

September 23, 2002

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

SUBJECT: AMENDMENT 22 TO MATERIALS LICENSE SUA-1358 -- APPROVAL TO  
RECEIVE AND PROCESS ALTERNATE FEED MATERIAL FROM THE  
MAYWOOD SITE AT THE WHITE MESA URANIUM MILL

Dear Ms. Rehmann:

In your letters dated June 15, 2001, June 22, 2001, August 3, 2001, and supplemented by letters dated, November 19, 2001, December 6, 2001, December 10, 2001, March 11, 2002, and July 1, 2002, you asked that we amend your license for the White Mesa uranium mill to permit the receipt and processing of material from the Maywood site, located in Maywood, New Jersey. You propose to receive this material at your White Mesa uranium mill in Blanding, Utah, use this material as alternate feed for the primary purpose of removing the uranium so that it can be reused, and dispose of the process tailings in the mill's tailings pile. You estimate the material amount to be up to 600,000 cubic yards (840,000 tons) with an average uranium content of approximately 0.0018 percent by weight, or greater. However, you have stated in your request that you will only receive materials that are 0.01 percent uranium content or higher. You have determined, based on your review of the Maywood site information and use of your Listed Hazardous Waste Protocol, that this material does not contain listed hazardous waste.

We have determined that your request to receive and process this material as alternate feed is acceptable, and have amended your license accordingly. We have enclosed the amended license and our Technical Evaluation Report that provides our bases for granting the amendment. Our principal criteria for evaluating this request are contained in our guidance entitled, "Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores". We also ensured that this request complies with our requirements for uranium mills in 10 CFR Part 40, Appendix A.

As you requested in your submittal, this material cannot be received by the mill until it has been determined that adequate cell space is available. In approving the Maywood request, we have added the following license condition to your license:

10.18: The licensee is authorized to receive and process source material from the Maywood site located in Maywood, New Jersey, in accordance with statements, representations, and commitments contained in the amendment requests dated June 15, 2001, June 22, 2001, August 3, 2001, and supplemented by letters dated November 19, 2001, December 6, 2001, December 10, 2001, March 11, 2002, and July 1, 2002.

Prior to the licensee receiving materials from the Maywood 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. If such determination requires the licensee to make design changes to the cells or the reclamation plan, the licensee shall submit an amendment request for NRC review and approval.

Prior to the licensee receiving materials from the Maywood 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: 22]

An opportunity for a hearing on this amendment was provided in August 2001 (66FR 44384, August 23, 2001).

If you have any questions regarding this letter or the NRC staff review, please contact the NRC Project Manager, William von Till, at (301) 415-6251. In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter 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).

Sincerely,

**/RA/**

Daniel Gillen, Chief  
Fuel Cycle Facilities Branch  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 40-8681  
SUA-1358, Amendment No. 22

Enclosure 1: Technical Evaluation Report and Source Material License SUA-1358  
Enclosure 2: Source Material License SUA-1358

cc: W. Sinclair, UT  
Tom Rice, Ute Mountain Ute Tribe  
Terry Brown, U.S. EPA Region VIII  
Loren Setlow, U.S. EPA Office of Radiation and Indoor Air (6608J)  
Paul Giardina, Radiation Program Manager, U.S. EPA, Region 2

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 Loren Setlow  
 Paul Giardina

DISTRIBUTION (w/ Encl.): **CLOSES TAC#L52363** Accession No. ML022680245  
 MSchwartz, OGC CCain, RIV PMackin, CNWRA ACNW AKouhestani, DWM  
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<b>OFC</b>	FCFB	FCFB	FCFB	OGC	FCFB
<b>NAME</b>	WvonTill*	JMuszkiewicz*	GJanosko*	STreby* (NLO)	DGillen
<b>DATE</b>	08/22/02	08/30/02	08/30/02	09/19/02	9/23/02

\*see previous concurrence

**OFFICIAL RECORD COPY**

**TECHNICAL EVALUATION REPORT  
REQUEST TO RECEIVE AND PROCESS  
MAYWOOD SITE MATERIAL**

**DOCKET NO.:** 040-8681

**LICENSE NO.:** SUA-1358

**LICENSEE:** International Uranium (IUSA) Corporation

**FACILITY:** White Mesa Uranium Mill

**DATE:** August 22, 2002

**PROJECT MANAGER:** William von Till

**TECHNICAL REVIEWERS:** William von Till - Project Management and Groundwater  
John Lusher - Health Physicist

**SUMMARY AND CONCLUSIONS**

We have reviewed International Uranium (USA) Corporation's (IUSA's) license amendment application dated June 15, 2001, June 22, 2001, August 3, 2001, and supplemented by letters dated November 19, 2001, December 6, 2001, December 10, 2001, March 11, 2002, and July 1, 2002, to amend its U.S. Nuclear Regulatory Commission (NRC) Source Material License SUA-1358, to allow its White Mesa Uranium Mill near Blanding, Utah, to receive and process up to 600,000 cubic yards (840,000 tons) of alternate feed material from the Maywood site located in Maywood, New Jersey. The Maywood site is being remediated under the Formerly Utilized Sites Remedial Action Program (FUSRAP) by the U.S. Army Corps of Engineers. The materials are by-products from the processing of thorium and lanthanum from monazite sands. These materials would be used as "alternate feed material". We have reviewed IUSA's request using our formal guidance, "Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores" provided in the NRC Regulatory Issue Summary 2000-23 that was mailed to uranium recovery licensees on November 30, 2000. We find the amendment request to be acceptable and have amended the license so that IUSA may process this material.

**DESCRIPTION OF LICENSEE'S AMENDMENT REQUEST**

By its submittal dated June 15, 2001, June 22, 2001, and August 3, 2001, and supplemented by letters dated November 19, 2001, December 6, 2001, December 10, 2001, March 11, 2002, and July 1, 2002, 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. The proposed alternate feed material would come from the Maywood FUSRAP site in Maywood, New Jersey.

IUSA proposes to receive materials from the Maywood site for processing at its White Mesa uranium mill near Blanding, Utah, as alternate feed. IUSA is proposing to allow its mill to receive and process up to 600,000 cubic yards (840,000 tons) of alternate feed material from the Maywood site. The Maywood site is being remediated under the FUSRAP by the U.S. Army Corps of Engineers. The materials are by-products from the processing of thorium and lanthanum from monazite sands.

IUSA is proposing to condition its license to state that the mill shall not accept any of the Maywood material at the site unless and until the mill's Safety and Environmental Review Panel (SERP) has determined that the mill has sufficient licensed tailings capacity. The tailings capacity must be sufficient to permanently store:

- (1) All 11e.(2) byproduct material, as defined under the Atomic Energy Act of 1954, as amended, created by the processing of all of the Maywood material;
- (2) All other ores and alternate feed materials currently on site; and
- (3) All other materials required to be disposed of in the mill's tailings impoundments pursuant to the mill's reclamation plan.

By letter dated November 16, 2000, IUSA developed a standard operating procedure entitled "Tailings Capacity Evaluation", which will be used in its evaluation.

A draft EA was sent to the Utah Department of Environmental Quality (DEQ) by letter dated September 21, 2001, with a copy sent to the Ute Mountain Utes in White Mesa, Utah. This document was placed in the NRC's data management system, ADAMs, and made publically available. Since the time the Draft Environmental Assessment was submitted for comment, staff issued a request for additional information by letter dated November 30, 2001, and IUSA responded by letters dated February 15, 2002, March 11, 2002, and July 1, 2002. The February 15, 2002, letter from IUSA includes additional information on a well called the "Jones Well" in which NRC staff needed more information. The March 11, 2002, letter from IUSA provides additional information regarding the temporary storage of alternate feed materials on the ore pad regarding dust control, potential groundwater concerns, and surety cost issues. The NRC staff needed additional information regarding potential seepage of material while stored on the ore pad and IUSA adequately addressed those issues in their July 1, 2002, letter.

In addition IUSA submitted, by letters dated December 6, 2001, and December 10, 2001, information that was missing from the original submittal relating to Attachment 2 of their submittal and other background information regarding the Maywood site.

