



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

November 12, 2004

EA-04-188

Mr. A. Fred Dohmann, President/CEO
FMRI (a subsidiary of reorganized Fansteel, Inc.)
Number Ten Tantalum Place
Muskogee, Oklahoma 74403

SUBJECT: NRC INSPECTION REPORT 040-07580/04-001

Dear Mr. Dohmann:

This refers to the inspection conducted on September 20-23, 2004, at Fansteel's rare earth recovery facility in Muskogee, Oklahoma. 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, facility site tours, and interviews with personnel. An exit briefing was conducted onsite at the conclusion of the inspection and a final telephonic exit was conducted on October 22, 2004, discussing the inspection findings. The enclosed report presents the results of that inspection.

Based on the results of this inspection, one apparent violation was identified and is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. The current Enforcement Policy is available on the NRC's Web site at www.nrc.gov; select "What We Do, Enforcement," then "Enforcement Policy." The apparent violation is referenced in Section 1 of the inspection report, and involves the fact that decommissioning activities had not been initiated in a timely manner as required. The circumstances surrounding this apparent violation, the significance of the issues, and the need for lasting and effective corrective action were discussed with you and members of your staff on October 22, 2004.

Representatives from the NRC's Office of Nuclear Materials Safety and Safeguards, the Office of Enforcement, and the Office of General Counsel have been discussing with you the possibility of confirming your corrective actions for this apparent violation through issuance of a Confirmatory Order. The NRC is deferring enforcement action for this apparent violation pending the outcome of those deliberations. You are not required to respond to this letter at this time.

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

Should you have any questions concerning this inspection, please contact Mr. Rick Muñoz at (817) 860-8220 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
040-07580/04-001

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ENCLOSURE

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 040-07580

License No.: SMB-911 (expired September 30, 2002)

Report No.: 040-07580/04-001

Licensee: FMRI (a subsidiary of reorganized Fansteel, Inc.)

Facility: Muskogee Plant

Location: Muskogee, Oklahoma

Inspection Dates: September 20-23, 2004

Inspector: R. Rick Muñoz, Health Physicist
Fuel Cycle & Decommissioning Branch

Approved By: D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle & Decommissioning Branch

Attachment: Supplemental Inspection Information

EXECUTIVE SUMMARY

Fansteel, Inc., Muskogee Plant
NRC Inspection Report 040-07580/04-001

This inspection included a review of site status, radiation protection program, management organization and controls, transportation activities, radioactive waste management, and followup of a previous inspection finding.

Management Organization and Controls

- The staffing level was adequate to maintain the plant in a shutdown condition and to ensure compliance with applicable regulations and license conditions (Section 1).
- Although some decommissioning related activities had been undertaken, FMRI had not initiated activities associated with the removal of contaminated materials. This was identified as an apparent violation. The NRC's Office of Nuclear Materials Safety and Safeguards, the Office of Enforcement, and the office of the General Counsel, are discussing with FMRI a confirmatory Order regarding the corrective actions to be planned and taken to correct the violation (Section 1).
- The contractor package submitted to the NRC by the licensee for the Phase I remediation was incomplete because it did not include detailed work plans, including work to be performed by contractors and the qualifications of all contractors for the Phase I remediation. An inspection follow-up item was opened to track the completion status of the contractor package (Section 1).

Radiation Protection

- Occupational exposures were below regulatory limits. Site tours confirmed that security and control of radioactive material were adequate. Contamination control efforts were effective. Radiation survey instruments in use were operable and within their calibration interval. The radiation safety committee had met quarterly as required. The licensee implemented a radiation protection program that met the requirements established in 10 CFR Part 20 and the license (Section 2).

Inspection of Transportation Activities

- The licensee had not shipped any radioactive material off site since the last inspection (Section 3).

Radioactive Waste Management

- C The licensee was maintaining control of radioactive waste material in storage at the site. All radioactive material storage areas were protected and controlled within the site boundary in accordance with requirements. All storage areas displayed proper radiological postings as required. The radioactive waste program was conducted in accordance with the license and regulatory requirements. The licensee had effectively

implemented the license requirements related to the management of radioactive waste (Section 4).

Environmental Protection

- The environmental and effluent monitoring programs were being implemented in accordance with requirements. No sample result exceeded any regulatory or reporting limit (Section 5).

