

October 15, 2015

Mr. Michael Griffin
Vice President of Permitting, Regulatory
and Environmental Compliance
Strata Energy, Inc.
PO Box 2318
Gillette, WY 82717-2318

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION (NRC) VERIFICATION OF
PROCEDURES FOR UNMONITORED EMPLOYEES, LICENSE CONDITION
12.9, ROSS IN-SITU RECOVERY (ISR) PROJECT, CROOK COUNTY, WY,
SOURCE MATERIAL LICENSE SUA-1601, DOCKET NO. 040-09091, TAC
J00735

Dear Mr. Griffin:

By letter dated February 13, 2015, Strata Energy, Inc. (Strata) submitted a license amendment request that addresses license condition 12.9 of its Materials License SUA-1601, which states:

12.9 Prior to the preoperational inspection, the licensee shall submit to the NRC staff, for review and verification, procedures by which it will ensure that unmonitored employees will not exceed 10 percent of the dose limits in 10 CFR 20, Subpart C.

As described in the enclosed evaluation, the NRC staff has verified that Strata's procedures will ensure that unmonitored employees will not exceed 10 percent of the dose limits in 10 CFR 20, Subpart C.

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 NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

M. Griffin

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If you have any questions regarding this action, please contact me at 301-415-0697 or by e-mail at John.Saxton@nrc.gov.

Sincerely,

/RA/

John Saxton, Hydrogeologist
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

Enclosure:
NRC staff verification of LC 12.9
information

cc: D. Schellinger WDEQ

M. Griffin

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**NRC Staff Verification of Strata Energy, Inc.
Preoperational License Condition 12.9
Materials License SUA-1601; Docket No. 040-09091**

Background

By letter dated February 13, 2015 (Strata 2015a), Strata Energy, Inc., (Strata) provided its response to preoperational license condition 12.9 of Materials License SUA-1601, which states:

- 12.9 Prior to the preoperational inspection, the licensee shall submit to the NRC staff, for review and verification, procedures by which it will ensure that unmonitored employees will not exceed 10 percent of the dose limits in 10 CFR 20, Subpart C.

By letter dated July 23, 2015, NRC staff provided comments on Strata's February 13, 2015, submittal (NRC 2015). By letter dated July 29, 2015, Strata provided its response to NRC staff's comments (Strata 2015b). The staff's evaluation of the information provided by Strata is provided below.

Evaluation

In its letter dated February 13, 2015, Strata provided a description of its program for ensuring that unmonitored employees will not receive an occupational dose greater than 10 percent of the dose limits in 10 CFR Part 20, Subpart C (Strata 2015a). Strata explained that it will monitor occupational dose for all full time employees on at least a quarterly basis during the first year of uranium production operations and analyze the exposure data after the first year, using the following individual employees or groups of employees that have similar duties:

- Administrative staff
- Geology staff
- Safety, Health and Environment staff
- Plant Operations and Maintenance staff
- Wellfield Operations and Maintenance staff
- Wellfield Construction staff
- Contract drilling staff

The monitored exposures will include both routine exposures covered by Standard Operating Procedures and non-routine exposures covered under Radiation Work Permits (RWPs). Strata stated that quarterly monitoring will be continued after the first year for groups that exceed 10 percent of the dose limits. Strata explained that the Radiation Safety Officer will conduct an annual review to determine which groups should be monitored each year.

Strata stated in the first paragraph of its Attachment to its February 13, 2015, letter that, "The TEDE [total effective dose equivalent] will be a summation of the external exposure or deep dose equivalent determined in accordance with TR [Technical Report] Section 5.7.2.3, 'Personal Dosimetry.'" This statement described only one element of the "summation." Therefore, by letter dated July 23, 2015, NRC staff asked Strata to revise its description of TEDE to state that it is the sum of the effective dose equivalent and the committed effective dose equivalent (NRC 2015). By letter dated July 29, 2015, Strata clarified its description of the TEDE (Strata 2015b). A revised procedure for ensuring that unmonitored employees will not exceed 10 percent of the

Enclosure

dose limits in 10 CFR Part 20, Subpart C, was included as Attachment 2 to Strata's July 29, 2015, letter.

