aquifer; (4) differences in potentiometric surfaces between the Basal Chadron Sandstone aquifer and the overlying Brule

aquifer; (5) water quality differences between the Basal Chadron Sandstone aquifer and the overlying Brule aquifer; and (6) isotopic age differences between water in the Brule and Basal Chadron Sandstone.

Dr. Kreamer also alleges several omissions in the pumping test report, including a failure to provide the Cooper-Jacob semi-logarithmic evaluations and analysis of certain monitor well data. Crow Butte witnesses explain where the analyses were included in the report or other supporting documents and also identify the locations of specific discussion regarding monitor wells for the test. Simply put, the supposed omissions do not, in fact, exist. Crow Butte witnesses further address Dr. Kreamer's assertions regarding the extent of the radius of influence, assumptions regarding aquifer thicknesses, the screened intervals of monitoring wells, and the nature of the Basal Chadron Sandstone aquifer (homogenous and isotropic). The witnesses address Dr. Kreamer's assertions, explaining that each one is unfounded and not supported by available data.

Overall, Dr. Kreamer's broad generalizations about hypothetical site conditions are no substitute for the detailed and extensive site-specific information gathered by Crow Butte. In contrast to Dr. Kreamer's unsupported extrapolation of regional data, Crow Butte's conclusions are supported by multiple lines of evidence in addition to the aquifer pumping test. Dr. Kreamer does not address any of these other lines of evidence—each of which reinforce the conclusion that there is adequate confinement of the Basal Chadron Sandstone aquifer.

2. *Mr. Wireman's Testimony*

Like Dr. Kreamer, Mr. Wireman makes broad generalizations about site conditions, but does not directly address the site-specific evidence presented by Crow Butte or the conclusions made by the NRC Staff. In response to Mr. Wireman's allegations of omissions in the application and NRC review documents, Crow Butte witnesses explain that a conceptual

diagram showing areas of recharge and discharge from the Basal Chadron Sandstone is provided in the application and describe the basis for their conclusions that the distance from the recharge and discharge areas from the MEA are such that they will not affect the behavior of the Basal Chadron Sandstone aquifer at the MEA. Crow Butte's witnesses also contradict Mr. Wireman's claims that there is significant uncertainty about groundwater flow in the Basal Chadron downgradient of the MEA, pointing to the data showing consistent flow toward the north-northwest. These observations indicate no influence (flow divide) exists due to the Pine Ridge escarpment in the Basal Chadron Aquifer, which is consistent with the conceptual model of groundwater flow indicating no significant recharge to the Basal Chadron Sandstone along the Pine Ridge Escarpment.

Mr. Wireman makes several assertions that raise issues outside the scope of Contention 2, such as those related to baseline restoration wells, restoration standards, and deep disposal wells. Crow Butte nevertheless addresses each of Mr. Wireman's concerns and explains why they are unfounded. Overall, the witnesses conclude that nothing in Mr. Wireman's testimony calls into question the conclusions of the TR, SER, or EA, or Crow Butte's direct testimony.

3. *Dr. LaGarry's Testimony*

OST submitted as an exhibit an opinion from Dr. LaGarry that had been provided as support for the initial OST Petition in 2013 (OST010). There was no new testimony from Dr. LaGarry. Broadly speaking, Dr. LaGarry's opinion makes generalized, unsupported claims without addressing the information presented in the application, much less the NRC's EA and SER. For example, Dr. LaGarry asserts that mining in the Marsland area would contribute to contamination that would migrate laterally into the White and Niobrara rivers, but provides no

plausible basis, reasonable transport calculations, or historical evidence to support such an assertion.

Crow Butte's witnesses also refute Dr. LaGarry's speculation that surface leaks and spills could be transmitted to the High Plains aquifer within a few years—based both on the site-specific hydrogeology and the operational constraints that would be implemented by Crow Butte. Crow Butte's witnesses also explain that the strong vertical gradient would prevent upward migration and contamination.

Overall, the witnesses conclude that Dr. LaGarry's opinion on conditions at Marsland is pure conjecture. There is no site-specific information to support his opinion. Crow Butte, in contrast, has presented relevant site-specific data that demonstrates the absence of faulting at the site that affects confinement or forms a preferential flow path for contaminants.

C. Crow Butte Position on NRC Staff Testimony

Crow Butte's expert witnesses agree with the NRC Staff Position Statement and the conclusions in the NRC Staff testimony on Contention 2. The methodologies, assumptions, and conclusions in the NRC Staff testimony agree with those of the Crow Butte witnesses. Because the NRC Staff reached similar conclusions on safety issues in the SER and on the reasonableness of the EA discussion of hydrogeology, the NRC Staff testimony does not change (and, in fact, complements) the discussion and conclusions in Crow Butte's direct testimony.

CONCLUSIONS

For the reasons set forth in this Rebuttal Statement of Position, as supported by the accompanying testimony and evidence, the NRC Staff has taken the requisite "hard look" at potential impacts from the MEA. The NRC Staff evaluates the impacts of operations at the

MEA in the EA and “has come to grips with all important considerations.”⁵ The EA adequately describes the affected environment, including the effects of the proposed MEA operation on the adjacent surface water and groundwater resources; an acceptable conceptual model of site hydrology that is adequately supported by site characterization data so as to demonstrate ability to ensure the confinement of extraction fluids and expected operational and restoration performance; and the basis for conclusions regarding the isolation of the aquifers in the ore-bearing zones. The Licensing Board therefore should resolve the environmental aspects of Contention 2 in favor of Crow Butte and the NRC Staff.

Crow Butte also presents information and analysis regarding the technical aspects of proposed licensed activities and demonstrated that its activities comply with 10 C.F.R. Part 40. In addition to considering the information provided to describe the affected environment and that supports the conclusions in the NRC’s SER, Crow Butte (and the NRC Staff and NDEQ) considers the data presented and describes the effective porosity, hydraulic porosity, hydraulic conductivity, and hydraulic gradient at the site, along with other information relative to confinement, control of mining fluids, and prevention of excursions. The Board, therefore, should also resolve the technical aspects of Contention 2 in favor of Crow Butte.

Respectfully submitted,

/s/ signed electronically by
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COUNSEL FOR CROW BUTTE
RESOURCES, INC.

Dated at Mill Valley, California

⁵ *Systems Energy Resources, Inc.* (Early Site Permit for Grand Gulf Site), CLI-05-4, 61 NRC 10, 13 (2005).

this 7th day of September 2018

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CERTIFICATE OF SERVICE

I hereby certify that copies of “CROW BUTTE RESOURCES’ INITIAL STATEMENT OF POSITION” in the captioned proceeding have been served this 7th day of September 2018 via the Electronic Information Exchange (“EIE”), which to the best of my knowledge resulted in transmittal of the foregoing to all those on the EIE Service List.

/s/ signed electronically by
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