UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 27, 2000

Ms. Michelle Rehmann, Environmental Manager
International Uranium (USA) Corporation
Independence Plaza, Suite 950
1050 Seventeenth Street
Denver, Colorado 80265

SUBJECT: AMENDMENT 17 TO MATERIALS LICENSE SUA-1358 -- APPROVAL TO RECEIVE AND PROCESS ALTERNATE FEED MATERIAL FROM THE W.R. GRACE SITE AT THE WHITE MESA URANIUM MILL

Dear Ms. Rehmann:

In your letter dated April 12, 2000, you asked that we amend your license for the White Mesa uranium mill to permit the receipt and processing of material removed from the W.R. Grace site located in Chattanooga, Tennessee. This site is being remediated under the authority of the State of Tennessee and is licensed by the Division of Radiological Health under source material license S-3306-E9. You propose to receive this material at your White Mesa uranium mill in Blanding, Utah, remove the uranium so that it can be reused, and dispose of the process tailings in the mill's tailings pile. You have requested to receive and process for its uranium content 140,000 cubic yards (CY) of material from the W.R. Grace Site. You have determined that this material does not contain listed hazardous wastes as defined by subpart D of the Resource Conservation and Recovery Act (RCRA). As indicated in the license condition below, this material can not be received by the mill until adequate cell space is available in accordance with your standard operating procedure for determination of available tailings capacity as indicated in your November 16, 2000 letter. In approving the W.R. Grace request, we have added the following license condition to your license:

10.15 The licensee is authorized to receive and process source material from the W.R. Grace site located in Chattanooga, Tennessee, in accordance with statements, representations, and commitments contained in the amendment request dated April 12, 2000, and as amended and supplemented by submittals dated April 24, 2000, April 26, 2000, May 5, 2000, November 16, 2000, and December 18, 2000.

Prior to the licensee receiving materials from the W.R. Grace site, the licensee must make a determination that adequate tailings space is available for the tailings produced from the processing of this material. This determination shall be made based on the SERP approved standard operating procedure for determination of tailings capacity. Design changes to the cells or the reclamation plan require the licensee to submit an amendment request for NRC review and approval.

Prior to the licensee receiving materials from the W.R. Grace site, the licensee must require that the generator of the material certify that the material does not contain listed hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) per a Radioactive Material Profile Record.

[Applicable Amendment: 17]

If you have any questions regarding this letter or the enclosures, please contact William von Till, the NRC Project Manager for the White Mesa mill, at (301) 415-6251 or by electronic mail at rwv@nrc.gov.

Sincerely,

Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No. 40-8681
SUA-1358, Amendment No. 17

Enclosures: Technical Evaluation Report and Source Material License SUA-1358

cc: Bill Sinclair, State of Utah
J. Graves, State of Tennessee
C.Crist, Ute Mountain Ute Tribe EPA
Terry Brown, US EPA Region VIII

If you have any questions regarding this letter or the enclosures, please contact William von Till, the NRC Project Manager for the White Mesa mill, at (301) 415-6251 or by electronic mail at rwv@nrc.gov.

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/ S /

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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.	International Uranium (USA) Corporation [Applicable Amendments: 2]	3. License Number: SUA-1358, Amendment No. 17
2.	6425 S. Highway 191 P.O. Box 809 Blanding, Utah 84511 [Applicable Amendments: 2]	4. Expiration Date: March 31, 2007 5. Docket or Reference No.: 40-8681

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	Any	Unlimited

SECTION 9: Administrative Conditions

9.1 The authorized place of use shall be the licensee's White Mesa uranium milling facility, located in San Juan County, Utah.

9.2 All written notices and reports to the NRC required under this license, with the exception of incident and event notifications under 10 CFR 20.2202 and 10 CFR 40.60 requiring telephone notification, shall be addressed to the Chief, Uranium Recovery and Low-Level Waste Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards.

Incident and event notifications that require telephone notification shall be made to the NRC Operations Center at (301) 816-5100.

9.3 The licensee shall conduct operations in accordance with statements, representations, and conditions contained in the license renewal application submitted by letter dated August 23, 1991, as revised by submittals dated January 13, and April 7, 1992, November 22, 1994, July 27, 1995, December 13, and December 31, 1996, and January 30, 1997, which are hereby incorporated by reference, and for the Standby Trust Agreement, dated April 29, 1997, except where superseded by license conditions below.

Whenever the word "will" is used in the above referenced documents, it shall denote a requirement.

[Applicable Amendment: 2]

9.4 A. The licensee may, without prior NRC approval, and subject to the conditions specified in Part B of this condition:

(1) Make changes in the facility or process, as presented in the application.

