TECHNICAL EVALUATION REPORT
REQUEST TO RECEIVE AND PROCESS
ALTERNATE FEED MATERIAL FROM FMRI, Inc

LICENSE NO.: UT 1900479
LICENSEE: International Uranium (IUSA) Corporation
FACILITY: White Mesa Uranium Mill
DATE: March 7, 2005
TECHNICAL APPROVALS: Dane Finerfrock -- Director, Division of Radiation Control
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TECHNICAL REVIEWERS: Jonathan Cook – Environmental Engineer
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SUMMARY AND CONCLUSIONS

We have reviewed International Uranium (USA) Corporation’s (IUSA’s) license amendment application dated March 7, 2005, supplemented by letter dated April 1, 2005, to amend its Utah Material License UT 1900479, to allow its White Mesa Uranium Mill near Blanding, Utah, to receive and process up to 32,000 dry tons of Uranium Material. These materials would be used as “alternate feed material”. FMRI estimates that the total volume of Uranium Material is only expected to be approximately 16,000 dry tons (of which approximately 45% is expected to be from Pond 2 and surrounding areas and approximately 55% is expected to be from Pond 3 and surrounding areas). However since preliminary estimates could increase by up to approximately 100% during the removal process, the approval of up to 32,000 dry tons of Uranium Material is requested to ensure that all the Uranium Material is covered by this Amendment.

We have reviewed IUSA’s request using the requirements as codified in the Radiation Control Act, Utah Code Title 19 Chapter 3, Utah Administrative Rules R313; the Code of Federal Regulations, NRC guidance documents and the IUSA license application, as amended.
1. DESCRIPTION OF LICENSEE'S AMENDMENT REQUEST

From 1960 to 1989, Fansteel, Inc. ("Fansteel") processed natural ores for recovery of tantalum and niobium, at the Muskogee facility. FMRI is a subsidiary of Fansteel.

Before it was shut down in 1989, the Muskogee facility purchased tantalum ore and tin slag from around the world. This feed material was leached in concentrated hydrofluoric acid and sulfuric acid, the tantalum and niobium was dissolved in the solution and the insoluble fluoride compounds such as thorium, radium and uranium remained behind in the solids. These solids were filtered and collected in Ponds 2 and 3. The leached solids sent to Ponds 2 and 3 were highly variable and contained on average approximately 0.8% tantalum (Ta) and 0.17% U₃O₈. The variability was related to the leach efficiency of tantalum at that time as seen by the swings in tantalum concentration throughout the ponds. The digestion step consisted of concentrated hydrofluoric acid and some sulfuric acid. The solids in ponds 2 and 3 consist mainly of the residual metal impurities in the fluoride form.

FMRI estimates that the total volume of Uranium Material is expected to be approximately 16,000 dry tons (of which approximately 45% is expected to be from Pond 2 and surrounding areas and approximately 55% is expected to be from Pond 3 and surrounding areas). According to FMRI personnel, and based on IUSA's past experience with alternate feed materials in similar situations, this preliminary estimate could increase by up to approximately 100% during the removal process. Therefore, this request for Amendment is for approval of up to 32,000 dry tons of Uranium Material, to ensure that all the Uranium Material is covered by this Amendment.

2. TECHNICAL EVALUATION

The request has been reviewed in accordance with UAC R313, NRC staff guidance entitled, "Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores" provided in the NRC Regulatory Issue Summary 2000-23, and 10 CFR Part 40, Appendix A requirements. The NRC guidance "Alternate Feed Guidance"

The following determinations were evaluated:
A) Whether the feed material qualifies as "ore" as defined in the NRC guidance for alternate feed;
B) Whether the feed material contains listed hazardous waste; and
C) Whether the feed material is being processed primarily for its source-material content.

A) Determination of whether the feed material is "ore"
Based on IUSA declarations documented in the June 22, 2005 submittal, the FMRI Material will be processed for the recovery of uranium at the Mill. Based on the uranium content of the Uranium Material, its physical and chemical characteristics, it is reasonable to expect that uranium can be recovered from the Uranium Material. As a result, the Uranium Material is an ore that will be processed primarily for the recovery of source material, and the tailings resulting from processing the Uranium Material will therefore be 11e.(2) byproduct material under the definition set out in 10CFR40.4.

B) Determination of whether the feed material contains hazardous waste
Under the Alternate Feed Guidance, proposed feed material for processing at a licensed mill that contains a listed hazardous waste is not allowed. The purpose of this is to avoid dual regulation over the material at the Mill site.

The IUSA amendment request addresses several measures that provide assurance that listed hazardous wastes will not be processed at the White Mesa mill. First, IUSA conducted its own review of information on potential listed hazardous wastes in existing FMRI documents. Second, IUSA also hired an independent consultant to review available information and perform a separate review for classifying FMRI chemical and physical properties and determining which may contain listed hazardous waste. The consultant’s analysis was included in the license amendment request.

C) Determination of whether the feed material is being processed primarily for its source-material content

On page 12 of the license amendment request states that you may consider recovering tantalum or other metals in addition to the uranium product in the alternate feed. In the NRC memorandum “Redistribution of NRC Regulatory Issue Summary 2000-23 Recent Changes to Uranium Recovery Policy: dated April 19, 2001, the NRC includes criteria for determine whether or not or not a non-natural ore can be process as an alternate feed. Criteria 3 states:

“... the ore must be processed primarily for its source-material content. If the only product produced in the processing of the alternate feed is uranium product, this determination is satisfied. If in addition to uranium to uranium product, another material is also produced in the processing of the ore, the licensee must provide documentation showing that the uranium product is the primary produced.”

The DRC sent a letter wherein we requested that the licensee should also be aware that if another material is produced with any economic value, the Licensee must notify the DRC of this changed condition. In the June 22, 2005 response, the licensee acquiesced to this condition fulfilling this requirement.

3. Transportation Considerations
The Uranium Material will be shipped as Radioactive LSA II (low specific activity) Hazardous Material as defined by DOT regulations.

For the following reasons, it is not expected that transportation impacts associated with the movement of the Uranium Material by train and truck from the Muskogee facility to the Mill will be significant:

From a radiologic standpoint, the Uranium Material is well within the bounds of other ores and alternate feed materials licensed for processing at the Mill.

It is not expected any impacts associated with the movement of the Uranium Material by train from the Muskogee facility and trucked to the Mill will be significant. This is due to:

1) the small volume of material shipped over a length of time
2) Use of poly-lined fabric bags with a 5:1 safety factor
3) Large Sea/Lander containers providing secondary containment

Because the Uranium Material is an ore that contains greater than 0.05% source material, the Uranium Material is exempt from RCRA under 40 CFR 261.4(a)(4). In addition, based on the site history, the determinations by FMRI, and the analysis of IUSA’s independent expert consultant,
IUSA has also concluded that, even if not exempted from RCRA under 40 CFR 261.4(a)(4), on the application of the Listed Hazardous Waste Protocol, Uranium Material from the Muskogee facility would not be listed hazardous waste subject to RCRA.

References

"Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores".