



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

September 8, 2015

Mr. Michael Griffin  
Vice President of Permitting, Regulatory  
and Environmental Compliance  
Strata Energy, Inc.  
P.O. Box 2318  
1900 W. Warlow Dr., Bldg A  
Gillette, WY 82717

SUBJECT: CRITICAL ISSUES FOR VERIFICATION OF MINE UNIT 1 WELLFIELD  
PACKAGE, STRATA ENERGY, INC.'S ROSS ISR PROJECT, CROOK  
COUNTY, WY (TAC L00789)

Dear Mr. Griffin:

On August 10, 2015, U.S. Nuclear Regulatory Commission (NRC) staff and Strata Energy, Inc. (Strata) held a public meeting to discuss issues related to staff's review and verification of Mine unit 1 (MU1) wellfield package, which Strata had submitted to NRC in July. As a result of the meeting, in a letter dated August 21, 2015, Strata clarified its interpretation of License Condition 10.12 for staff's consideration.

Staff is currently preparing a summary report on that public meeting and expects it to be completed shortly. Staff will also provide comments to Strata on the entire MU1 package. However, in the interim, staff is providing this letter that addresses two issues which may be critical to the timely completion of NRC's verification. The issues are: (1) staff's non-acceptance of Strata's interpretation of meeting License Condition 10.12; and (2) incomplete characterization of groundwater-flow paths in accordance with License Condition 10.13.

**License Condition 10.12**

License Condition 10.12 contains two sections, the latter of which was added by the Atomic Safety and Licensing Board (ASLB) in its January 2015 initial decision. Section (A) requires Strata to attempt to locate and abandon all drill holes within the perimeter well ring. Section (B) requires Strata to attempt to locate and abandon historic drill holes that (1) extend to the underlying aquifer, (2) are located downgradient of the wellfield, and (3) are located between the perimeter well ring and the exempted aquifer boundary. License Condition 10.12 requires that Strata's efforts be documented in its wellfield data package.

At issue is Strata's compliance with Section (B). Strata provided its interpretation of this subparagraph in the MU1 package it submitted for staff review and verification. In brief, Strata argues that the staff should interpret Section (B) as requiring Strata to locate and abandon drill holes within the 100-foot buffer surrounding the constructed MU1 perimeter well ring rather than

to the approved exempted aquifer boundary. Strata argues that the following factors support its interpretation: (i) EPA's approval of the exempted aquifer boundary was based on "the monitor well ring plus an additional 100 feet" (emphasis in original), (ii) abandoning wells that are located thousands of feet downgradient of the wellfield perimeter ring to the "maximum approved" aquifer exemption boundary is not reasonable or practicable, (iii) future phased wellfield development will demonstrate abandonment efforts consistent with the intent of the ASLB, (iv) abandoning drill holes in the 100-foot buffer minimizes the potential for vertical excursions and exceeds standard industry practice, (v) the ASLB did not contemplate imposing "an inordinate requirement" on Strata when it added subparagraph (B), (vi) extending the requirement beyond the proximity of each wellfield would result in impractical and inconsistent hole plugging efforts, (vii) ASLB contemplated the 100-foot buffer as being adequate, (viii) it would be inconsistent to determine that the 100-foot distance is adequate for a downgradient wellfield but not for MU1, (ix) extending the point of exposure (based on the approved aquifer exemption boundary) is inconsistent with Wyoming Department of Environmental Quality regulations, and (x) the ASLB for another licensee (Powertech) modified its license to require abandoning drill holes within the perimeter monitoring ring only.

Although Strata argues that the actions it has taken are consistent with the intent of Section (B), it does not claim its actions actually comply with the language of this subparagraph. Nor does Strata claim that the language of Section (B) is ambiguous. In effect, Strata is asking the staff to modify the language of Section (B) to, in its view, better capture the Board's intent when adding this subparagraph.

Regardless of whether Strata is correct regarding the Board's intent, the Staff cannot ignore the plain language of Section (B). Other actions may be available for Strata to use to address problems posed by this or any other license condition (e.g., seeking clarification from the Board or requesting an amendment). Unless License Condition 10.12 is revised, however, the staff must apply Section (B), as it is currently written, when monitoring Strata's compliance with the conditions of its license.

Moreover, even if there were some ambiguity in Section (B) requiring the staff to interpret its language, the staff would have difficulty adopting Strata's proposed interpretation. Strata's argument that the 100-foot buffer around the perimeter well ring is consistent with EPA's approval of the exempted aquifer boundary is incorrect. That argument has no regulatory underpinning, i.e., it is not documented in the approved license application or any license condition. In the future, Strata could elect, on its own, to revert back to the "maximum exempted aquifer boundary" by deciding to abandon the drill holes at that time. As a practical matter, staff would not have any basis to object to this action because the "maximum exempted aquifer boundary" is now and in the future the regulatory-approved boundary for the exempted aquifer. For these reasons, the Staff does not believe Strata's interpretation necessarily captures the Board's intent when adding Section (B).

In conclusion, staff cannot verify that Strata met the requirements of License Condition 10.12 based on the existing documentation.

**License Condition 10.13**

License Condition 10.13 states:

*The wellfield package will adequately define heterogeneities that may affect the chemical signature and ground-water flow paths within the ore zone as described in Sections 2.7.3.2.3, 3.1.1 and 5.7.8.1 of the approved license application.*

At issue is the adequacy of Strata's conceptual model for the "unexplained" elevated potentiometric heads at several perimeter wells along the wellfield's southern boundary. The MU1 package description includes the following:

*Anomalous hydrostatic head measurements in several wells were not used during development of the potentiometric surface depicted in Figure 2-2. These measurements are attributed to the fully penetrating completions in the PM wells with locally perched water bearing intervals resulting in slightly higher hydrostatic heads.*

During the public meeting, Strata agreed with staff that "perched" was perhaps a poor description of the observation but provided no clearer picture on the source of water or whether or not the elevated potentiometric heads reflect a connection to the overlying (SM) aquifer.

The pertinent observations documented in the MU1 package that should be considered are the following:

- The ore zone (OZ wells), which are only partially screened in the middle of the ore zone (20 feet) yield potentiometric heads and a potentiometric surface that are consistent with those predicted in the license application.
- Thirteen of the 19 wells in the perimeter ring (PM wells), which are fully penetrating (over 100 feet), yield potentiometric heads that are consistent with the potentiometric surface for the OZ aquifer based on the OZ wells.
- Six PM wells, primarily those located along the wellfield's southern perimeter, exhibit potentiometric heads that are measurably (15 to 25 feet) higher than the OZ aquifer potentiometric surface.
- The potentiometric surface for the overlying aquifer (SM aquifer) is estimated to be 40 feet higher than the OZ potentiometric surface.
- Thickness of the upper confining unit is thin (7 feet) in the southern area of the wellfield.

Based on these observations, Strata has not addressed the issue of whether or not the perimeter wells along the southern boundary of the wellfield are in contact with the overlying aquifer. If correct, then Strata did not adequately define whether or not the wells' ability to detect an excursion is diminished, whether or not the wells should be converted to partially

penetrating wells, or whether or not an adequate thickness of the overlying confining unit exists in this area. Therefore, staff cannot verify that Strata met this license condition.

Strata will need to correct the above deficiencies prior to staff verifying the MU1 package. Because of the complexity of the issue and to expedite our review, staff recommends a public meeting to discuss possible actions to resolve the verification issues.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions or would like to schedule a public meeting, please contact me at 301-415-0697 or, by e-mail, at [john.saxton@nrc.gov](mailto:john.saxton@nrc.gov).

Sincerely,

**/RA/**

John Saxton, Project Manager  
Uranium Recovery Licensing Branch  
Division of Decommissioning, Uranium Recovery  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 040-09091  
License No.: SUA-1601

cc: D. Schellinger, WDEQ

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If you have any questions or would like to schedule a public meeting, please contact me at 301-415-0697 or, by e-mail, at [john.saxton@nrc.gov](mailto:john.saxton@nrc.gov).

Sincerely,

/RA/

John Saxton, Project Manager  
Uranium Recovery Licensing Branch  
Division of Decommissioning, Uranium Recovery  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 040-09091

License No.: SUA-1601

cc: D. Schellinger, WDEQ

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