(2) Make changes in the procedures presented in the application.

(3) Conduct tests or experiments not presented in the application.

B. The licensee shall file an application for an amendment to the license, unless the following conditions are satisfied.

(1) The change, test, or experiment does not conflict with any requirement specifically stated in this license, or impair the licensee's ability to meet all applicable NRC regulations.

(2) There is no degradation in the essential safety or environmental commitments in the license application, or provided by the approved reclamation plan.

(3) The change, test, or experiment is consistent with the conclusions of actions analyzed and selected in the EA dated February 1997.

C. The licensee's determinations concerning Part B of this condition, shall be made by a "Safety and Environmental Review Panel (SERP)." The SERP shall consist of a minimum of three individuals. One member of the SERP shall have expertise in management and shall be responsible for managerial and financial approval changes; one member shall have expertise in operations and/or construction and shall have responsibility for implementing any operational changes; and, one member shall be the corporate radiation safety officer (CRSO) or equivalent, with the responsibility of assuring changes conform to radiation safety and environmental requirements. Additional members may be included in the SERP as appropriate, to address technical aspects such as health physics, groundwater hydrology, surface-water hydrology, specific earth sciences, and other technical disciplines. Temporary members or permanent members, other than the three above-specified individuals, may be consultants.

D. The licensee shall maintain records of any changes made pursuant to this condition until license termination. These records shall include written safety and environmental evaluations, made by the SERP, that provide the basis for determining changes are in compliance with the requirements referred to in Part B of this condition. The licensee shall furnish, in an annual report to NRC, a description of such changes, tests, or experiments, including a summary of the safety and environmental evaluation of each. In addition, the licensee shall annually submit to the NRC changed pages to the Operations Plan and Reclamation Plan of the approved license application to reflect changes made under this condition.

The licensee's SERP shall function in accordance with the standard operating procedures submitted by letter dated June 10, 1997.

[Applicable Amendments: 3]

9.5 The licensee shall maintain an NRC-approved financial surety arrangement, consistent with 10 CFR 40, Appendix A, Criteria 9 and 10, adequate to cover the estimated costs, if accomplished by a third party, for decommissioning and decontamination of the mill and mill site, for reclamation of any tailings or waste disposal areas, ground-water restoration as warranted and for the long-term surveillance fee. Within three months of NRC approval of a revised reclamation/decommissioning plan, the licensee shall submit, for NRC review and approval, a proposed revision to the financial surety arrangement if estimated costs in the newly approved plan exceed the amount covered in the existing financial surety. The revised surety shall then be in effect within 3 months of written NRC approval.

Annual updates to the surety amount, required by 10 CFR 40, Appendix A, Criteria 9 and 10, shall be submitted to the NRC at least 3 months prior to the anniversary date which is designated as June 4 of each year. If the NRC has not approved a proposed revision to the surety coverage 30 days prior to the expiration date of the existing surety arrangement, the licensee shall extend the existing surety arrangement for 1 year. Along with each proposed revision or annual update, the licensee shall submit supporting documentation showing a breakdown of the costs and the basis for the cost estimates with adjustments for inflation, maintenance of a minimum 15 percent contingency fee, changes in engineering plans, activities performed and any other conditions affecting estimated costs for site closure. The basis for the cost estimate is the NRC approved reclamation/decommissioning plan or NRC approved revisions to the plan. The previously provided guidance entitled "Recommended Outline for Site Specific Reclamation and Stabilization Cost Estimates" outlines the minimum considerations used by the NRC in the review of site closure estimates. Reclamation/decommissioning plans and annual updates should follow this outline.

The currently approved surety instrument, a Performance Bond issued by National Union Fire Insurance Company in favor of the NRC, and the associated Standby Trust Agreement, dated April 29, 1997, shall be continuously maintained in an amount not less than $10,064,794 for the purpose of complying with 10 CFR 40, Appendix A, Criteria 9 and 10, until a replacement is authorized by the NRC.

[Applicable Amendments: 2, 3, 5, 13, 15]

Therefore, this office must receive an updated surety in this amount within 90 days of this letter.

9.6 Standard operating procedures shall be established and followed for all operational process activities involving radioactive materials that are handled, processed, or stored. SOPs for operational activities shall enumerate pertinent radiation safety practices to be followed. Additionally, written procedures shall be established for non-operational activities to include in-plant and environmental monitoring, bioassay analyses, and instrument calibrations. An up-to-date copy of each written procedure shall be kept in the mill area to which it applies.