Emergency Preparedness/Fire Protection

- The licensee had an emergency response and fire protection program in effect that was appropriate for the current mode of plant operation (Section 6).

Followup

- A previous inspection follow-up item related to the organizational structure was closed (Section 7).

Report Details

Summary of Site Status and History

From 1958 until 1989, the Fansteel facility extracted tantalum metal and columbium oxide from ore and slag feedstock. The facility ceased operations during December 1989 and was shut down. In January 1995, Fansteel was authorized to conduct onsite processing of pond residues containing precious metals as work-in-progress (WIP) material. The licensee recovered the rare metals while simultaneously reducing the total volume of radioactive waste contained in the pond material. The licensee also recovered calcium fluoride (CaF₂) material from existing onsite waste treatment ponds.

License Condition 26 provides that remediation and decommissioning activities be performed in accordance with the decommissioning plan (DP) and supplemental correspondence submitted by letter dated June 16, 1999, July 16, 1999, and November 9, 2000. The facility went into suspended operations mode November 2001. On January 15, 2002, Fansteel formally filed voluntary petitions for reorganization under Chapter 11 and simultaneously notified the NRC of the bankruptcy filing pursuant to 10 CFR 40.41(f). As such, Fansteel was operating as a debtor-in-possession under the jurisdiction of the Bankruptcy Court. By letter dated June 25, 2002, the licensee submitted a decommissioning cost estimate to the NRC in accordance with License Condition 21. Further, by application dated August 27, 2002, Fansteel requested that its operating license, which expired September 30, 2002, be renewed. Following a review of the decommissioning cost estimate information, the NRC concluded that the information was insufficient. Accordingly, by letter dated October 22, 2002, Fansteel's request for a license renewal was denied by the NRC and the licensee was advised to proceed with decommissioning in accordance with 10 CFR 40.42(d).

On January 14, 2003, the licensee submitted a revised DP plan for review. Fansteel stated in the letter that the amount and type of financial assurance to be provided in connection with the DP would be set forth in a plan of reorganization that it intended to file with the Bankruptcy Court. In addition, Fansteel indicated that it would be filing an alternative schedule for completion of the decommissioning as well as a request for exemption from the regulatory funding requirements of 10 CFR 40.36(d) and (e) to support the terms and conditions of the reorganization plan. As a result of NRC requests for additional information, on April 28, 2003, the NRC informed Fansteel that the DP did not contain sufficient information to conduct a detailed review.

On May 8, 2003, Fansteel resubmitted a supplement to the DP and indicated that upon emergence from Chapter 11 bankruptcy and in accordance with the terms and conditions of a confirmed plan of reorganization (which would include the transfer of the license to a new wholly-owned subsidiary of the "revised" Fansteel, "MRI"), MRI would undertake a four phased approach to decommission the site with an accelerated schedule. In response to NRC letter dated May 9, 2003, accepting the amended plan and commencement of the Safety Evaluation Report and Environmental Assessment, to be completed by NRC the end of October, the State of Oklahoma filed a request for hearing on June 16, 2003. This action triggered a series of motions and petitions between the State of Oklahoma and the NRC. Subsequently, on July 24, 2003, Fansteel submitted a revised decommissioning plan to the NRC which was under review. The NRC announced the opportunity for hearing on the proposed DP on August 18, 2003. The DP was approved December 2003.

At the time of the inspection, the plant was in a suspended operations mode. The plant systems being maintained in service included the groundwater treatment system, waste water treatment plant, environmental monitoring systems, plant boilers, air compressors, and building utilities (electricity, heat, water). All process systems had been drained of potentially radioactive material. The material was bagged and placed into storage in the former sodium reduction building. All CaF_2 material in the plant was returned to onsite Ponds 8 and 9 via the waste water treatment system.

The licensee removed the carbon dioxide fire suppression system from operation on July 2, 2002, and placed the system in long-term lay up. This was done because the solvent extraction area it protected did not contain flammable process solvents. Hydrofluoric acid and ammonium hydroxide material was held in tanks pending sale. Solvent extraction material from the process circuit was stored in 55-gallon polyvinyl chloride drums.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

The organizational structure was reviewed to determine whether management controls were in place to ensure compliance with license and regulatory requirements. The inspector interviewed licensee staff regarding the organizational structure, reviewed related documentation and license condition commitments.

