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FMRI, Inc. (Fansteel)

1.0 Site Identification

Type of Site: Complex Decommissioning Site
Location: Muskogee, OK
License No.: SMB-911
Docket No.: 040-07580
License Status: Possession Only License
Project Manager: Greg Chapman

2.0 Site Status Summary

The facility, located in east-central Oklahoma, was owned and operated by Fansteel Inc. (Fansteel), and from 1957–1989 produced tantalum and columbium metals from ores and tin slags (a byproduct of ore smelting). Tantalum metal is mainly used in the electrical/electronics industry for production of tantalum capacitors. Columbium oxide is used for heat-resistant alloys. FMRI, Inc., the current NRC licensee, is a wholly owned subsidiary of Fansteel and was formed in 2004 as part of the Fansteel bankruptcy settlement and reorganization for the sole purpose of decommissioning the site.

The Fansteel site is on 52 ha [110 ac] located along the Arkansas River (Mile 395). It is about 4 km [2.5 mi] northeast of Muskogee, Oklahoma, and 66 km [41 mi] southeast of Tulsa, Oklahoma. The site is in an area zoned for industrial use. There are 15 structures on the site that are used for processing and administration. Buildings associated with the ore-processing activities include the Chemical "C" building, the Chemical "A" building, and the research and development laboratory building. Other important facilities on the site are the groundwater treatment facility, the ore storage pad, and the chemical equipment room. Nine ponds were built for site operations. Ponds 1 and 4 have been closed; Ponds 2 and 3, that contain radioactive process residue have been partially remediated. The remaining ponds contain process waste contaminated primarily with chemical materials.

The Fansteel facility extracted tantalum and columbium from uranium ore, thorium ore, and tin slag feedstock by using an acid digestion process. The digestion process did not specifically extract the uranium and thorium from the ore. The radioactive residues from the operations were disposed in acidic Ponds 2, 3, and 5. Pond 4 was used from 1957 until the sewage was routed to the municipal sewage system in 1979. Subsequently, Pond 3 was constructed over Pond 4 and was used for site operations. Acidic water was stored in Pond 1 from 1957–1979. Pretreatment Ponds 1S and 1N were constructed in 1979 above the original Pond 1 and were used from 1981–1990 to store acidic and ammonia waters, respectively. Powdery fines were later removed from Pond 1S and packaged into drums for sale or recovery as tantalum concentrate. Alkaline process water was treated and passed on to settling Ponds 6, 7, 8, and 9. Water was then discharged over a weir into the Arkansas River in accordance with an Oklahoma Pollutant Discharge Elimination System permit.

Since 1967, the Fansteel facility has operated with license SMB-911 issued by the Atomic Energy Commission (AEC) and its successor, the U.S. Nuclear Regulatory Commission (NRC), because the uranium and thorium concentrations were high enough to cause the ores, slags, and byproducts to be classified as source materials. Plant manufacturing operations terminated in December 1989. From 1989–1996, Fansteel conducted limited site remediation and decommissioning of site areas. During 1990–1992, chemical processing equipment used in the extraction of tantalum and columbium was sold and removed offsite. In 1993, Fansteel conducted a characterization survey to determine existing site contamination. Radioactivity was found throughout the Chemical "C" building, the process ponds, surrounding soils, and groundwater and in isolated areas of other site buildings. Following cleanup activities in 1996, NRC released 14 ha [35 ac] in the northwest portion of the site for

unrestricted use. In 1997, the license was amended so ore, calcium fluoride, and wastewater treatment residues containing uranium and thorium in various site impoundments could be reprocessed and reduced in volume. Fansteel also planned to decommission the site for restricted use in accordance with 10 CFR 20.1403, placing the residue of the reprocessing operations in an on-site cell. From 1999–2001, a new chemical extraction process was implemented. In late 2001, Fansteel suspended all operations because of process difficulties and a decline in the price of tantalum, and stated it would remediate the site for release for unrestricted use.