#### Site and Material Information

The Maywood site is being remediated under the authority of the U.S. Army Corps of Engineers. To find detailed information about the Maywood site clean-up, visit the web-site <http://www.fusrapmaywood.com/index.asp>. This site began operations in 1895 and over the years monazite sands were processed for thorium, lanthanum, and other rare earth elements. Uranium was not extracted and remains in the process residues. The material is currently

located in three pits and elsewhere on or adjacent to the Maywood site. Material in the three pits is licensed by the NRC under STC-1333 for the Stepan Chemical Company. This license covers 19,000 cubic yards of buried tailings. The Maywood material (pits and off-site materials) has been classified as byproduct material under Section 11.e.(2) of the Atomic Energy Act of 1954, as amended (attached).

The average uranium content, based on 4000 samples, ranges from non-detectable to 0.06 percent by weight, with an average grade of 0.0018 percent uranium. However, IUSA is proposing to only receive material that contains higher than 0.01 percent uranium. The thorium content of the material ranges from non-detectable to 3,800 pCi/g with an average of 970 pCi/g. The thorium content is relatively low due to thorium extraction at the Maywood site. IUSA states that hazardous wastes regulated under the Resource Conservation and Recovery Act (RCRA) have not been identified in this material. IUSA also proposes that verification sampling at the Maywood site will be implemented to assure that the material does not contain hazardous wastes regulated under RCRA.

### **STAFF TECHNICAL EVALUATION**

We have reviewed IUSA's request in accordance with 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 staff guidance (referred to hereinafter as the "Alternate Feed Guidance") requires that the staff make the following determinations in its reviews of licensee requests to process material other than natural uranium ores:

- (1) Whether the feed material qualifies as "ore" as defined in the NRC guidance for alternate feed;
- (2) Whether the feed material contains listed hazardous waste; and
- (3) Whether the feed material is being processed primarily for its source-material content.

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.

#### 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 Maywood site that contains varying concentrations of uranium, a “source material” as defined by the Atomic Energy Act of 1954 (AEA). Uranium concentrations are estimated to be 0.0018 percent by weight, however, IUSA proposes to receive only materials from Maywood that contain 0.01 percent or higher uranium content. Because IUSA is proposing in this amendment request to extract the 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.

#### 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. 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 Maywood documents. Second, IUSA also hired an independent consultant to review available information and perform a separate review for classifying various Maywood properties and determining which may contain listed hazardous waste. The consultant’s analysis was included in the license amendment request.

IUSA developed a listed 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 St. Louis, Linde, W.R. Grace, and Heritage Mineral alternate feeds and found acceptable by the NRC.

IUSA used documents completed as part of the characterization and clean-up of the site for their research on potential hazardous wastes in the material. The U.S. Department of Energy, which was responsible for clean-up oversight prior to the Army Corps of Engineers (ACE), issued a Final Remedial Investigation (RI) for the Maywood site in 1992 (DOE, 1992). The Stepan Company issued a Final RI for the chemical contamination areas of the site in 1994 (Stepan Chemical Company, 1994). Comprehensive characterization of the materials was conducted as a result of these investigations.

In addition, IUSA states that the Maywood material does not meet the definition of a characteristic hazardous waste by ignitability, corrosiveness, reactivity, or toxicity.

However, since IUSA’s initial amendment request, the NRC has classified the Maywood material as 11e.(2) byproduct material by letter dated September 20, 2001, from Martin Virgilio of NRC to Jonathan Carter, of Envirocare (attached). Under 10 CFR Part 264.4, “byproduct” material as defined under the Atomic Energy Act of 1954, as amended, is excluded by definition as a solid or hazardous waste under the Resource Conservation and Recovery Act (RCRA). Therefore, the material would not be classified as a hazardous waste under RCRA at the mill.

Within the condition allowing the licensee to receive and process Maywood material, we have placed the following text:

Prior to the licensee receiving materials from the Maywood 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.

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

Using our Alternate Feed Guidance, a licensee must show that potential alternate feed material is being processed primarily for its source-material content. In the Commission Memorandum and Order of February 10, 2000, the Commission stated: the staff does not need to consider the quantity of uranium in its review, only whether the feed material (ore) is being processed primarily for its source material content and that radiation safety has been considered. IUSA has provided a signed certification that the uranium-bearing material is being processed primarily for the recovery of uranium and for no other primary purpose. This TER addresses the safety of such processing.

#### Transportation Considerations

IUSA does not have a contract to receive the Maywood material at this time and therefore, the exact mode of transporting the materials to the mill has not been determined. Transportation may be similar to that of other alternate feed materials shipped to the mill. This would consist of inter-modal containers shipped by rail then by truck. If the maximum volume requested were to be shipped to the mill, IUSA estimates that 7500 rail cars over seven years by rail and 46-86 truckloads per week would occur. It is more likely that 206,000 cubic yards would be shipped which would consist of 46 truckloads per week. IUSA does not expect there to be an impact from the transportation of these materials due to exclusive-use containers, the small increase in truck traffic (4 to 7.4 percent), and the fact that the material will be transported in lined, covered containers. Based on this information, a very minor increase in truck traffic from this action is anticipated and therefore, environmental impacts from this increase are expected to be negligible.

#### Handling and Processing at the Mill Site

The material will be added to the mill circuit in a manner similar to that used for normal processing of conventional ore, either alone or in combination with other approved alternate feed materials. The material will either be dumped into the ore receiving hopper and fed to the SAG mill, or run through an existing trommel, before being pumped to the Pulp Storage. The leaching process may begin in Pulp Storage with the addition of sulfuric acid.

IUSA has proposed that it will be a condition of the license that the mill shall not accept any of the Maywood material at the site unless and until the mill's Safety and Environmental Review Panel (SERP) has determined that the mill has sufficient licensed tailings capacity. The tailings capacity must be sufficient to permanently store:

- (1) All 11e.(2) byproduct material, as defined under the Atomic Energy Act of 1954, as amended, that would result from the processing of all of the Maywood material;

- (2) All other ores and alternate feed materials currently on site; and
- (3) All other materials required to be disposed of in the mill's tailings impoundments pursuant to the mill's reclamation plan.

By letter dated November 16, 2000, IUSA developed a standard operating procedure entitled "Tailings Capacity Evaluation" which it will use in its evaluation. Staff evaluated the procedure and finds it acceptable.

IUSA does not anticipate any unusual or extraordinary airborne contamination dispersion when processing this material. The contamination potential is expected to be comparable to the processing of conventional ores. Environmental monitoring will continue and has been evaluated under previous NEPA actions. This includes monitoring of surface and groundwater, airborne particulates, radon, soils, and vegetation, according to the existing License Conditions. IUSA will continue to conduct a Dust Suppression program in accordance with the License Renewal Application for the White Mesa Mill, sections 2.0 and 4.0 (Umetco, 1991), and the September 11, 1997, Utah Division of Air Quality Approval Order for White Mesa Mill (Air Quality Permit Conditions).

The Thorium-232 content for the Maywood material ranges from non-detectable to 3,800 pCi/g with an estimated average of 970 pCi/g.

Material from Maywood does not contain any additional chemicals that would pose an increase in threat to the groundwater resources above conventional ore. Tailings from the Maywood material processing will be disposed in the lined tailings cells along with other process tailings. A groundwater detection monitoring program is implemented to determine if any leakage from the tailings cells has occurred. IUSA has determined that processing the additional Maywood material will not cause the mill's production to exceed 4,380 tons of yellowcake per year, as outlined in License Condition 10.1.

#### Conclusions concerning compliance with alternate feed material criteria

Based on the information provided by IUSA, the NRC staff finds that the Maywood material meets the criteria in the Alternate Feed Guidance, because (1) it qualifies as an "ore" as defined by NRC guidance, (2) the material to be processed will not be or contain listed hazardous wastes, and (3) it is being processed primarily for its source-material content.

#### **RECOMMENDED LICENSE CHANGE**

Pursuant to Title 10 of the Code of Federal Regulations, Part 40, Materials License SUA-1358 will be amended by the addition of License Condition 10.18 as follows:

10.18: The licensee is authorized to receive and process source material from the Maywood site located in Maywood, New Jersey, in accordance with statements, representations, and commitments contained in the amendment request dated June 15, 2001, June 22, 2001, August 3, 2001, and supplemented by letters dated November 19, 2001, December 6, 2001, December 10, 2001, March 11, 2002, and July 1, 2002.

Prior to the licensee receiving materials from the Maywood 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. If such determination requires the licensee to make design changes to the cells or the reclamation plan, the licensee shall submit an amendment request for NRC review and approval.

Prior to the licensee receiving materials from the Maywood 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: 22]

## **ENVIRONMENTAL IMPACT EVALUATION**

The Environmental Assessment for this action was issued on August 22, 2002. A Finding of No Significant Impact was published in the Federal Register on August 29, 2002. The EA and documents related to this proposed action are 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).

## **REFERENCES**

Stepan Chemical Company. Remedial Investigation Report for the Stepan Chemical Site (CH2MHill, November, 1994).

U.S. Department of Energy. Remedial Investigation Report for Maywood Site. December, 1992.

U.S. Fish and Wildlife Service. Letter from Henry Maddux, Utah Field Supervisor, to William von Till, U.S. NRC. August 5, 2002.

U.S. Nuclear Regulatory Commission (NRC). Commission Memorandum and Order, International Uranium (USA) Corp., CLI-00-01, 52 NRC 9 (Feb. 10, 2000).

NRC "Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores," NRC Regulatory Issue Summary 2000-23. November 30, 2000.

NRC "Final Environmental Statement" for the White Mesa Uranium Project, Energy Fuels Nuclear, Inc. May, 1979.

NRC. Letter from Martin Virgilio of NRC to Jonathan Carter, of Envirocare, regarding classification of material as 11e.(2) byproduct material. September 20, 2001.

Utah Department of Transportation. Phone conversation with Ms. Vicki Hanshew of the Program Development Division with William von Till of NRC regarding traffic statistics on Highway 191 and through Moab, Utah. December 20, 2000.

**MATERIALS LICENSE**

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and the applicable parts of Title 10, Code of Federal Regulations, Chapter I, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 39, 40, 51, 70, and 71, 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 Amendment 2]	3. License Number SUA-1358, Amendment 22
2. 6425 Highway 191	
2. P.O. Box 809 Blanding, Utah 84511 [Applicable Amendment 2]	4. Expiration Date March 31, 2007
	5. Docket No. 40-8681 Reference No.

6. Byproduct Source, and/or Special Nuclear Material  Natural Uranium	7. Chemical and/or Physical Form  Any	8. Maximum amount that Licensee May Possess at Any One Time Under This License  Unlimited
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**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.

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(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.

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SUPPLEMENTARY SHEET**

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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 \$10,336,283 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, 19, 21]

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).

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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.

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**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.

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- 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]
- 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

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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]

- 10.16 The licensee is authorized to receive and process source material from the Heritage Minerals Incorporated site, in accordance with statements, representations, and commitments contained in the amendment request dated July 5, 2000, and as supplemented by submittals November 16, 2000, and December 18, 2000.

Prior to the licensee receiving materials from the Heritage Minerals Incorporated 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 Heritage Minerals Incorporated site, the licensee must require that the generator of the material certify that the material does not contain listed hazardous

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waste as defined under the Resource Conservation and Recovery Act (RCRA) per a Radioactive Material Profile Record.

[Applicable Amendment: 18]

- 10.17 The licensee is authorized to receive and process source material from the Molycorp site located in Mountain Pass, California, in accordance with statements, representations, and commitments contained in the amendment request dated December 19, 2000, and supplemental information in letters dated January 29, 2001, February 2, 2001, March 20, 2001, August 15, 2001, October 17, 2001, and November 16, 2001.

Prior to the licensee receiving materials from the Molycorp 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.

[Applicable Amendment: 20]

- 10.18: The licensee is authorized to receive and process source material from the Maywood site located in Maywood, New Jersey, in accordance with statements, representations, and commitments contained in the amendment requests dated June 15, 2001, June 22, 2001, August 3, 2001, and supplemented by letters dated November 19, 2001, December 6, 2001, December 10, 2001, March 11, 2002, and July 1, 2002.

Prior to the licensee receiving materials from the Maywood 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. If such determination requires the licensee to make design changes to the cells or the reclamation plan, the licensee shall submit an amendment request for NRC review and approval.

Prior to the licensee receiving materials from the Maywood 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: 22]

## 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.

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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.

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- 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.

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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 detailed 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

/RA/

Date: September 23, 2002

Daniel M. Gillen, Chief  
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