All written procedures for both operational and non-operational activities shall be reviewed and approved in writing by the radiation safety officer (RSO) before implementation and whenever a change in procedure is proposed to ensure that proper radiation protection principles are being applied. In addition, the RSO shall perform a documented review of all existing operating procedures at least annually.

9.7 Before engaging in any activity not previously assessed by the NRC, the licensee shall administer a cultural resource inventory. All disturbances associated with the proposed development will be completed in compliance with the National Historic Preservation Act (as amended) and its implementing regulations (36 CFR 800), and the Archaeological Resources Protection Act (as amended) and its implementing regulations (43 CFR 7).

In order to ensure that no unapproved disturbance of cultural resources occurs, any work resulting in the discovery of previously unknown cultural artifacts shall cease. The artifacts shall be inventoried and evaluated in accordance with 36 CFR Part 800, and no disturbance shall occur until the licensee has received authorization from the NRC to proceed.

The licensee shall avoid by project design, where feasible, the archeological sites designated "contributing" in the report submitted by letter dated July 28, 1988. When it is not feasible to avoid a site designated "contributing" in the report, the licensee shall institute a data recovery program for that site based on the research design submitted by letter from C. E. Baker of Energy Fuels Nuclear to Mr. Melvin T. Smith, Utah State Historic Preservation Officer (SHPO), dated April 13, 1981.

The licensee shall recover through archeological excavation all "contributing" sites listed in the report which are located in or within 100 feet of borrow areas, stockpile areas, construction areas, or the perimeter of the reclaimed tailings impoundment. Data recovery fieldwork at each site meeting these criteria shall be completed prior to the start of any project related disturbance within 100 feet of the site, but analysis and report preparation need not be complete.

Additionally, the licensee shall conduct such testing as is required to enable the Commission to determine if those sites designated as "Undetermined" in the report and located within 100 feet of present or known future construction areas are of such significance to warrant their redesignation as "contributing." In all cases, such testing shall be completed before any aspect of the undertaking affects a site.

Archeological contractors shall be approved in writing by the Commission. The Commission will approve an archeological contractor who meets the minimum standards for a principal investigator set forth in 36 CFR Part 66, Appendix C, and whose qualifications are found acceptable by the SHPO.

9.8 The licensee is hereby authorized to possess byproduct material in the form of uranium waste tailings and other uranium byproduct waste generated by the licensee's milling operations authorized by this license. Mill tailings shall not be transferred from the site without specific prior approval of the NRC in the form of a license amendment. The licensee shall maintain a permanent record of all transfers made under the provisions of this condition.

9.9 The licensee is hereby exempted from the requirements of Section 20.1902 (e) of 10 CFR Part 20 for areas within the mill, provided that all entrances to the mill are conspicuously posted in accordance with Section 20.1902 (e) and with the words, "Any area within this mill may contain radioactive material."

9.10 Release of equipment or packages from the restricted area shall be in accordance with "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted

Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated May 1987, or suitable alternative procedures approved by the NRC prior to any such release.

9.11 The final reclamation shall be in accordance with the May 1999, Reclamation Plan Revision 2.0, Attachment A submitted on June 22, 1999, and Revision 3.0 submitted on July 7, 2000. Prior to the placement of alternate feed material, the licensee shall determine that adequate cell space is available for that additional material. This determination shall be made by a SERP approved procedure.

SECTION 10: Operational Controls, Limits, and Restrictions

10.1 The mill production rate shall not exceed 4380 tons of yellowcake per year.

10.2 All liquid effluents from mill process buildings, with the exception of sanitary wastes, shall be returned to the mill circuit or discharged to the tailings impoundment.

10.3 Freeboard limits for Cells 1-I, 3, and 4A, shall be set periodically in accordance with the procedures set out in Section 3.0 to Appendix E of the approved license application, including the October 13, 1999 revisions made to the January 10, 1990 Drainage Report. The freeboard limit for Cell 3 shall be recalculated annually in accordance with the procedures set in the October 13, 1999 revision to the Drainage Report.

[Applicable Amendment: 16]

10.4 Disposal of material and equipment generated at the mill site shall be conducted as described in the licensee's submittals dated December 12, 1994 and May 23, 1995, with the following addition:

A. The maximum lift thickness for materials placed over tailings shall be less than 4-feet thick. Subsequent lifts shall be less than 2-feet thick. Each lift shall be compacted by tracking of heavy equipment, such as a Cat D-6, at least 4 times prior to placement of subsequent lifts.