1.2 Observations and Findings

In response to its financial status, in July 2002, the licensee had reduced its onsite staff to 7 individuals plus on-site contract security personnel for 24 hour surveillance. At the time of the inspection, there were seven FMRI employees plus one contract worker. This organizational structure was considered a short-term staffing plan. On May 8, 2003, as part of the new decommissioning plan submittal, Fansteel indicated that upon emergence from Chapter 11, it proposed to transfer the license to a new wholly-owned subsidiary of the revised Fansteel which would be called FMRI. The decommissioning plan was approved and the Fansteel reorganization was approved by the United States Bankruptcy Court on November 21, 2003, and became effective on January 23, 2004. FMRI plans to decommission the Fansteel facility under the new corporate organization. The current staffing level was determined to be adequate to maintain compliance with regulatory and license requirements while the plant remained shut down.

The selection process for contractors to implement site remediation activities was initiated in late January 2004 as communicated to the project manager via e-mail dated January 29, 2004. In an FMRI letter dated March 4, 2004, the president stated that FMRI may not be prepared to commence remediation of the Muskogee site by the intended September 1, 2004, as stated in Fansteel's letter of May 8, 2003. The May 8, 2003, letter is referenced in Conditions 10 and 26. As a result, FMRI stated that a license amendment request would be forthcoming and would be discussed at the HQ meeting with NRC staff as requested by NRC. An FMRI letter dated July 30, 2004, notified NRC of the delay of the contractor selection process for Phase I pending completion of the NRC hearing process with the State of Oklahoma.

On February 5, 2004, FMRI requested contractor qualification and experience verification from 26 potential contractors. FMRI received 16 response packages from contractors. By letter dated March 18, 2004, FMRI notified the 16 contractors that the contractor selection process was being delayed due to the hearing process with the State over the DP approval. Expected resolution of the hearing request by the State of Oklahoma was anticipated during April 2004, at which time the selection process would continue. FMRI sent a letter dated June 14, 2004 notifying the 16 contractors that the selection process would resume the week of June 28, 2004. An FMRI letter dated September 1, 2004 notified nine potential contractors that a bid package would be completed. A contractor bid walk-through of the facility was scheduled for September 28, 2004.

A FMRI letter dated August 25, 2004, responded to the July 12, 2004, NRC letter which requested FMRI to meet with headquarters staff to discuss the amendment request. The August 25 letter also discussed unanticipated legal and litigation costs incurred in 2004, and changes in financial projections that had necessitated a change in the projected Phase I completion date. FMRI requested changing the maximum cash amount that FMRI could borrow from the Trust Fund from \$2 million to \$3.4 million. This authorization needed to be permitted in writing by NRC consent pursuant to Section 15 of the Decommissioning Trust.

License Condition 26 states, in part, that decommissioning activities shall be performed in accordance with the decommissioning plan and supplemental correspondence submitted by letters dated May 8 and July 24, 2003. The May 8 and July 24, 2003, correspondence stated that FMRI was prepared to take steps to accelerate the schedule for Phase I with actual remediation to begin by September 1, 2004, and to be completed by March 31, 2006, taking into account considerations of preparation, scheduling, cost and weather. It was Fansteel's intent to advance this schedule to the extent practicable. Although decommissioning related activities had been undertaken by conducting all necessary monitoring and maintenance and continued operation of the french drain system, FMRI had not initiated activities associated with the removal of contaminated materials from Ponds 2 and 3, or WIP material stored in the sodium reduction building. As of September 21, 2004, no decommissioning activities had been initiated. The failure to commence decommissioning activities by the required date of September 1, 2004, was identified as an apparent violation of License Condition 26 (VIO 040-07580/0401-01).

On August 23, 2004, the licensee issued a Condition Report (CR) related to this matter. The condition report recognized the proposed start date of September 1, 2004, would not be met. Reasons given in the CR for the delay were the pending completion of the NRC hearing process with the State of Oklahoma, the selection and the preparation of detailed contractor plans and procedures, the start date scheduling, and the availability of funds needed to initiate remediation activities.

License Condition 37(a) states, in part, that in accordance with 10 CFR 40.42(g)(4)(ii), the licensee shall provide detailed plans, including work to be performed by contractors and the qualifications of all contractors, for remediating the site. The package for the WIP (Phase I) shall be submitted no later than August 2, 2004. The NRC project manager e-mailed the FMRI president on July 21, 2004, to agree that the July 30, 2004,

letter from FMRI to NRC, although not complete with contractor detailed plans and procedures, could meet the intent of the license conditions 37a. This will remain as an inspection follow-up item (IFI 040-07580/0401-02) until a complete package is submitted for review once the contractors have been selected.