In January 2002, Fansteel filed for bankruptcy protection under Chapter 11. Subsequently, NRC drew on the existing financial assurance instruments totaling about \$4.5 million and placed the funds in a standby trust. Later in 2002, Fansteel applied for a license renewal, but NRC denied the renewal application because the required decommissioning financial assurance was not provided and the license expired although it is continued in accordance with 10 CFR 40.42(c). In January 2003, Fansteel submitted a decommissioning plan (DP) that NRC rejected. Following several discussions, in July 2003, Fansteel submitted a revised DP, a request for exemption from financial assurance requirements, and authorization to transfer the license to a subsidiary (FMRI, Inc.) as part of the bankruptcy reorganization plan. The financial assurance was to be provided by three unsecured promissory notes. A Primary Note of \$30.6 million provided \$700,000 twice per year with a balloon payment of the balance due December 31, 2013. A Secondary Note of \$4.2 million provided \$282,000 per year starting in January 2009. A contingent note was to be valued at the completion of Phase 3 of the DP. The DP outlined a four-phase approach that first addressed remediation of the most risk-significant areas. Phase 1 of the DP, which has not been completed, stated that the residues in Ponds 2 and 3 must be removed offsite and sent to the White Mesa facility, which Dennison Mines operates near Blanding, Utah. Phase 2 of the DP, was to remediate Ponds 5, 6, 7, 8, and 9. Phase 3 was to remediate buildings, equipment, and soils; and Phase 4 is to remediate the groundwater. Phases 1–3 were planned to be done in sequence; Phase 4 is ongoing and will continue until groundwater meets regulatory standards. NRC approved these requests in December 2003. The residue from Pond 3 was dried, bagged, and shipped between 2005 and 2016. A portion of Pond 2 has been excavated and similarly dispensed or are in on-site storage. While FMRI has made progress towards site decommissioning since 2003, it is significantly behind its originally approved schedule. By 2013, Fansteel had difficulties meeting its financial obligations to FMRI and Fansteel/FMRI operated under a series of Forbearance Agreements with the NRC, the Department of Justice (DOJ), and Oklahoma Department of Environmental Quality (ODEQ) from 2014 until 2016.

In September 2016, Fansteel again filed for bankruptcy protection under Chapter 11. Fansteel has sold nearly all of its assets in the course of the second bankruptcy and some of the proceeds of these sales have gone toward the Muskogee site's decommissioning. Fansteel is still in bankruptcy and is still in negotiations with the NRC, the U.S. Environmental Protection Agency (EPA), and the ODEQ to reach a settlement of its decommissioning and other environmental obligations. FMRI, which is funded by Fansteel but has not filed for bankruptcy, is insolvent but still receives funding from Fansteel sufficient to assure public health and safety and secure the site.

In the summer of 2018, the EPA performed a removal action at the site to disposition legacy laboratory waste and a tank of ammonia hydroxide. In 2019, the EPA is performing an expanded site investigation to score the site and assess its hazard ranking to determine whether the site may be added to the National Priorities List (NPL) pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). The EPA estimates that it will complete its assessment of the site in the Spring of 2020.

3.0 Major Technical or Regulatory Issues

FMRI's original schedule showed completion of Phase 1 decommissioning by March 31, 2006; however, it still has not completed Phase 1. The NRC recognizes that any remediation schedule will be limited by Fansteel's ability to fund FMRI's operations and the funds available in the second bankruptcy.

In 2012/2013, Fansteel continued to have difficulty meeting its obligations to FMRI. In order to facilitate ongoing remediation, beginning in 2014, the NRC, DOJ, and ODEQ entered into a series of Forbearance Agreements with Fansteel and FMRI that detailed financial and technical expectations while offering Fansteel temporary financial relief. Despite these and other actions taken by Fansteel, in September of 2016, Fansteel again filed for bankruptcy protection under Chapter 11. In April of 2017, during the second bankruptcy, Fansteel stopped funding FMRI and the site was at imminent risk of abandonment. On July 14, 2017, the NRC staff issued Order EA-17-102 to make Fansteel and FMRI co-licensees on license SMB-911, and therefore, both Fansteel and FMRI were obligated to

provide reasonable assurance of public health and safety at the site. This Order was relaxed on July 26, 2017 because Fansteel and its creditors agreed, consistent with a joint stipulation filed in the Iowa bankruptcy court, to again provide funding to FMRI sufficient to assure public health and safety at the site. Mediation among Fansteel, the NRC, EPA, and ODEQ concerning decommissioning and other environmental obligations is ongoing.

The EPA performed a removal action in 2018 and is performing an expanded site investigation in 2019 with the results anticipated in spring of 2020. The results of the investigation will determine if the site will be added to the NPL.

Separately, in July, 2008, the ODEQ sent a letter to FMRI stating that FMRI was not in compliance with its OPDES permit conditions, and it must either close Ponds 6 and 7, line them with an approved synthetic material, or conduct additional groundwater monitoring east of the interceptor trench, including in the bedrock, by May 2010. The schedule for these activities is consistent with Phases 1 and 2 of the approved site DP, including revisions through 2006. However, because of delays in Pond 2 and 3 remediation, there are resulting delays in addressing Ponds 5 – 9.

There is high public interest from the State of Oklahoma, the Cherokee Nation, the Muscogee (Creek) Nation, and the Port of Muskogee.

4.0 Estimated Date For Closure

TBD

Page Last Reviewed/Updated Friday, April 12, 2019