10.5 In accordance with the licensee's submittal dated May 20, 1993, the licensee is hereby authorized to dispose of byproduct material generated at licensed in situ leach facilities, subject to the following conditions:

A. Disposal of waste is limited to 5000 cubic yards from a single source.

B. All contaminated equipment shall be dismantled, crushed, or sectioned to minimize void spaces. Barrels containing waste other than soil or sludges shall be emptied into the disposal area and the barrels crushed. Barrels containing soil or sludges shall be verified to be full prior to disposal. Barrels not completely full shall be filled with tailings or soil.

C. All waste shall be buried in Cell No. 3 unless prior written approval is obtained from the NRC for alternate burial locations.

D. All disposal activities shall be documented. The documentation shall include descriptions of the waste and the disposal locations, as well as all actions required by this condition. An annual summary of the amounts of waste disposed of from off-site generators shall be sent to the NRC.

10.6 The licensee is authorized to receive and process source materials from the Allied Signal Corporation's Metropolis, Illinois, facility in accordance with the amendment request dated June 15, 1993.

10.7 The licensee is authorized to receive and process source material from Allied Signal, Inc. of Metropolis, Illinois, in accordance with the amendment request dated September 20, 1996, and amended by letters dated October 30, and November 11, 1996.

10.8 The licensee is authorized to receive and process source material, in accordance with the amendment request dated March 5, 1997.

[Applicable Amendments: 1]

10.9 The licensee is authorized to receive and process source material from Cabot Performance Materials' facility near Boyertown, Pennsylvania, in accordance with the amendment request dated April 3, 1997, as amended by submittals dated May 19, and August 6, 1997.

[Applicable Amendments: 4]

10.10 The licensee is authorized to receive and process source material from the Ashland 2 Formerly Utilized Sites Remedial Action Program (FUSRAP) site, located near Tonawanda, New York, in accordance with the amendment request dated May 8, 1998, as amended by the submittals dated May 27, June 3, and June 11, 1998.

[Applicable Amendment: 6]

10.11 The licensee is authorized to receive and process source material from Cameco Corporation's Blind River and Port Hope facilities, located in Ontario, Canada, in accordance with the amendment request dated June 4, 1998, and by the submittals dated September 14, September 16, September 25, October 7, and October 8, 1998.

However, the licensee is not authorized to receive or process from these facilities, the crushed carbon anodes identified in these submittals, either as a separate material or mixed in with material already approved for receipt or processing.

10.12 The licensee is authorized to receive and process source material from the Ashland 1 and Seaway Area D Formerly Utilized Sites Remedial Action Program (FUSRAP) site, located near Tonowanda, New York, in accordance with statements, representations, and commitments contained in the amendment request dated October 15, 1998, as amended by letters dated November 23, 1998, November 24, 1998, December 23, 1998, January 11, 1999, January 27, 1999, and February 1, 1999.

[Applicable Amendment: 10]

License Number SUA-1358, Amendment No. 17

Docket or Reference Number 40-8681

MATERIALS LICENSE
SUPPLEMENTARY SHEET

10.13 The licensee is authorized to receive and process source material from the St. Louis Formerly Utilized Sites Remedial Action Program (FUSRAP) site, in accordance with statements, representations, and commitments contained in the amendment request dated March 2, 1999, and as amended and supplemented by submittals dated June 21, 1999; June 29, 1999 (2); and July 8, 1999. Prior to the licensee receiving materials from the St. Louis FUSRAP site, the licensee must make a determination that adequate tailings space is available for the tailings produced from the processing of this material. This determination shall be made based on a SERP approved internal procedure.

[Applicable Amendments: 13, 14]

10.14 The licensee is authorized to receive and process source material from the Linde Formerly Utilized Sites Remedial Action Program (FUSRAP) site, in accordance with statements, representations, and commitments contained in the amendment request dated March 16, 2000, and as amended and supplemented by submittals dated April 26, 2000, May 15, 2000, June 16, 2000, June 19, 2000, June 23, 2000.

Prior to the licensee receiving materials from the Linde FUSRAP site, the licensee must make a determination that adequate tailings space is available for the tailings produced from the processing of this material. This determination shall be made based on a SERP approved internal procedure. Design changes to the cells or the reclamation plan require the licensee to submit an amendment request for NRC review and approval.

Prior to the licensee receiving materials from the Linde FUSRAP site, the licensee must require that the generator of the material certify that the material does not contain listed hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) per a Radioactive Material Profile Record.

[Applicable Amendment: 14]

10.15 The licensee is authorized to receive and process source material from the W.R. Grace site located in Chattanooga, Tennessee, in accordance with statements, representations, and commitments contained in the amendment request dated April 12, 2000, and as amended and supplemented by submittals dated April 24, 2000, April 26, 2000, May 5, 2000, November 16, 2000, and December 18, 2000.

Prior to the licensee receiving materials from the W.R. Grace site, the licensee must make a determination that adequate tailings space is available for the tailings produced from the processing of this material. This determination shall be made based on the SERP approved standard operating procedure for determination of tailings capacity. Design changes to the cells or the reclamation plan require the licensee to submit an amendment request for NRC review and approval.

Prior to the licensee receiving materials from the W.R. Grace site, the licensee must require that the generator of the material certify that the material does not contain listed hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) per a Radioactive Material Profile Record.

[Applicable Amendment: 17]

License Number SUA-1358, Amendment No. 17

Docket or Reference Number 40-8681

MATERIALS LICENSE
SUPPLEMENTARY SHEET

SECTION 11: Monitoring, Recording, and Bookkeeping Requirements

11.1 The results of sampling, analyses, surveys and monitoring, the results of calibration of equipment, reports on audits and inspections, all meetings and training courses required by this license and any subsequent reviews, investigations, and corrective actions, shall be documented. Unless otherwise specified in the NRC regulations all such documentation shall be maintained for a period of at least five (5) years.

11.2 The licensee shall implement the effluent and environmental monitoring program specified in Section 5.5 of the renewal application, as amended by the submittal dated June 8, 1995, and as revised with the following modifications or additions:

A. Stack sampling shall include a determination of flow rate.

B. Surface water samples shall also be analyzed semiannually for total and dissolved U-nat, Ra-226, and Th-230, with the exception of the Westwater Creek, which shall be sampled annually for water or sediments and analyzed as above. A sediment sample shall not be taken in place of a water sample unless a water sample was not available.

C. Groundwater sampling shall be conducted in accordance with the requirements in License Condition 11.3.

D. The licensee shall utilize lower limits of detection in accordance with Section 5 of Regulatory Guide 4.14 (Revision 1), for analysis of effluent and environmental samples.

E. The inspections performed semiannually of the critical orifice assembly committed to in the submittal dated March 15, 1986, shall be documented. The critical orifice assembly shall be calibrated at least every 2 years against a positive displacement Roots meter to obtain the required calibration curve.

[Applicable Amendment: 5]

11.3 The licensee shall implement a groundwater detection monitoring program to ensure compliance to 10 CFR Part 40, Appendix A. The detection monitoring program shall be in accordance with the report entitled, "Points of Compliance, White Mesa Uranium Mill," submitted by letter dated October 5, 1994, and the following:

A. The licensee shall sample monitoring wells WMMW-5, -11, -12, -14, -15, and -17, on a quarterly basis. Samples shall be analyzed for chloride, potassium, nickel, and uranium, and the results of such sampling shall be included with the environmental monitoring reports submitted in accordance with 10 CFR 40.65.

In addition, the licensee shall implement a monitoring program of the leak detection systems for the disposal cells as follows:

B. The licensee shall measure and record the "depth to fluid" in each of the tailings disposal cell standpipes on a weekly basis. If sufficient fluid is present in the leak detection system (LDS) of any cell, the licensee shall pump fluid from the LDS, to the extent reasonably possible, and

record the volume of fluid recovered. Any fluid pumped from an LDS shall be returned to a disposal cell.

If fluid is pumped from an LDS, the licensee shall calculate the flow rate by dividing the recorded volume of fluid recovered by the elapsed time since fluid was last pumped or increases in the LDS fluid levels were recorded, whichever is the more recent. The licensee shall document the results of this calculation.

C. Upon the initial pumping of fluid from an LDS, the licensee shall collect a fluid sample and analyze the fluid for pH and the parameters listed in paragraph A of this license condition. The licensee shall determine whether the LDS fluid originated from the disposal cell by ascertaining if the collected fluid contains elevated levels of the constituents listed in paragraph A of this license condition or has a pH level less than 5.0. If either elevated constituent levels or a pH less than 5.0 is observed, the licensee shall assume that the disposal cell is the origin of the fluid.

If the LDS fluid is determined not to have originated from the disposal cell, the licensee shall continue with weekly measurements of "depth to fluid" in the LDS standpipes. The licensee shall confirm, on an annual basis, that fluid from the disposal cell has not entered the LDS by collecting (to the extent possible) and analyzing an LDS fluid sample for the above stated parameters.

D. Upon indication that the LDS fluids originated from the disposal cell, the licensee shall determine the flow rate through the liner by the calculation method in paragraph B of this license condition. If the flow rate is equal to or greater than one gallon per minute, the licensee shall:

1. Evaluate the cause of the liner distress and take appropriate and timely actions to mitigate the leak and any consequent potential impacts;

2. Continue to measure and record LDS "depth to fluid" measurements weekly; and

3. Notify NRC by telephone within 48 hours, in accordance with License Condition 9.2, and submit a written report within 30 days of notifying NRC by telephone, in accordance with License Condition 9.2. The written report shall include a description of the mitigative action(s) taken and a discussion of the mitigative action results.