License Conditions 43 - 45 and 47 required the submittal of annual financial reporting. Submittal of an annual financial report covers the period ending December 31 for the year prior to the report. This review should be recurrent with the first check conducted after January 2005 since FMRI emerged from Chapter 11 on January 23, 2004. FMRI did not exist as a legal entity on December 31, 2003; therefore, no report was due until the end of 2004. The next submittal will be due March of 2005. An e-mail dated March 6, 2004, from the VP of FMRI documented a telephone conversation with HQ verifying that there would be no reporting requirements under these license conditions until March 2005. An e-mail dated March 9, 2004, from the president to the VP of FMRI documented the telephone conversation with the project manager verifying the financial reporting due dates of March 2005.

1.3 Conclusions

The staffing level was adequate to maintain the plant in a shutdown condition and to ensure compliance with applicable regulations and license conditions.

Although some decommissioning related activities had been undertaken, FMRI had not initiated activities associated with the removal of contaminated materials. This was identified as an apparent violation. The NRC's Office of Nuclear Materials Safety and Safeguards, the Office of Enforcement, and the office of the General Counsel, are discussing with FMRI a confirmatory Order regarding the corrective actions to be planned and taken to correct the violation.

The contractor package submitted to the NRC by the licensee for the Phase I remediation was incomplete because it did not include detailed work plans, including work to be performed by contractors and the qualifications of all contractors for the Phase I remediation. An inspection follow-up item was opened to track the completion status of the contractor package.

2 Radiation Protection (83822)

2.1 Inspection Scope

The inspector examined the licensee's radiation protection program for compliance with 10 CFR Part 20 and license requirements. The program areas reviewed included site tours including observations made regarding required postings and radiation surveys, personnel exposures, special work permits, contamination surveys, equipment release records, instrument calibrations, area monitoring and radiation protection program reviews.

2.2 Observations and Findings

a. Site Tour

A site tour was conducted to observe facility conditions and any activities in progress. The tour included all buildings, ponds, and radioactive material storage areas. Radiological surveys were conducted using a calibrated NRC issued Ludlum Model 19 survey instrument Serial Number 033541, calibrated to radium-226, due on March 23, 2005. The site tour confirmed that all areas with radiological materials, including the ponds, french drain system, and the Chem A, Chem C and sodium reduction buildings were properly maintained and posted with "Caution, Radioactive Material," signs. The general area exposure rates in the main plant were noted to be at background levels. The highest exposure rate in areas routinely accessible to plant personnel was 50 microRoentgens/hour observed at the northwest area of Pond 3. All measurements taken were below the definition of a radiation area (5000 microRoentgens per hour). Adequate protective clothing and contamination control practices were evident in the plant areas.

Site security was provided by a contract security company and by site personnel during regular business hours. Access to the site was limited by locked gates during non-business hours to prevent unauthorized access to the facility. The security contractor is on shift 24 hours per day. The site perimeter fence was in good condition and properly posted. All radioactive material storage areas were secured and controlled within the site boundary in accordance with the requirements of 10 CFR 20.1801. All storage areas displayed proper radiological postings as required by 10 CFR 20.1902(e).

b. Occupational Exposures

Section 3.3 of the license application specifies that thermoluminescent dosimeters are to be worn whenever workers are engaged in activities where radioactive material is present. FMRI instituted an administrative limit on external exposure of 125 mRem per calendar quarter. Four individuals were monitored for external dose. The thermoluminescent dosimeter results through June 2004 were reviewed. No individual exceeded the administrative limit. In addition, the dosimeter results indicated that no site worker or visitor received a radiation dose that exceeded the total effective dose equivalent occupational dose limit of 5 Rem as specified in 10 CFR 20.1201. NRC Form 5 documents were provided to all monitored individuals on February 26, 2004 .

The licensee monitored workers for internal exposures in accordance with Section 3.5.1 of the license application. Monitoring consisted of lapel air samplers issued to selected workers, specifically those conducting work under the requirements of special work permits. The sample results through the second quarter of 2004 were reviewed. The air sampler filters were collected and analyzed for gross alpha content. If the action limit of 7.5 E-13 uCi/l was exceeded, the plant radiation safety officer was required to identify the source of the radioactive material and implement suitable corrective measures. According to the licensee's internal procedures, lapel air samples were counted at least twice, once immediately and once 72 hours later to allow for decay of short-lived radioisotopes. The second count was considered the "final" count, and a derived air concentration value was calculated and assigned to workers based on this final count.

No individual exceeded the action limit. The licensee performed an 18-month trend analysis on personnel lapel monitoring through calendar year 2003. A decrease in air sample results was noted and verified by the inspector. This downward trend could be attributed to plant shutdown and removal of licensed material from all plant systems.

c. Special Work Permits

In accordance with Section 3.2 of the license application, the licensee had a special work permit program in place. Special work permits (SWP) were used for all maintenance tasks, including any work involving licensed material. Half face respirators were required for jobs in potential airborne radiation areas lasting greater than 4 hours. The SWPs listed both radiological and non-radiological safety hazards, personnel protective equipment requirements, and monitoring requirements. Workers were required to sign the SWPs indicating that they had read and understood the permit requirements. A review of the 2003 SWPs was conducted. The latest SWP involving a radiological hazard was issued on April 5, 2004, for work on Ponds 2 and 3 to collect samples used for a water extraction experiment.

RWPs for entrance into the sodium reduction building were maintained in a separate file by the licensee. Five RWPs were issued since the last inspection. Since the maximum duration of the work did not exceed 60 minutes, no respiratory protection was required. When the radon level average was 45 pCi/l, activity within the building was limited to 1-hour per day for 7 days. The ALARA standard for the site maintains employee DAC /hrs well below 12 per week. If DAC/hrs exceed 40, the licensee initiates an investigation and notifies the NRC. The records showed that there were no exceedances.

There had been no work involving active movement of licensed material since the last inspection. Section 4.4 of procedure SOP G-013, "Special Work Permit", requires re-approval by the plant radiation safety officer for any change or modification to the SWP. Records reviewed demonstrated that the re-approval protocol occurred whenever the potential for exposure increased. The inspector concluded that the licensee was using the special work permit program to minimize potential radiological hazards to plant workers.

d. Contamination Control

The inspector reviewed the surface contamination control program for compliance with Section 3.5.2 of the license application. The licensee had a contamination control program in place at the site that included routine bi-weekly swipe sample and surface surveys of plant areas for removable contamination. The licensee conducted weekly surface contamination surveys at random locations within the onsite lunchroom. In addition, outgoing trash was surveyed on a weekly basis. All other plant areas were surveyed on a rotational basis which were managed on a routine radiological survey cycle log. The inspector reviewed the survey records through September 15, 2004. FMRI instituted an action level of 200 dpm/100 cm² for removable and 1000 dpm/100 cm² for fixed alpha contamination and an action level of 1000 dpm/100 cm² for removable and 5000 dpm/100 cm² for fixed beta contamination. No swipe sample or fixed survey result exceeded the action levels for alpha or beta

contamination suggesting that the licensee's control of loose contamination was effective.

Section 3.5.2 of the licensee application states that surface contamination surveys will be conducted prior to release of equipment from radiologically controlled areas. The licensee had a contamination control program in place at the site that included equipment release control. The inspector reviewed the equipment release records from September 8, 2003, through September 15, 2004. No item had been released with contamination above the limits for activity on equipment and structure surfaces as specified in License Condition 33 of the license.

e. Instrument Calibration

At the time of the inspection, the licensee had seven radiological survey instruments calibrated and fully functional available for use. The inspector verified that the survey instruments in use were in calibration. The removable contamination counter was efficiency checked each day prior to use using calibrated check sources and was last serviced by the manufacturer on January 13, 2004. Lapel air samplers were calibrated just prior to use using a flow calibrator. The flow calibrator was calibrated on an annual basis. Equipment removed from service had been clearly tagged out-of-service.

