UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

November 20, 2006

Mr. E. Jonathan Jackson, President/CEO
FMRI (a subsidiary of reorganized Fansteel, Inc.)
Number Ten Tantalum Place
Muskogee, Oklahoma 74403

SUBJECT: NRC INSPECTION REPORT 040-7580/06-002

Dear Mr. Jackson:

This refers to the inspection conducted on October 31-November 2, 2006, at FMRI's rare earth recovery facility in Muskogee, Oklahoma. An exit briefing was conducted at the conclusion of the inspection on November 2, 2006. The enclosed report presents the results of that inspection.

The purpose of the inspection was to examine activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, conditions of your license, and the approved decommissioning plan. Within these areas, the inspection consisted of selected examination of procedures and representative records, site tours, and interviews with personnel. No new violations were identified; therefore, no response to this letter is required.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/Adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Should you have any questions concerning this inspection, please contact Robert Evans at (817) 860-8234 or the undersigned at (817) 860-8191.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D. Chief
Fuel Cycle and Decommissioning Branch

Docket No.: 040-07580
License No.: SMB-911

Enclosure:
NRC Inspection Report
040-07580/06-002

cc w/enclosure:

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bcc w/enclosure(via ADAMS distrib):
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RJEvans
FCDB File
RIV Nuclear Materials File - 5th Floor

SUNSI Review Completed: RJE ADAMS: ■ Yes ☐ No Initials: RJE
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ENCLOSURE

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	040-07580
License No.:	SMB-911
Report No.:	040-07580/06-002
Licensee:	FMRI (a subsidiary of Reorganized Fansteel)
Facility:	Muskogee Plant
Location:	Muskogee, Oklahoma
Inspection Dates:	October 31 - November 2, 2006
Inspector:	Robert J. Evans, P.E., C.H.P., Senior Health Physicist Fuel Cycle & Decommissioning Branch
Accompanied By:	John Flynn, Professional Engineer I Oklahoma Department of Environmental Quality Waste Management Division Radiation Management Section
Approved By:	D. Blair Spitzberg, Ph.D., Chief Fuel Cycle & Decommissioning Branch
Attachment:	Supplemental Inspection Information

EXECUTIVE SUMMARY

FMRI, Muskogee Plant
NRC Inspection Report 040-07580/06-002

This inspection included a review of effluent and environmental monitoring, transportation activities, and followup of a previous NRC inspection finding. Overall, the licensee was conducting Phase 1 reclamation and routine site operations in accordance with regulatory and license requirements, with one exception mentioned below.

Effluent and Environmental Monitoring

- The licensee recently identified elevated concentrations of uranium in a monitoring well located down-gradient of Pond 3. The uranium concentrations in monitoring well MW-74 trended upward concurrently with commencement of reclamation of Pond 3. The licensee reported the exceedances to the NRC in accordance with license requirements. No site effluent reporting limits have been exceeded because of the monitoring well exceedances. The licensee expects the uranium concentrations in the groundwater to trend downward after reclamation of Pond 3 has been completed (Section 1).

Inspection of Transportation Activities

- The licensee established a program for shipping radioactive material in compliance with NRC license requirements and U.S. Department of Transportation regulations (Section 2).

Followup

- The inspector reviewed the status of Notice of Violation 040-07580/0501-01 with the licensee. This violation was issued on July 26, 2005, and involved the licensee's failure to provide an updated version of Table 15-12 to the NRC by the deadline specified in the license. The licensee was in continued non-compliance with this Violation during the inspection, and potential corrective actions for resolving the issue were discussed. The NRC plans to further discuss this issue with the licensee under separate correspondence (Section 3).

Report Details

Summary of Site Status

Decommissioning of the FMRI site is expected to occur in four phases. At the time of the inspection, the licensee was conducting Phase I decommissioning in accordance with the NRC-approved Decommissioning Plan dated January 14, 2003. Phase 1 consists of remediation and transfer of work-in-process (WIP) residue material in Ponds 2 and 3 to an out-of-state uranium mill for use as alternate feed material.

Since the previous inspection, the licensee continued to excavate and bag WIP material from Pond 3. At the time of the inspection, the licensee had excavated about 11,536 tons of material and placed the material into about 5,860 2-ton sacks. WIP material drying operations continued with the reclaimed fluid being pumped to the onsite wastewater treatment system for processing. The licensee estimates that about 1,000 tons, or about 500-600 bags, of WIP material remains in Pond 3. Following the excavation of material from Pond 3, the licensee will commence with reclamation of Pond 2. The licensee originally estimated that the two ponds contained about 18,800 tons of material.

During the onsite inspection, the licensee commenced with shipment of bagged WIP material to the out-of-state mill. The material was being shipped in 25-cubic yard intermodal containers. The licensee plans to continue with shipment of WIP material until about July 2007.

1 Effluent and Environmental Monitoring (84750)

1.1 Inspection Scope

The inspector conducted a followup review of recent monitoring well exceedances that were reported to the NRC.

