

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. Fansteel, Inc.	3. License Number SMB-911, Amendment 9
2. Number One Tantalum Place North Chicago, Illinois 60064	4. Expiration Date September 30, 2002
	5. Docket No. 40-7580 Reference No.

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|---|-------------------------------------|--|
| 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. The portion of the Fansteel Property identified as the Northwest Property in Figure 2, Dwg. No. 0111210, of the licensee's Additional Radiation Survey Activities Report dated December 1995, and as defined by the legal description provided thereon, is released from the restrictions of this license. This release is based on the statements and representations made in the application dated July 8, 1993, and supplements dated December 28, 1993; May 24, July 27, and December 1, 1994; December 18, 1995; and March 16, 1996.

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10. Authorized use: For use in accordance with statements, representations, and conditions contained in Part I (Chapters 1 through 5) of the application submitted by letter dated May 10, 1999, and supplemented by letters dated February 3, May 17, July 7, 1999, January 25, 2000, and March 5, 2002.
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. The licensee shall review the decommissioning cost estimate by June 25, 2002, and thereafter at intervals not to exceed thirteen (13) months.
22. Deleted by Amendment 6, dated August 1999.
23. Deleted by Amendment 2, dated February 1999.
24. The licensee shall notify all recipients of solid products/waste of the concentration of radionuclides in each batch transferred.
25. All source material stored outside of the process buildings at the Fansteel facility (other than material contained in the ponds) 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.

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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 June 16, 1999 and supplemented by letters dated July 16, 1999, and November 9, 2000.

27. The licensee shall use the following criteria for release for unrestricted use:

Groundwater activity:

30 pCi/L of uranium (U-238, U-235, and U-234) and
15 pCi/L adjusted gross alpha (gross alpha excluding radium-226 and uranium);

Soil activity:

10 pCi/g from any combination of natural uranium and thorium;

Exposure rate from soil:

10 micro-roentgen (μ R) per hour (hr) above background at one meter (m) from the surface averaged over a 100 m² grid, where the maximum may not exceed 20 μ R/hr;

Activity on equipment and structure surfaces:

Surfaces are to be cleaned to the release limits for natural thorium:

1,000 dpm per 100 cm² alpha radioactivity, total;
200 dpm per 100 cm² alpha radioactivity, removable;
3,000 dpm per 100 cm² alpha radioactivity, maximum over 100 cm²;
5,000 dpm per 100 cm² beta-gamma radioactivity, total;
1,000 dpm per 100 cm² beta-gamma radioactivity, removable; and
15,000 dpm per 100 cm² beta-gamma radioactivity, maximum over 100 cm²;

For surfaces contaminated with natural uranium and thorium that cannot be cleaned to the thorium release limit, the sum of uranium and thorium activity fractions may not exceed 1 (as defined by the unity rule in Section 4.2 of the Decommissioning Plan submitted by letter dated June 16, 1999), where uranium activity values are as follows:

5,000 dpm per 100 cm² alpha radioactivity, total;
1,000 dpm per 100 cm² alpha radioactivity, removable;
15,000 dpm per 100 cm² alpha radioactivity, maximum over 100 cm²;
5,000 dpm per 100 cm² beta-gamma radioactivity, total;
1,000 dpm per 100 cm² beta-gamma radioactivity, removable; and
15,000 dpm per 100 cm² beta-gamma radioactivity, maximum over 100 cm²;

Exposure rate from building surfaces:

5 μ R/hr above background at 1 m from the surface averaged over area not to exceed 10 m²

28. The licensee shall conduct a final survey and sampling program to ensure that residual contamination meets the unrestricted use criteria in this license. Buildings, equipment, and outdoor areas shall be surveyed in accordance with NUREG/CR-5849, "Manual for Conducting Radiological Surveys in Support of License Termination."
- a.) Soil and soil-like materials with elevated activities exceeding the unrestricted use criteria shall be investigated to determine compliance with the averaging criteria of NUREG/CR-5849. These criteria address averaging concentrations over any 100 m² (A) and use the $(100/A)^{1/2}$ elevated area method.
 - b.) Radioactivity levels shall not exceed the averaging criteria in NUREG/CR-5849. Radioactively contaminated material that exceeds the averaging criteria defined in NUREG/CR-5849 shall be removed and transferred to a licensed, low-level radioactive waste disposal facility.

FOR THE NUCLEAR REGULATORY COMMISSION

Date: March 26, 2002

By: David L. Solorio /RA/
Decommissioning Branch
Division of Waste Management
Office of Nuclear Materials Safety
and Safeguards