f. Radon Sampling

License application Section 2.1.2 specifies that radon sampling would be conducted on a quarterly basis. Quarterly radon sampling was conducted at seven locations around the site. The sodium reduction building consistently exceeded the action level of 30 picocuries per liter. Sample results varied from 33.2 picocuries per liter (pCi/l) during the fourth quarter of 2003 to 44.4 pCi/l for the third quarter of 2003. Condition reports were issued for every sampling event when the action level exceeded 30 pCi/l. The average radon concentration for 2003 was 38.1 pCi/l in the sodium reduction building. This building was used to house and store bagged pond material and WIP. The building was posted as an airborne radiation area and a special work permit was required for entry into the building. Posting requirements have not changed since the previous inspection. The building was controlled by lock and key and safety work permits were required prior to entering the building.

g. Radiation Protection Program Reviews

License application Section 2.1.2 specifies that a radiation safety committee be established and meet quarterly. In addition, the radiation safety committee was to review and evaluate data from the previous 18 months for trending analysis. This was performed annually as a requirement of Section 2.1.2 of the license application. The committee met at least quarterly through August 2004. The inspector reviewed the meeting minutes through August 2004. The committee discussed relevant issues including documentation which verified no upward trends.

A review of the content and implementation of the licensee's radiation protection program was required annually by 10 CFR 20.1101. The licensee conducted the

2003 review in March 2004. The review appeared to be thorough and included all program areas.

2.3 Conclusions

Occupational exposures were below regulatory limits. Site tours confirmed that security and control of radioactive material were adequate. Contamination control efforts were effective. Radiation survey instruments in use were operable and within their calibration interval. The radiation safety committee had met quarterly as required. The licensee implemented a radiation protection program that met the requirements established in 10 CFR Part 20 and the license.

3 Inspection of Transportation Activities (86740)

3.1 Inspection Scope

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

3.2 Observations and Findings

Raw material and product sampling requirements are provided in Section 3.5.11 of the license application. There were no off site shipments of radioactive material since the last inspection. The only movement of WIP material was to perform water extraction experiments from material in pond 3 for waste acceptance criteria. The movement of WIP material was limited to on site activities.

3.3 Conclusions

The licensee had not shipped any radioactive material off site since the last inspection.

4 Radioactive Waste Management (88035)

4.1 Inspection Scope

The inspector interviewed licensee representatives, toured the radioactive waste storage area, and reviewed applicable records related to radioactive waste management to determine if the licensee had established and maintained an effective program.

4.2 Observations and Findings

The requirements for temporary storage of licensed material was provided in Section 3.6 of the license application and License Condition 25. The inspector observed and toured five radioactive waste storage locations:

- a. There were 180 55-gallon polyvinyl chloride drums of contaminated concrete debris material stored at a temporary storage area located outdoors behind the thermite building. The containers were on pallets, and were properly covered with plastic and contained within a bermed concrete pad as required by license condition 25.
- b. The sodium reduction building is treated as a temporary storage area. The sodium reduction building housed approximately 15 55-gallon drums of work-in-progress material containing uranium and precious metal material extracted from the process equipment when the facility shut down in 2001. In addition, the building housed super sacs which contained residue remediated from Pond 5. The bags were stored on pallets inside the building. This material was all above the action levels for soils (14.1 pCi/g uranium, 10.1 pCi/g thorium and 37 pCi/g actinium-228).
- c. The third area was the bone yard on a back pad behind the Chem C building. The potentially contaminated scrap metal material was segregated and surveyed. Metal pieces measuring greater than twice the background established by the licensee (40-45 cpm), were moved to an adjacent concrete pad area.
- d. A stockpile for soil above the action level was located next to the R & D building. The stockpile was covered with poly-vinyl and properly marked. Radiological surveys conducted by the inspector using the Ludlum Model 19 survey instrument noted that the exposure rate measurements of soil stockpile material did not exceed twice background.
- e. The last area toured were ponds 2 & 3. Pond 2 located behind the Chem C building was covered with approximately 16-24 inches of top soil. Pond 3 was exposed but contained within a 5-10 foot berm.

All areas were properly posted with caution radioactive material signs or airborne radioactive material areas. The inspector noted that the licensee was storing the waste product in accordance with the license requirements.

4.3 Conclusions

The licensee was maintaining control of the radioactive waste material in storage at the site. All radioactive material storage areas were protected and controlled within the site boundary in accordance with requirements. All storage areas displayed proper radiological posting/labeling as required. The radioactive waste programs had been conducted in accordance with the license and regulatory requirements. The licensee

had effectively implemented the license requirements related to the management of radioactive waste.

5 Environmental Protection (88045)

5.1 Inspection Scope

The inspector reviewed the licensee's program to control, monitor, and quantify releases of radioactive material to the environment to determine if the program was effectively implemented per regulatory and license requirements.

5.2 Observations and Findings

The environmental and effluent monitoring program requirements are specified in Section 3.5.6 of the license application. The program consisted of liquid effluent monitoring, groundwater monitoring, and air sampling. The inspector examined the licensee's sample results for 2003 and portions of 2004 to determine if radioactive material was being released into the environs of the site.

Plant liquid effluents were discharged from Pond 6 to the Arkansas River through Outfall 001. All other out falls were used solely for the discharge of storm water runoff. The liquids were released in batch modes. The total discharge volume for 2003 was 8.12 million gallons resulting from 41 discharges. The total through July 2004 was 8.233 million gallons resulting from 42 discharge events. Samples were collected during each batch release. The fluid was sampled for gross alpha and beta concentrations. The gross alpha and beta action levels, 15 picocuries per liter and 50 picocuries per liter, respectively, were occasionally exceeded. If the action levels were exceeded, the licensee conducted a followup isotopic analysis of the sample. No sample result exceeded the licensed limit for reportability to the NRC. Further, no sample result exceeded the effluent concentration limits provided in Appendix B to 10 CFR Part 20.

Air particulate samples were collected at six locations; four perimeter stations, an offsite (environmental) station located at the north property boundary, and a background station located at the furthest point west of the property. The air particulate samples were exchanged weekly and analyzed for gross alpha activity. The sample results for October 2002 through September 2004 were reviewed. No sample result exceeded the action level of $4.30E-14$ uCi/ml for gross alpha activity.

Groundwater monitoring consisted of sampling 19 wells and 4 sumps from the interceptor trench. The wells and sumps were sampled quarterly and analyzed for gross alpha and beta concentrations. The wells were also sampled on a semi-annual basis for a number of chemical constituents in accordance with a state permit. The gross alpha and beta action levels were measured and compared to administrative action levels. If the action levels are exceeded, then the licensee was required to conduct an isotopic analysis of the sample. The sample results for September 2002 through August 2004 were reviewed. Based on a random review, the inspector concluded that the licensee collected the required number of groundwater samples and analyzed the samples for the correct radiological and chemical constituents. Selected sample results exceeded the 25 percent action level for uranium isotopes, and condition reports were issued for each

exceedance. For the time interval reviewed, no sample result exceeded the respective 10 CFR Part 20, Appendix B, Table II release limit.

5.3 Conclusion

The environmental and effluent monitoring programs were being implemented in accordance with requirements. No sample result exceeded any regulatory or reporting limit.

6 **Emergency Preparedness/Fire Protection (88050/88055)**

6.1 Inspection Scope

The inspector reviewed the licensee's emergency preparedness program to ensure the program was maintained in a state of operational readiness. The inspector also reviewed the fire protection program to determine whether the licensee had the necessary organization and controls in place to implement the program.

6.2 Observations and Findings

The general safety procedures are provided in Section 3.4 of the license application. The inspector confirmed that the licensee had established a program for responding to emergencies. Emergency procedures had been developed for responding to general emergencies, fire, a radiological accident, a chemical accident, and severe weather. The procedures included instructions on the handling of an injured and contaminated worker, the staffing of emergency response stations, and maintenance of emergency response kits. According to the licensee, emergency response kits were inventoried monthly to ensure that supplies were being maintained in the kits. The licensee also had instructions in place for reporting abnormal or emergency events to outside government agencies.

The solvent extraction organics material was previously removed from the process circuit and was being stored in barrels. With the solvent extraction material in storage, the licensee removed the carbon dioxide fire suppression system from service and placed the system in long-term lay up. The licensee did not have any plans to restore operability of the carbon dioxide fire suppression system since the solvent extraction circuit is not anticipated to ever be put back into service. Portable fire extinguishers were located throughout the site.

The inspector noted that the potential for an operational incident involving licensed material had been reduced because the plant was in suspended operations mode, the solvent extraction circuit had been drained, and most radioactive material was in storage in the ponds or sodium reduction building. Regardless, the licensee continued to maintain a state of readiness for any type of emergency that may occur at the site.

6.3 Conclusions

The licensee had an emergency response and fire protection program in effect that was appropriate for the current mode of plant operation.

7 **Followup (92701)**

(Closed) Inspection Followup Item 040-07580/9902-01: Submittal of a license amendment request for an organizational change

During a previous inspections, the NRC noted that the licensee's onsite organizational structure was not in agreement with license requirements. Specifically, the position of plant operations manager was split into two positions, plant operations manager-process and plant operations manager-mining and utilities. This item was tracked as an inspection follow-up item.

The licensee submitted an updated organizational structure to the NRC as part of the new decommissioning plan. As a result of the licensee filing bankruptcy under Chapter 11 in December 2001, the licensee created FMRI, a subsidiary of Fansteel. Per License Amendment 12, the licensee transferred the license to the new wholly-owned subsidiary of the revised Fansteel, FMRI. FMRI has responsibility for the decommissioning of the Fansteel facility under a new corporate organization. The decommissioning plan was approved December 2003. The inspection follow-up item was closed.

(Opened) Violation 040-07580/0401-01: The failure to commence decommissioning activities by the required date of September 1, 2004, was identified as an apparent violation of License Condition 26.

As of September 21, 2004 no decommissioning activities had been initiated. Representatives from the NRC's Office of Nuclear Materials Safety and Safeguards, the Office of Enforcement, and the Office of General Counsel have been discussing with the licensee, the possibility of confirming corrective actions for this apparent violation through issuance of a Confirmatory Order. The NRC is deferring enforcement action for this apparent violation pending the outcome of those deliberations.

(Opened) Inspection Followup Item 040-07580/0401-01: Submittal of a complete work plan package for contractors.

Although the work plan for Phase I decommissioning was submitted timely under the requirements of License Condition 37(a), since the licensee had not selected a contractor, the package was incomplete. This will remain as an inspection follow-up item (IFI 040-07580/0401-01) until a complete package is submitted for review once the contractors have been selected.

8 Exit Meeting Summary

The inspector reviewed the scope and findings of the inspection during a preliminary exit meeting conducted at the conclusion of the onsite inspection on September 23, 2004. A final telephonic exit was conducted on October 22, 2004, with the president and radiation safety officer of the facility. The licensee identified three documents as proprietary. These documents were clearly labeled "proprietary." The forms were destroyed by the inspector upon completion of this report. The licensee did not identify as proprietary any other information provided to, or reviewed by, the inspector.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Adams, Radiation Technician
F. Dohmann, General Manager
K. Payne, Manager, Regulatory Compliance

INSPECTION PROCEDURES USED

IP 88005	Management Organization and Controls
IP 83822	Radiation Protection
IP 86740	Inspection of Transportation Activities
IP 88035	Radioactive Waste Management
IP 88045	Environmental Protection
IP 88050	Emergency Preparedness
IP 88055	Fire Protection
IP 92701	Followup

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

VIO 040-07580/0401-01 Failure to commence decommissioning activities by the required date of September 1, 2004 as required by License Condition 26.

As of September 21, 2004, no decommissioning activities had been initiated on Ponds 2 & 3. Representatives from the NRC's Office of Nuclear Materials Safety and Safeguards, the Office of Enforcement, and the Office of General Counsel have been discussing with the licensee, the possibility of confirming corrective actions for this apparent violation through issuance of a Confirmatory Order. The NRC is deferring enforcement action for this apparent violation pending the outcome of those deliberations.

Opened

IFI 040-07580/0401-01 Submittal of a complete work plan package for contractors.

Although the work plan for Phase I decommissioning was submitted timely under the requirements of License Condition 37(a), since the licensee had not selected a contractor, the package was incomplete. An inspection follow-up item related to detailed work plans, including work to be performed by contractors and the qualifications of all contractors for the Phase I remediation will remain as an inspection follow-up item until a complete package is submitted for review once the contractors have been selected.

Closed

IFI 040-07580/9902-01 Submittal of a license amendment request for an organizational change.

During a previous inspection, the NRC noted that the licensee's onsite organizational structure was not in agreement with license requirements. Specifically, the position of plant operations manager was split into two positions, plant operations manager-process and plant operations manager-mining and utilities. This item was tracked as an inspection follow-up item.

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Discussed

None

LIST OF ACRONYMS USED

CaF ₂	calcium fluoride
CFR	Code of Federal Regulation
CR	Condition Report
IFI	Inspection Followup Item
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
pCi/L	picocuries per liter
RSO	radiation safety officer