1.2 Observations and Findings

Groundwater monitoring consists of sample collection from 19 wells and 4 sumps. The wells and sumps were sampled quarterly, and the samples were analyzed for gross alpha and gross beta concentrations. The gross alpha and beta concentrations were compared to administrative action levels. If the action levels were exceeded, then the licensee was required to conduct an isotopic analysis of the sample. If the identified radionuclides exceeded a reporting level specified in the license, then the license was required to report the exceedance to the NRC. The sampling points were also sampled on a semi-annual basis for a number of chemical constituents in accordance with a state permit.

During September 2005, the licensee became aware of an increase in the radioactivity concentrations of water samples collected from monitoring well MW-74. This well is

located down-gradient from Pond 3 but up-gradient of the interceptor trench that runs parallel to the Arkansas River. Fluid collected in the trench is routed to the onsite wastewater treatment facility for processing prior to release through Outfall 001 in accordance with the State's National Pollutant Discharge Elimination System discharge permit.

Routine sampling of MW-74 was conducted during mid-March 2006. The uranium-238 and uranium-234 concentrations in the sample exceeded the reporting level established in Condition 10 of the license, and the exceedance was subsequently reported to the NRC by letter dated July 18, 2006. The next quarterly sample, collected during late-June 2006, also exceeded the uranium-238 and uranium-235 reporting level. This second exceedance was reported to the NRC by letter dated September 26, 2006. [The laboratory reported a uranium-235 concentration for the June 2006 sample; although, the inspector suspects that the laboratory meant to report a uranium-234 concentration. This potential error was presented to the licensee for review.]

As a corrective action, the licensee implemented enhanced monitoring of MW-74 and other wells surrounding Pond 3. The licensee collected four additional sets of samples during July-August 2006, and the sample results for MW-74 also exceeded the uranium-234 and uranium-238 reporting level:

Table: Monitoring Well MW-74 Sample Results

Sample Date	Report Date	Uranium-238 Concentration	Uranium-235 Concentration	Uranium-234 Concentration	Reporting Level
March 15, 2006	July 18, 2006	5460 pCi/L	Not Detected	4740 pCi/L	3000 pCi/L
June 28, 2006	October 24, 2006	9040 pCi/L	8620 pCi/L	Not Detected	3000 pCi/L
July 14, 2006	October 13, 2006	3800 pCi/L	Not Detected	3360 pCi/L	3000 pCi/L
July 28, 2006	September 26, 2006	4100 pCi/L	Not Detected	4180 pCi/L	3000 pCi/L
August 10, 2006	October 13, 2006	8240 pCi/L	Not Detected	7890 pCi/L	3000 pCi/L
August 24, 2006	October 13, 2006	6080 pCi/L	Not Detected	5240 pCi/L	3000 pCi/L

The licensee collected the next set of quarterly samples during mid-September 2006 and enhanced samples during late-October 2006. These sample results were not available during the inspection.

The cause of the groundwater sample exceedances in MW-74 was most likely the reclamation of Pond 3. Phase I decommissioning commenced in June 2005, and a negative trend was first identified in MW-74 samples during September 2005. No other monitoring wells appear to be impacted by the reclamation of Pond 3. The licensee expects the uranium concentrations in future samples collected from MW-74 to trend downward after reclamation of Pond 3 is complete. The licensee is expected to continue with enhanced monitoring for a few more weeks and then return to quarterly sampling after it confirms that no negative trends exist in any other monitoring well.

There is no evidence that the contamination being identified in MW-74 groundwater samples is being released to the environment. The groundwater is being captured down-gradient of MW-74 by the french drain system and is routed to the wastewater treatment system for processing. The licensee releases fluid from the site in batch modes through Outfall 001. The licensee performed a review of the isotopic uranium monitoring results for Outfall 001 for the period of June 2005 to June 2006 and did not observe any exceedances.

1.3 Conclusions

The licensee recently identified elevated concentrations of uranium in a monitoring well located down-gradient of Pond 3. The uranium concentrations in monitoring well MW-74 trended upward concurrently with commencement of reclamation of Pond 3. The licensee reported the exceedances to the NRC in accordance with license requirements. No site effluent reporting limits have been exceeded because of the monitoring well exceedances. The licensee expects the uranium concentrations in the groundwater to trend downward after reclamation of Pond 3 has been completed.

2 Inspection of Transportation Activities (86740)

2.1 Inspection Scope

The inspector reviewed the licensee's program for the shipment and transportation of radioactive material.

2.2 Observations and Findings

As part of Phase I decommissioning, the licensee plans to ship approximately 18,800 tons of WIP material to an out of state mill for use as alternate feed material. The licensee plans to ship the material in 2-ton double-lined bags in 25-cubic yard intermodal containers. Because of the thorium and uranium concentrations in the WIP material, the residues were being shipped as low specific activity radioactive material in accordance with U.S. Department of Transportation (DOT) regulations.

In accordance with License Condition 37, the licensee is required to develop work plans for remediating contamination at the site. The licensee submitted the Phase I Transportation Work Plan to the NRC by letter dated October 30, 2006. The work plan described the step-by-step process for shipping and transporting the WIP material. The inspector reviewed the work plan during the inspection and compared the plan to DOT regulations. In addition, the inspector observed the licensee loading and preparing for shipment several intermodal containers.