If the calculated flow rate is less than one gallon per minute, the licensee shall continue with weekly measurements of "depth to fluid" in the LDS standpipes.

E. All sampling, analysis, and evaluation of LDS fluids shall be documented and retained onsite until license termination for NRC inspection.

[Applicable Amendment: 8]

11.4 Annually, the licensee shall collect, during mill operations, a set of air samples covering eight hours of sampling, at a high collection flow rate (i.e., greater than or equal to 40 liters per minute), in routinely or frequently occupied areas of the mill. These samples shall be analyzed for gross alpha. In addition, with each change in mill feed material or at least annually, the licensee shall analyze the mill feed or production product for U-nat, Th-230,

Ra-226, and Pb-210 and use the analysis results to assess the fundamental constituent composition of air sample particulates.

[Applicable Amendment: 7]

11.5 Calibration of in-plant air and radiation monitoring equipment shall be performed as specified in the license renewal application, under Section 3.0 of the "Radiation Protection Procedures Manual," with the exception that in-plant air sampling equipment shall be calibrated at least quarterly and air sampling equipment checks shall be documented.

11.6 The licensee shall perform an annual ALARA audit of the radiation safety program in accordance with Regulatory Guide 8.31.

SECTION 12: Reporting Requirements

12.1 DELETED by Amendment 13.

[Applicable Amendment: 13]

12.2 The licensee shall submit a detailed decommissioning plan to the NRC at least twelve (12) months prior to planned final shutdown of mill operations that includes a deailed Quality Assurance Plan. The plan will be in accordance with Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs," and NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), or equivalent most current guidance.

[Applicable Amendment: 13]

FOR THE NUCLEAR REGULATORY COMMISSION

Date Dec. 27, 2000

Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

TECHNICAL EVALUATION REPORT
REQUEST TO RECEIVE AND PROCESS
W.R. GRACE SITE MATERIAL

DOCKET NO.: 40-8681

LICENSE NO.: SUA-1358

LICENSEE: International Uranium (USA) Corporation

FACILITY: White Mesa Uranium Mill

DATE: December 20, 2000

PROJECT MANAGER: William von Till

TECHNICAL REVIEWERS:

William von Till - RCRA and Groundwater
John Lusher - Health Physicist
Dan Rom - Geotechnical Engineer

SUMMARY AND CONCLUSIONS:

We have reviewed International Uranium Corporation's (IUSA's) license amendment application dated April 12, 2000, with supplemental information dated April 24, 2000, April 26, 2000, and May 5, 2000, November 16, 2000, and December 18, 2000 to receive and process uranium-bearing materials from the W.R. Grace site located in Chattanooga, Tennessee. This site is being remediated under the authority of the State of Tennessee and is licensed by the Division of Radiological Health under source material license S-3306-E9. These materials would be used as "alternate feed material". We have reviewed IUSA's request using our formal guidance, "Final Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores" and the Commission's Memorandum and Order, International Uranium (USA) Corp., CLI-00-01, 52 NRC 9 (Feb. 10, 2000). During the review of the submittals, a concern was raised regarding the need for special handling procedures for high thorium content ore material. IUSA in response to this concern, by letter dated December 18, 2000, developed a Standard Operating Procedure, consequently, this issue was adequately addressed. During the review process, available cell space was an issue. This was addressed under a separate TER and license amendment by NRC letter dated July 21, 2000. Therefore, we find the amendment request to be acceptable and have amended the license so that IUSA may receive and process this material. We have conditioned the license such that this material can not be received by the mill until it has been determined that adequate space is available in the tailings cells.

1. DESCRIPTION OF LICENSEE'S AMENDMENT REQUEST

By its submittal dated April 12, 2000, IUSA requested that NRC amend Materials License SUA-1358 to allow the receipt and processing of material other than natural uranium ore (i.e., alternate feed material) at its White Mesa uranium mill located near Blanding, Utah. These sites

currently are being remediated by the by W.R. Grace under the regulatory authority of the State of Tennessee.

IUSA proposes to receive materials from the W.R. Grace site for processing at its uranium mill. This material consists of uranium-bearing material resulting from the processing of monazite sands for the extraction of thorium and rare earth materials. Uranium, thorium, and radium are its primary radiological constituents. Based on W.R. Grace information, IUSA estimates the amount of material for this amendment request to be up to 140,000 yds^3.

In addition to its April 12, 2000, letter requesting that the license be amended, IUSA provided additional information in the following letters to NRC:

- April 24, 2000, letter with revision of IUSA's Radioactive Material Profile Record (RMPR) form to clarify the history of the material.

- April 26, 2000, letter addressing NRC concerns over placement of processed W.R. Grace materials in tailing cell 3. NRC had a concern that due to the high thorium content, if the material was placed too close to the radon cap, it could change the radon barrier thickness design. To address this concern, IUSA committed to place the material in the deepest areas of the cell with additional processed cover material on top of the W.R. Grace material.

- May 5, 2000, and November 16, 2000 letters addressing NRC's concern over available space in tailings cell 3. IUSA conducted a survey at the NRC's request to determine space available and developed a Standard Operating Procedure entitled "Tailings Capacity Evaluation".

- December 18, 2000 letter addressing NRC's concern over high thorium content and the need for special handling procedures. IUSA developed a Standard Operating Procedure entitled "High Thorium Content Ore Management.

a. Site and Material Information

A consortium of four companies; Heavy Minerals Company, Crane Company, Vitro Corporation and Pichney Company, began operations at this facility in 1957. The facility received monazite sands and extracted thorium and other rare earth elements. W.R. Grace purchased the facility in 1965 and continued operations until 1983. Tailings from the monazite operation, which contain uranium, were collected in six areas, two filled sediment/settling ponds, one partially filled sediment/settling pond, and a sand blast area.

The ponds have been removed from service and have been under remedial action since 1999. A portion of these materials have been shipped to the Envirocare of Utah waste disposal facility as Low Level Radioactive Waste. The primary radioactive contaminants in the soils are Uranium-238 (U-238), Radium-226 (Ra-226), Radium-228 (Ra-228), Thorium-230 (Th-230), Thorium 232 (Th-232), Potassium-40 (K-40) and their respective decay products. IUSA, based on a review of material, states that the weighted average grade of uranium for the W.R. Grace site is estimated to range from 0.5 to approximately 1.1 weight percent, or greater, with an overall average grade of 0.74 percent uranium (0.87 percent U_3O_8).

W.R. Grace and IUSA have determined that no listed hazardous wastes are contained within this material.

a. Transportation Considerations

NRC does not regulate the transportation of this material to the White Mesa Mill. These shipments are regulated under the U.S. Department of Transportation, and associated state regulations.

The material will be shipped by rail in intermodal containers and then transferred to truck for the part of the trip to the mill. Material would be loaded onto railcars and transported cross-country to the final rail destination, where they will be transferred to truck for the final leg of the trip to the mill (expected to be either near Grand Junction, Colorado; Cisco, Utah; Green River, Utah; or East Carbon, Utah). It is expected that W.R. Grace may ship an average of 20-25 trucks per day over the life of the project, for a period of approximately 12 to 18 months. The material will be shipped as radioactive low specific activity (LSA) Hazard Class 7 Hazardous Material as defined by Department of Transportation regulations. On an average during 1998 (latest report), 385 trucks per day traveled the stretch of State Road 191 between Monticello, Utah and Blanding, Utah. Based on this information, an average of 100 additional trucks per week (W.R. Grace material transport) represents an increased traffic load of 5 percent for approximately 12 to 18 months. According to the Utah Department of Transportation, total traffic through Moab, Utah on a daily basis is 17,075 of which trucks make up approximately 4% or 683. Trucks transporting the inter-modal containers for W.R. Grace material would be approximately 14 on the average, which is approximately 2% of the total truck traffic or 0.08% of the total traffic.

c. Handling and Processing at the Mill Site

The Uranium Material will be added to the mill circuit in a manner similar to conventional natural ores that are processed. The material will either be dumped into the ore receiving hopper and fed to the SAG mill, run through an existing trommel before being pumped to the Pulp Storage, or may be fed directly to Pulp storage. The leaching process may begin in Pulp storage with the addition of sulfuric acid.

Tailings produced by the processing of this material will be disposed of on-site in an existing lined tailings impoundment (Cell 3). Depending upon the amount of material processed and the length of time that material is shipped to the site, IUSA may have to build additional tailings impoundments or utilize cell 4a, which is presently not being used. If this is the case, a license amendment will be necessary revise the reclamation plan and surety amount. As we note later in this report, IUSA must comply with its existing license requirements that limit the amount of tailings in Cell 3, and obtain whatever approvals are necessary for additional impoundments, if they are needed.

IUSA will ensure safety of workers and the environment using already established procedures and equipment in the radiation safety program for processing natural ores. The potential for employee exposures from the handling and processing of this material is not expected to be any more significant than that normally encountered with the milling of conventional uranium ores. Mill employees involved in handling the material will be provided with personal protective equipment (e.g., coveralls, rubber gloves), including respiratory protection, if necessary.

Airborne particulate and breathing zone sampling will be conducted in accordance with the environmental monitoring program established by the licensee.

During the review of the submittals, a concern was raised regarding the need for special handling procedures for high thorium content ore material. IUSA addressed this concern, by letter dated December 18, 2000, by the addition of a Standard Operating Procedure entitled "High Thorium Content Ore Management". Staff evaluated this procedure and deemed it adequate to address the original concerns.

2. STAFF TECHNICAL EVALUATION

We have reviewed IUSA's request in accordance with NRC staff guidance "Final Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores" (60 FR 49296; September 22, 1995 and Interim Guidance November 30, 2000), the Commission's Memorandum and Order, International Uranium (USA) Corp., CLI-00-01, 52 NRC 9 (Feb. 10, 2000), and 10 CFR Part 40, Appendix A requirements. The staff guidance (referred to hereinafter as the "Alternate Feed Guidance") requires that we make the following determinations in our reviews of licensee requests to process material other than natural uranium ores:

(a) Whether the feed material qualifies as "ore" as defined in the NRC guidance;

(b) Whether the feed material contains listed hazardous waste; and

(c) Whether the feed material is being processed primarily for its source-material content. **Note: This part has been eliminated in the interim guidance dated November 30, 2000).**

In this evaluation, we discuss how IUSA has addressed each of these criteria in its application to amend the license. We also discuss the other considerations that affect the granting of this amendment.

In the Commission Memorandum and Order of February 10, 2000, several decisions were made which changed some aspects of the NRC staff Alternate Feed Guidance (NRC, 1996). The following summarizes these changes:

1) The staff does not need to consider the quantity of uranium in its review, only that the feed material (ore) is processed primarily for its source content and that radiation safety is considered.

2) The staff does not need to consider financial motives involved in the receipt or processing of alternate feed material, only health and safety issues. The "Certification and Justification" test is not necessary.

3) The presence of listed hazardous waste under the Resource Conservation and Recovery Act (RCRA) is necessary due to:

- Possible health and safety issues.

- The potential for undesirable, complex NRC-EPA "dual regulation" of the same tailings impoundment.

- The potential for jeopardizing the ultimate transfer of the tailings pile to the U.S. government, for perpetual care and maintenance.

Therefore, the staff has incorporated these changes into this review.

a. Determination of whether the feed material is "ore"

For the tailings and wastes from the proposed processing to qualify as 11e.(2) byproduct material, the feed material must qualify as "ore." In the Alternate Feed Guidance, we define "ore" in part as:

> "...any other matter from which source material is extracted in a licensed uranium or thorium mill."

IUSA has proposed to use alternate feed material from the W.R. Grace site that contains varying concentrations of uranium, a "source material" as defined by the Atomic Energy Act of 1954 (AEA). IUSA, based on a review of material, states that the weighted average grade of uranium for the W.R. Grace site is estimated to range from 0.5 to approximately 1.1 weight percent, or greater, with an overall average grade of 0.74 percent uranium (0.87 percent U_3O_8). Because IUSA is proposing in this amendment request to primarily extract uranium from this material at their White Mesa uranium mill, we find that the proposed feed material qualifies as "ore" as defined in our guidance.

b. Determination of whether the feed material contains hazardous waste

Under the Alternate Feed Guidance, we would not approve proposed feed material for processing at a licensed mill that contains a listed hazardous waste as defined by subpart D of RCRA.

IUSA has developed a hazardous waste protocol that has been accepted by the Utah Department of Environmental Quality (UDEQ) (letter dated December 7, 1999). This protocol was used in IUSA's amendment request for the W.R. Grace alternate feed and found acceptable by the NRC. Within the source investigation of this protocol, the following is one type of information that would be considered satisfactory:

> "Where the material is or has been generated from a known process under the control of the generator: (a) an affidavit, certificate, profile record or similar document from the Generator or Site Manager, to the effect, together with (b) a Material Safety Data Sheet ("MSDS") for the material, limited profile sampling, or a material composition determined by the generator/operator based on a process material balance."

IUSA has provided an affidavit from the Operations and Technical Manager for W.R. Grace Corporation at the company's Chattanooga facility, dated April 11, 2000, which states that "the proposed alternate feed materials do not contain any of the listed wastes numerated in the U.S. Code of Federal Regulations, Title 40 261, Subpart D, as amended by the U.S. Federal Register August 6, 1998".