In its February 13, 2015, description, Strata did not explain how it would determine committed effective dose equivalent (CEDE) for groups that work outside the Central Processing Plant (CPP) (Strata 2015a). This is related to License Condition 12.7 C), which requires Strata to discuss how it will account for occupational dose throughout the entire License Area (i.e., outside the CPP) for employees for whom individual monitoring is required in accordance with 10 CFR 20.1502. Therefore, by letter dated July 23, 2015, NRC staff asked Strata to explain how it will determine CEDE for groups of unmonitored employees that work outside the CPP (NRC 2015). By letter dated July 29, 2015, Strata explained that it had submitted a plan for monitoring CEDE in monitored employees that work outside the CPP in its plan to address license condition 12.7 C) (Strata 2015b). This revised information on license condition 12.7 C) was provided to NRC in a letter from Strata dated July 30, 2015 (Strata 2015c). In its July 30, 2015, response to NRC staff comments on Strata's March 1, 2015, response to license conditions 12.6, 12.7 and 12.8, Strata explained that it would determine CEDE for all full-time employees using air samples in areas outside the CPP, including the wellfield, header houses and deep disposal well building (Strata 2015c).

In its July 30, 2015, response, Strata also explained that it will determine external exposures to all regular fulltime employees using personal monitoring devices (either thermoluminescent dosimeters or optically-stimulated luminescent dosimeters). Strata will also conduct surveys of general area gamma dose rates. Strata will determine internal exposures using either air sample results or bioassays, as described in the Ross ISR Project TR Sections 5.7.3 and 5.7.4 (Strata 2015c).

In its February 13, 2015, letter, Strata stated, "Since there will be no yellowcake processing or drying at the Project, the airborne uranium monitoring results will use Solubility Class D DAC's [derived air concentrations] for dose calculations." (Strata 2015a). This statement contradicts a previous commitment in TR Section 5.7.4.1, in which Strata stated, "However, at startup, Strata will consider the Ross ISR product ICRP 19/30 solubility Class W until its molecular composition has been characterized to demonstrate similarities with the other ISR products for which definitive solubility data has been reported (see Metzger et al. 1997 and Tairova et al. 2010)." (Strata 2011). Therefore, by letter dated July 23, 2015, NRC staff asked Strata to revise its program description to be consistent with statements in Strata's TR (NRC 2015). By letter dated July 29, 2015, Strata revised the program description for ensuring unmonitored employees will not receive greater than 10% of the dose limits to state that it would use the methodology described in TR Section 5.7.4, "Exposure Calculation," which states that Strata will use DACs pulmonary retention Class W DACs in dose estimates (Strata 2015b).

Conclusion

NRC staff has evaluated the procedure provided in Attachment 2 of Strata's July 29, 2015, letter, and has verified that Strata's procedure will ensure that unmonitored employees will not exceed 10 percent of the dose limits in 10 CFR 20, Subpart C.

References

Strata (Strata Energy Inc.). 2011. Letter from M. Griffin to K. McConnell (NRC) dated January 4, 2011, License Application for Ross In Situ Leach Uranium Recovery Project Site. ADAMS Accession No. ML110120063.

Strata (Strata Energy Inc.). 2015a. Letter from M. Griffin to NRC, dated February 13, 2015, regarding "Strata Energy Ross In Situ Recovery Project, Source Materials License SUA-1601, Docket No. 040-09091, License Condition 12.9." ADAMS Accession No. ML15069A438.

Strata (Strata Energy Inc.). 2015b. Letter from M. Griffin to NRC, dated July 29, 2015, regarding "Strata Energy Ross In Situ Recovery Project, Source Materials License SUA-1601, Docket No. 040-09091, Response to Comments on Submittal for License Condition 12.9" ADAMS Accession No. ML15219A188.

Strata (Strata Energy Inc.). 2015c. Letter from M. Griffin to NRC, dated July 30, 2015, regarding "Strata Energy Ross In Situ Recovery Project, Source Materials License SUA-1601, Docket No. 040-09091, Response to Comments on Submittal for License Condition 12.7" ADAMS Accession No. ML15224B400.

NRC (U.S. Nuclear Regulatory Commission). 2015a. Letter from NRC to Mr. M. Griffin, Strata Energy, Inc., Re: Staff's Comments and Request for Additional Information on Submittals Regarding License Conditions 12.6, 12.7, and 12.8, Ross ISR Project, Crook County, WY, Source Material License SUA-1601, Docket No. 040-09091, TAC J00735, dated July 23, 2015. ADAMS Accession No. ML15190A156.