The initial loading activities were considered to be a pilot process by the licensee to allow for review and modification of the work plan. The licensee identified and corrected sections of the work plan to agree with DOT regulations. The pilot process was controlled by a special work permit to control any work not specifically included in the transportation work plan, including the WIP material loading and handling operations, until departmental instruction procedures could be finalized.

The work process consisted of: conducting a receipt inspection of the empty intermodal containers; loading about 10-11 bags of WIP material into each intermodal; conducting a radiological survey of the filled intermodal; marking the intermodals for transport; and preparing the shipping paper for each container. The filled intermodals were to be shipped by truck to a local rail spur for loading onto rail cars. The licensee planned to install between 7-8 intermodals on a rail car, depending on the total weight of the intermodals. The loaded rail cars were then to be shipped to Albuquerque, New Mexico, where the intermodals will be unloaded and trucked to the mill in Utah. The licensee planned to use about 100 intermodal containers in a continuous loop of loading, transporting, and unloading. Since each intermodal would contain roughly 21 tons of WIP material, the number of intermodal shipments was expected to be around 900 containers.

During the inspection, the licensee loaded the first intermodal container and conducted a radiological survey of the container. The survey included measurement of gamma exposure rates and removable surface contamination as required by DOT regulations. The inspector conducted an independent radiological survey for comparison to the licensee's results using a Ludlum Model 2401-P survey meter (NRC No. 21190G, calibration due date of September 25, 2007). The bagged WIP material measured about 0.5 to 1.5 millirems per hour at about 1 foot. The material in the first intermodal measured about 0.2-0.4 millirems per hour on the exterior surface of the container.

The inspector compared the shipping papers to DOT requirements. The licensee's final shipping paper for the first intermodal complied with DOT requirements. The licensee calculated the total quantity of radioactive material in the intermodals, and recorded this number on the respective shipping paper using previous sampling results for Ponds 2 and 3 material. The inspector also compared the radiation surveying protocols and intermodal markings to the respective DOT requirements, and the licensee's surveying and marking protocols were determined to be in compliance with DOT regulations. Finally, the inspector reviewed the emergency instructions and ensured that the instructions included emergency contact information.

The first shipment left the site the day after the conclusion of the onsite inspection. The licensee provided an electronic copy of the final shipping paper to the inspector. The shipping paper was determined to be complete and included the shipper's certification signature.

2.3 Conclusions

The licensee established a program for shipping radioactive material in compliance with NRC license and DOT regulations.

3 Followup (92701)

3.1 (Discussed) Violation 040-07580/0501-01: Failure to Submit Financial Information to NRC as Required by License Condition 45

The inspector discussed Notice of Violation (NOV) 040-07580/0501-01 with the licensee, including potential corrective actions to resolve the licensee's continued non-compliance with the license. This NOV was issued on July 26, 2005, and involved the licensee's failure to provide an updated version of Table 15-12 to the NRC by the March 31, 2005, deadline specified in License Condition 45.

During a February 2006 meeting with the NRC, the licensee proposed to amend Condition 45. The licensee submitted the amendment request by letter dated March 31, 2006. During the April 2006 inspection (documented in NRC Inspection Report 040-07580/06-001 dated May 5, 2006), FMRI was noted to be in continued noncompliance with this license requirement because it failed to submit an updated Table 15-12 by the March 31, 2006, deadline. This issue was considered a repeat violation at that time but was not cited because the license amendment request was still outstanding. However, by letter dated July 27, 2006, the NRC denied the licensee's proposed license amendment request.

As of the date of the onsite inspection, no response to the denial letter has been received by the NRC, and the licensee continues to remain in non-compliance with License Condition 45. After the onsite inspection, the NRC notified the licensee of its continued non-compliance with License Condition 45 under separate correspondence.

4 Exit Meeting Summary

The inspector reviewed the scope and findings of the inspection during an exit meeting conducted at the conclusion of the onsite inspection on November 2, 2006. The licensee did not identify any documents as proprietary or any other information provided to, or reviewed by, the inspector.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

FMRI

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K. Payne, Manager, Regulatory Compliance
J. Burgess, Manager, Operations
G. Daniels, Radiation Technician
T. Lawrence, Crew Leader/Supervisor

Contractors

M. Ausen, Radiation Technician
S. Johanson, Chief Operating Officer, Cedar Mountain Environmental
J. Smith, American Waste Management Services
D. Tourdot, Vice President, Penn E&R
D. Weyant, Health Physics Consultant, Penn E&R

INSPECTION PROCEDURES USED

IP 84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring
IP 86740	Inspection of Transportation Activities
IP 92701	Followup

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None.

Closed

None.

Discussed

040-07580/0501-01 NOV	Failure to Submit Financial Information to NRC as Required by License Condition 45

LIST OF ACRONYMS USED

IP	Inspection Procedure
NOV	Notice of Violation
DOT	U.S. Department of Transportation
WIP	work-in-process