NRC FORM 374

U.S. NUCLEAR REGULATORY COMMISSION

# MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

| Licensee | |
|---|---|
| 1. FMRI (a subsidiary of Reorganized Fansteel) | 3. License Number SMB-911, Amendment 13 |
| 2. Number Ten Tantalum Place<br>Muskogee, Oklahoma 74403 | 4. Expiration Date September 30, 2002 |
| | 5. Docket No. 40-7580<br>Reference No. |

| 6. Byproduct Source, and/or Special Nuclear Material | 7. Chemical and/or Physical Form | 8. Maximum amount that Licensee May Possess at Any One Time Under This License |
|---|---|---|
| Natural uranium and thorium | Any | 400 tons as elemental uranium and thorium |
| A. Natural Uranium | A. Tin slags, ores, concentrates, process residues, and uranium oxides | A. 43,000 kg uranium |
| B. Natural Thorium | B. Tin slags, ores, concentrates, process residues, and thorium hydroxide | B. 71,000 kg thorium |
| C. Natural Uranium | C. As a contaminant in soil and sediment | C. 4,000 kg uranium |
| D. Natural Thorium | D. As a contaminant in soil and sediment | D. 2,500 kg thorium |

9. Authorized place of use: The licensee's existing facilities at Muskogee, Oklahoma, as described in the submittal of January 14, 2003.

10. Authorized use: For activities related to decommissioning and characterization of contaminated facilities, equipment, and land, and maintenance of control over licensed materials in accordance with statements, representations, and conditions contained in the application submitted by letter dated January 14, 2003, and supplemented by letters dated May 8, and July 24, 2003 (re: DP), and July 24, 2003 (re: license transfer); letter dated July 6, 2006, and supplemented by letters dated August 31, 2006 and May 24, 2007 (re: LC 25).

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11. Deleted by Amendment 4, dated March 1999.

12. The licensee shall have a qualified Plant Radiation Safety Officer (PRSO) on site for all licensed activities.

13. Deleted by Amendment 2, dated February 1999.

14. The minutes of the Radiation Safety Committee meeting shall be submitted, as a minimum, to the Committee members.

15. Deleted by Amendment 2, dated February 1999.

16. Deleted by Amendment 5, dated May 1999.

17. Deleted by Amendment 2, dated February 1999.

18. Deleted by Amendment 4, dated March 1999.

19. Deleted by Amendment 4, dated March 1999.

20. Deleted by Amendment 6, dated August 1999.

21. Deleted by Amendment 11, dated December 4, 2003.

22. Deleted by Amendment 6, dated August 1999.

23. Deleted by Amendment 2, dated February 1999.

24. Deleted by Amendment 11, dated December 4, 2003.

25. a. All source material stored outside of the process buildings at the FMRI facility (other than materials contained in the ponds, pond materials that have been packaged to await transportation off-site in accordance with the Decommissioning Plan, and as contaminants in soils and sediments) shall be placed on raised pallets on a concrete pad. The area shall be sheltered by a roof and shall be surrounded by a concrete berm for containment.

b. Source material from ponds that has been packaged to await transportation off-site in accordance with the Decommissioning Plan and is staged outdoors shall be managed in following the manner:

i. The material shall be staged in appropriate containers and placed inside a containment that is constructed with concrete or equipped with a 40 to 60-mil high density polyethylene (HDPE) liner and containment berms. Each containment area shall be constructed in a manner that allows storm water to drain or shall be equipped with a collection sump and pump that collect precipitation that may enter the containment and prevent prolonged storm water contact with the containerized material. Water that has come in contact with containers and drains from or collects within the staging areas shall be routed to the site's wastewater treatment plant for treatment prior to discharge. The use of raised pallets in these outdoor staging areas is not necessary.

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ii. Staging areas with containers of material shall be covered with a minimum of 6-mil polyvinylchloride plastic in a manner that reduces the amount of precipitation allowed to contact the containers. The cover shall be secured in a fashion to prevent loss during high winds, but shall allow for frequent access to permit removal of containers for transportation. The staging areas shall be monitored visually on a weekly basis while containers are in storage. Any observed damage to the staging area or cover system shall be repaired as soon as practicable.

iii. Containers described in Attachment A to FMRIs May 24, 2007 submittal, or their equivalent, will be stacked no more than 4 layers high.

iv. Beginning July 1, 2008, staging areas with containers of material that have not been removed for transportation within twelve months of their placement into the staging area shall be equipped with an improved cover system. This cover system shall consist of 40-mil seam-welded HDPE that will be placed to prevent any storm water from coming in contact with the staged containers. Staging areas equipped with an improved cover system will be inspected visually on a weekly basis. Additionally, a monthly inspection of the staging areas equipped with the improved cover system will be conducted.

26. Remediation and decommissioning activities at the Muskogee facility shall be performed in accordance with the decommissioning plan and supplemental correspondence submitted by letter dated January 14, 2003, and supplemented by letters dated May 8, and July 24, 2003 (re: DP).

27. Deleted by Amendment 11, dated December 4, 2003.

28. Deleted by Amendment 11, dated December 4, 2003.

29. In accordance with provisions of 10 CFR 40.42(g)(4)(i) Licensee shall, not later than May 31, 2004, provide a physical description - dimensions, types of liners, etc. - of Pond 1, Pond 1S and 1N, and Pond 4, the time during which each [of] the ponds were used, what process-related materials and how much was placed in each of the ponds, and how and where those materials were disposed when the ponds were closed.

30. At the time Ponds 2 and 3 are emptied, Licensee shall undertake to excavate and dispose of any identified WIP material that migrated from the ponds For the purpose of this paragraph, WIP that migrated from ponds 2 and 3 shall be defined as material that exhibits the same physical characteristics as the sludge-like material contained in the ponds.

31. Licensee shall conduct an additional characterization of any additional contaminants at the site, including all soils, buildings and groundwater on the site, using guidance in NUREG-1757, Vol. 2. Upon agreement by NRC that any additional contamination is adequately characterized, Licensee shall identify the cost to remediate all contamination identified in this study. Work shall be performed according to the following schedule:

a. Submit a site characterization plan not later than February 28, 2011.
b. Submit a site characterization report (SCR) not later than December 29, 2011.
c. Develop detailed work plans to be submitted with the SCR, including cost and schedule, for any additional work identified in the SCR.

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32. The licensee shall not have a removable fraction of residual radioactivity on any specific building surface that exceeds 3%.

33. Before release of any equipment, Licensee shall characterize all surfaces, interior and exterior, and shall remediate all contaminated equipment to the limits of RG 1.86.

34. Licensee shall verify the conditions used in its dose analyses (secular equilibrium, ratio of decay chains, etc.) for each area of remediation not later than the date of submission of the FSSR for Phases 3 and 4.

35. Licensee shall remediate the site to residual radioactive levels to ensure that exposure to residual radiation in all media from applicable pathways will not result in a dose exceeding 25 mrem/y, as specified in 10 CFR 20.1402. Licensee will establish remediation levels (DCGLs) as part of the Phase 3 Workplan, approved by NRC, that demonstrate the 25 mrem/y dose limit will not be exceeded.

36. Licensee shall use the sum of fractions rule, as shown below, to fraction the concentration when multiple radionuclides are present so that the total dose will not exceed 25 mrem/y.

$$\sum_{i=1}^{N} \frac{Conc_i}{DCGL_i} \leq 1$$

*where*:

$Conc_i \equiv$ concentration of radionuclide i

$DCGL_i \equiv$ derived concentration guideline level for radionuclide i

$N \equiv$ total number of radionuclides

37. In accordance with 10 CFR 40.42(g)(4)(ii), Licensee shall provide to NRC the following detailed plans, including work to be performed by contractors and the qualifications of all contractors, for remediating contamination at the site identified in the July 24, 2003 DP:

a. WIP (Phase 1) not later than August 2, 2004.
b. CaF (Phase 2) not later than January 2, 2007
c. all contaminated soil, buildings and equipment not later than August 1, 2011.
d. groundwater remediation (Phase 4) not later than January 5, 2012.

38. Licensee shall obtain NRC approval of survey and sampling methods prior to reuse of any materials. NRC will be notified 30 days before the survey is performed. NRC or its contractor will be given the opportunity to observe the licensee[']s survey and perform an independent confirmatory survey. NRC will review the results to determine if the material meets release criteria.

39. Licensee shall, prior to application for license termination or any partial site release, describe the nature of the permanent surface water and E&S controls identified in §8.3.2.6 of the DP, and why they are consistent with the unrestricted release criteria of 10 CFR 20.1402.

40. Licensee shall update the DP not later than December 31, 2003, to describe current activities to remediate radioactive contamination in groundwater.

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41. Licensee shall develop a method not later than January 15, 2012, to be approved by NRC, to demonstrate compliance with radioactive release criteria for groundwater.

42. Licensee shall update Figure 8-3 of the January 2003, DP submittal annually, and submit the revised figure to NRC not later than January 15, of each year until license termination.

43. FMRI shall submit, by March 31st of each year, an accounting of expenses that shall include:

    a. the same line items as provided in Table 15-11 of the Decommissioning Plan,
    b. the amount spent on each line item during the reporting period,
    c. the cumulative amount spent for each line item through the end of the reporting period,
    d. identification of variances (both positive and negative) between the planned expense and the actual expense for each line item during the reporting period,
    e. an explanation of the reasons for variances that exceed 5% of the planned expense for a line item during the reporting period,
    f. a comparison of the cost of work remaining to the funding remaining under the assurances provided to the NRC, where:
       i. the cost of work remaining must be determined by estimating the amount and cost of labor, materials, services, etc., required to complete the work, and not by simply subtracting the cost of work performed from the amount budgeted for decommissioning, and
       ii. if the cost of remaining activities exceeds the remaining amounts assured to the NRC, then the accounting, to the extent possible, must include a detailed plan to adjust the work plan to the available funding.
    g. all expenses not covered by the line items of Table 15-11, if any, and an explanation of the reason for such expenses

44. FMRI shall submit, by March 31st of each year, an accounting of income from Reorganized Fansteel that shall include amounts paid to FMRI:
    a. annual mandatory prepayments,
    b. minimum semi-annual payment,
    c. additional annual prepayment (1) insurance proceeds, and (2) reorganized debtor asset sale proceeds,
    d. payments under the secondary promissory note,
    e. payments under the contingent promissory note, and
    f. any other payments received.

45. FMRI shall submit, by March 31st of each year, updated versions of Tables 15-11 and 15-12, showing actual figures for previous periods, and updated projections using current information.

46. FMRI shall maintain, for inspection at its facility, monthly updates of its accounting of expenses and income.

47. FMRI shall provide annual financial statements of FMRI and Reorganized Fansteel to NRC within 30 days of the issuance of such statements.

48. If any payment due to FMRI under the Notes from Reorganized Fansteel has not been paid on the date it is due, and if such payment default is not cured within three working days following the due date, FMRI shall, within three additional working days, notify Reorganized Fansteel in writing, initiate

appropriate action to collect the payment, and notify the NRC in writing of the late payment and the actions initiated to collect the payments below:

a. Payment Due Date Under Primary Promissory Note
   i. April 10 - annual mandatory prepayments
   ii. June 30 - first minimum semi-annual payment
   iii. December 31 - second minimum semi-annual payment
b. Payment Due Date under the Primary Promissory Note for additional annual prepayment (insurance proceeds and reorganized debtor asset sale proceeds), if any, within 30 days after receipt by Reorganized Fansteel
c. Payment Due Date for Secondary Promissory Note by January 1 of each year, commencing in 2009
d. Payment Due Date under the Contingent Promissory Note as determined at the time the principal amount of the note is established

49. FMRI shall, up to the amount available, replenish any withdrawal from the Decommissioning Trust Fund within 30 days of receipt of any payments or proceeds intended to provide for replenishment, as provided in the Decommissioning Plan or the terms and conditions of the Joint Reorganization Plan as approved by the United States Bankruptcy Court.

50. Licensee shall provide to NRC not later than August 2, 2004, the experience and education requirements for the HPS [Health Physics Supervisor], the CS [Construction Supervisor], and the QCO [Quality Control Officer].

51. Not later than August 2, 2004, Licensee shall define changes to the FSSP [Final Status Survey Plan] that may be made without prior approval of NRC.

52. Not later than August 1, 2004, Licensee shall make available at the site for review by NRC a revised RWMP and QA Plan, for Phase 1 of decommissioning activities. Thereafter, Fansteel shall update and have available at the site the RHSP, EMP, RWMP and QA Plan prior to the beginning of each phase of decommissioning.

53. Licensee shall conduct the following final status surveys and submit reports to NRC to demonstrate compliance with decommissioning criteria. NRC will be notified 30 days before a survey is performed, and NRC or its contractor will be given the opportunity to observe the licensee's survey and perform an independent confirmatory survey. If NRC does not approve a survey, additional remediation and resurvey shall be promptly conducted.
   a. Immediately following completion of remediation of all soils, buildings and equipment, but not later than nine months after approval of the FSSP, Licensee shall conduct a final status survey of all areas remediated and submit a Phase 3 FSSR
   b. Immediately following completion of remediation of the groundwater, Licensee shall conduct a final status survey of site groundwater and submit a Phase 4 FSSR.

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54. Not later than February 28, 2011, Licensee shall submit, applicable FSSPs for Phases 3 and 4, for prior NRC approval, which shall include measures to evaluate volumetric, subsurface, and groundwater contamination that are beyond the scope of MARSSIM (NUREG-1575, Table 1.1)

FOR THE NUCLEAR REGULATORY COMMISSION

Date: September 14, 2007 By: **/RA/**

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs