



INTERNATIONAL  
URANIUM (USA)  
CORPORATION

Independence Plaza, Suite 950 • 1050 Seventeenth Street • Denver, CO 80265 • 303 628 7798 (main) • 303 389 4125 (fax)

February 11, 2000

**VIA FACSIMILE AND OVERNIGHT EXPRESS**

Mr. Thomas H. Essig, Chief  
Uranium Recovery and Low Level Waste Branch  
Division of Waste Management  
U.S. Nuclear Regulatory Commission  
2 White Flint North  
11545 Rockville Pike  
Rockville, MD 20852-2738

Mr. William J. Sinclair, Director  
Division of Radiation Control  
State of Utah Department of Environmental Quality  
168 North 1950 West  
Salt Lake City, UT 84114-4850

Mr. Don G. Verbica, Section Manager  
Division of Solid and Hazardous Waste  
State of Utah Department of Environmental Quality  
288 North 1460 West  
Salt Lake City, UT 84116

Re: Summary of Completed Corrective Actions and Transmittal of Disposition Plan for Ashland  
1 Ore Lot 78

Dear Sirs:

The purpose of this letter is to provide the Utah Department of Environmental Quality ("UDEQ") and the U.S. Nuclear Regulatory Commission ("NRC") with a summary of completed corrective actions relative to prevention of inadvertent misshipment of materials to the White Mesa Mill and to transmit the final proposed Disposition Plan for Ashland 1 Ore Lot 78.

NMSSOI Public

Mr. Thomas S. Essig, Mr. William J. Sinclair and Mr. Don G. Verbica  
February 11, 2000  
Page 2 of 3

## SUMMARY OF COMPLETED CORRECTIVE ACTIONS

As stated in our letter of November 22, 1999 to the NRC and UDEQ, International Uranium (USA) Corporation ("IUSA") has confirmed that corrective actions to prevent a recurrence of misshipping materials to the Mill have been fully implemented, as summarized below:

### IT Corrective Actions

IT has amended transportation plans to address project-specific QC plans. Based on our discussions with IT personnel, and as confirmed during an on-site review at the Cisco offload facility, IUSA understands that IT's corrective action documents were finalized and fully implemented as of January 1, 2000.

### CSX Corrective Actions

CSX's correction action plan was to develop and communicate a policy to all current and future shippers using intermodal equipment that strictly requires all containers tendered to CSX to be registered in the Uniform Machine Language Equipment Register (UMLER) system. Shippers are now required to utilize this unique marking on any hazardous manifests tendered to CSX and on all standard Bills of Lading issued for CSX car billing. Based on our interviews of Cisco site personnel, IUSA understands that this system has been implemented for the Ashland 1 shipments. That is, MHF and IT are not using any intermodal boxes which lack unique, registered equipment numbers.

### IUSA Corrective Actions

To achieve improved assurance that sufficient redundant actions are in place to prevent receipt of boxes from sites that are not meant to be accepted by IUSA, IUSA has worked closely with IT and MHF on IT's development of improved documentation procedures to prevent misrouting, and has also evaluated organization and usage of our own procedures for accepting intermodal boxes to determine any areas in which the procedures could be strengthened. IUSA's reviews and procedural enhancements were completed and implemented as of January 1, 2000.

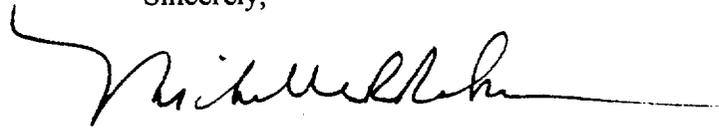
## TRANSMITTAL OF DISPOSITION PLAN

Attached is the Disposition Plan for Ashland 1 Ore Lot #78, proposed by IT. The sampling described in this Plan took place on January 13, 2000. IUSA wishes to emphasize that, while IUSA agrees with IT's recommendations and rationale in the Disposition Plan, IUSA would not propose a mode of disposition that does not have the full support of NRC and UDEQ.

Mr. Thomas S. Essig, Mr. William J. Sinclair and Mr. Don G. Verbica  
February 11, 2000  
Page 3 of 3

We look forward to hearing the views of NRC and UDEQ on this matter. I can be reached at (303) 389-4131.

Sincerely,



Michelle R. Rehmann  
Environmental Manager

MRR:smc

Attachment

cc/att: William von Till, U.S. NRC  
Dwight Chamberlain, U.S. NRC Region IV  
Robert Evans, U.S. NRC Region IV  
Dianne Nielson, UDEQ  
Loren Morton, UDEQ – DRC  
Milt Lammering, U.S. EPA  
Bruce Howard, IT Corporation  
Derek Rhodes, IT Corporation  
Ronald E. Berg  
William N. Deal  
Earl E. Hoellen, without attachments  
David C. Frydenlund, without attachments  
Ronald F. Hochstein, without attachments



**IT Corporation**  
5885 Trinity Parkway, Suite 120  
Centreville, VA 20120  
Tel. 703.815.5206  
Fax. 703.815.5207

*A Member of The IT Group*

February 11, 2000

Ms. Michelle Rehmman  
International Uranium (USA) Corporation  
Independence Plaza, Suite 950  
1050 Seventeenth Street  
Denver, CO 80265

Re: Disposition Plan Update for Soil Pile Lot #78

Dear Ms. Rehmman:

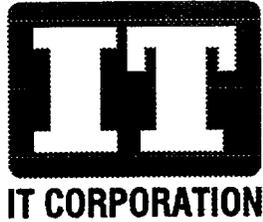
This letter encloses an update of our Disposition Plan submitted to you on January 7, 2000. The Lot #78 Disposition Plan previously submitted, provided for sampling and analysis of the Lot #78 material to determine accurately its constituents. This Update to the Disposition Plan is provided to communicate the results of the sampling and to recommend final disposition of the Lot # 78 material.

If you have any questions, please do not hesitate to contact me at 703-815-5963.

Very truly yours,

John P. Franz  
Program Manager

cc: Ron Merk MHFLS  
Derek Rhodes IT



**DISPOSITION PLAN  
UPDATE**

**FOR**

**Soil Lot #78**

**INTERNATIONAL URANIUM CORPORATION**

**WHITE MESA MILL**

**BLANDING, UTAH**

**Submitted by:  
IT Corporation  
February 11, 2000**

## 1.0 INTRODUCTION

The Lot #78 Disposition Plan submitted on January 7, 2000, provided for sampling and analysis of the Lot #78 material to determine accurately its constituents. This Update to the Disposition Plan is submitted to communicate the results of the sampling and to recommend final disposition of the Lot #78 material.

On January 13, 2000 the sampling and analysis plan for Uranium series radionuclides and lead contained in lot #78 located at IUC in Blanding, Utah was implemented. Lot #78 was sampled for target radionuclides necessary to calculate total unit radioactivity and for TCLP Lead.

Radiological samples were properly shipped to Thermo-Nutech in Oak Ridge, TN for analysis. Thermo-Nutech is approved by the USACE (Corps), IT, and the State of Utah. A chain of custody accompanied the samples.

Sample analysis for uranium series radionuclides and subsequent summation for total specific activity was achieved by determination of a representative cross section of these series radionuclides. Analytical data provided additional information for the thorium series and the actinium series. Isotopic uranium includes uranium-234, 235, 236, and 238. Isotopic thorium will provide thorium-227, 228, 230, and 232. Only thorium-230, uranium-234, and uranium-238 are necessary for activity assessment. Other radionuclide determinations from gamma spectroscopy will assist in the determination of total activity present and whether or not the sample is in equilibrium or has been chemically altered and is now in disequilibrium. By conducting alpha spectroscopy, gamma spectroscopy, and beta proportional counting analyses, a technical basis for the status of the total sample activity was calculated.

The composite sample taken pursuant to the sampling and analysis plan was split into five samples for TCLP analysis for lead (D008) and sent to General Engineering Laboratories (GEL) in

Charleston, S.C. GEL is approved by the USACE, IT, and the State of Utah. A chain of custody accompanied the samples.

## 2.0 ANALYSIS RESULTS

**2.1 Radiological:** Alpha spectrometry and gamma spectroscopy results obtained on January 21, 2000 are given below. Reported results are derived from the averaging of 2 samples from the composite plus the duplicate of sample 1. U-238 results were used to calculate individual activities of U-234 and U-235. Actual results appear in bold, while daughter assumption activities appear in *Italics*. Untested daughters were assumed to be the same activity as the immediate parent, unless occurring between two tested chain members. In that case the tested members were averaged to approximate the untested daughters activity.

U-238 Chain	Decay (pCi/g)	U-235 Chain	Decay (pCi/g)	Th-232 Decay Chain	(pCi/g)
U-238	<b>67.5</b>	U-235	<b>3.14</b>	Th-232	<b>5.88</b>
Th-234	<b>24.2</b>	Th-231	<i>3.14</i>	Ra-228	<i>4.16</i>
Pa-234	<i>48.2</i>	Pa-231	<i>3.14</i>	Ac-228	<i>4.16</i>
U-234	<b>72.1</b>	Ac-227	<i>3.14</i>	Th-228	<b>2.44</b>
Th-230	<b>715</b>	Th-227	<i>3.14</i>	Ra-224	<i>2.44</i>
Ra-226	<b>67.2</b>	Fr-223	<i>3.14</i>	Rn-220	<i>2.44</i>
Rn-222	<i>41.4</i>	Ra-223	<i>3.14</i>	Po-216	<i>2.44</i>
Po-218	<i>41.4</i>	Rn-219	<i>3.14</i>	Pb-212	<i>2.44</i>
Pb-214	<b>15.6</b>	Po-215	<i>3.14</i>	Bi-212	<i>2.44</i>
Bi-214	<b>0.196</b>	Pb-211	<i>3.14</i>	Po-212	<i>2.44</i>
Po-214	<i>15.4</i>	Bi-211	<i>3.14</i>	Tl-208	<i>2.44</i>
Pb-210	<b>30.5</b>	Po-211	<i>3.14</i>		
Bi-210	<i>30.5</i>	Tl-207	<i>3.14</i>		
Po-210	<i>30.5</i>				
<b>Total</b>	<b>1,200</b>	<b>Total</b>	<b>40.8</b>	<b>Total</b>	<b>33.7</b>

**Grand Total Activity for Lot #78  $\cong$  1,270 pCi/g (three significant figures)**

**2.2 TCLP Lead:** Laboratory results obtained on January 28, 2000 for 5 samples split from one large composite appear below:

Analyte	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Average
Lead concentration in TCLP extract (µg/L)	49.9	76.2	35	64.5	24.1	50

**2.3 Conclusion:** Laboratory analysis results indicate that the material in lot #78 is not an EPA characteristic hazardous waste (D008). The average concentration of lead in the TC leachate is 50 µg/L (ppb) which is 100 times lower than the EPA regulatory threshold for D008 regulation (5 mg/L). The result is also well below the 750 µg/L land disposal restriction (LDR) treatment standard for D008 contaminated media which means that based on chemical constituents alone, the EPA allows this type of material to be disposed of in Subtitle D landfills (HWIR-Media regulation). Total radiological activity of the lot is measured to be 1,270 pCi/g, below the DOT limit of 2,000 pCi/g for a Class 7 radioactive material. This type of material is classified according to its generation and activity level. Material with an activity level of <2,000 pCi/g is allowed to be shipped as “non-regulated material” unless there is another hazard.

### 3.0 MATERIAL CHARACTERIZATION AND RECOMMENDATION

Lot #78 consists of approximately 480 tons of material from the Ashland 1 FUSRAP site and approximately 21 tons of soil material from the Massachusetts Highway Department Central Artery Tunnel (MHD CA/T) Project. USACE has stated that the Ashland 1 material should be described as radioactive residuals from the processing of ores at facilities not licensed by the NRC at the time of the Uranium Tailing Recovery Act was enacted in 1978 or thereafter (hereinafter referred to as “pre-1978 11e.(2) byproduct material”). The MTA material was manifested as D008 hazardous waste, although subsequent analysis shows that the material does not meet the criteria for a characteristic hazardous waste. Because these two different types of material were combined in a 500-ton pile, the Nuclear Regulatory Commission (NRC) and the Utah Department of Environmental Quality (DEQ) indicated in a letter to IUC dated November

16, 1999 that the material was now “to be considered a ‘mixed waste’ as defined by section 1004(41) of the Resource Conservation and Recovery Act (RCRA).”

In conversations with MTA in November 1999, it became apparent the MTA’s material might not, in fact, be a RCRA characteristic waste. Therefore, MTA undertook additional sampling and analysis using SW-846 analytical methods, and on November 16, 1999 determined that the soil “(is) not hazardous as defined in 40 CFR 261” and has indicated it is willing, with the concurrence of the State of Utah, to reissue this manifest to properly reflect the material as non-hazardous. IT then undertook to determine the true characteristics of Lot 78 using the sampling plan as stated in the January 7 Draft Disposition Plan. The results of the sampling and analysis confirm that the material is pre-1978 11e.(2) by-product material with no RCRA characteristic waste.

The Lot 78 material does not fit neatly into any specific set of characterization criteria. As stated above, based on its manifested designation, it would be considered mixed waste. However, testing does not support this designation and blindly adhering to it results in no added value. Stripped of its previously assigned labels, the Lot 78 material is merely soil of low radiological activity that possesses no RCRA hazardous characteristics. Viewed from the perspective of its purely physical features, it is no different from the material that IUC accepts from Ashland 1 under its license amendment for alternate feed material. In fact, if the entire quantity of material *as is* had originated at the Ashland 1 site, it would meet the criteria for acceptance at IUC.

In formulating the disposition recommendation, the overriding concern was to find a rational resolution that has the least degree of risk for worker and public health and the fewest environmental and regulatory impacts. Due consideration was given to regulatory requirements and they were weighed against potential safety and environmental impacts of excavating and transporting the material to another location. **Based on this analysis, it is strongly recommended that the material remain at IUC to be processed under its license amendment for alternate feed material.**

In reaching this recommendation, the following options were analyzed:

**OPTION 1 – Allow material to remain at IUC and be processed under the Ashland 1 alternate feed license amendment. Obtain regulatory one-time waiver/exception/approval as necessary. Obtain an appropriate manifest from MTA to properly reflect MTA material.**

**Pros:**

- **This option is the MOST protective of human health and the environment.**
- Precludes unnecessary movement of radiological material and attendant (albeit minimal) risk of release and worker and public exposure.
- Recognizes situation is an aberration and avoids the difficulty and consequences of force-fitting regulatory labels to the material in a situation they were not designed to address.
- Prevents potential for an “orphan material” situation.
- Avoids potential regulatory problems and disputes over generator status and disposal sites.

**Cons:**

- No apparent disadvantages.
- Setting precedent with permit waiver could be precluded by clear statements by regulators that this remedy has been approved for this situation only based solely on their commitment to protect human health and the environment.

**OPTION 2 – Surgically separate approximately 30 cubic yards of material, 20 of which is MTA material which is visually different from Ashland I material. Dispose of the material at a RCRA Subtitle C landfill. (Possible DHFs are Envirocare, Safety-Kleen, EnviroSAFE, or Waste Control Specialist.)**

**Pros:**

- Keeps IUC in strict compliance with its license amendment

**Cons:**

- Requires additional sampling and analysis to ensure that waste acceptance criteria is met for a prospective Subtitle C landfill.
- Potential requirement to characterize entire removed quantity as pre-1978 11e.(2) (thus mixed waste) if cannot guarantee material is totally segregated.
- Time, risk, expense of additional excavation, transportation, and disposal.
- Regulatory issues if pile must be characterized as mixed waste.

**OPTION 3 – Remove entire 500 CY pile off-site to acceptable DHF.**

**Pros:**

- Keeps IUC in strict compliance with its license amendment.

**Cons:**

- **This option is the LEAST protective of human health and the environment.**
- Requires unnecessary movement of radiological material and attendant (albeit minimal) risk of release, worker and public exposure, and negative publicity.
- Delays resolution of issue due to time needed to excavate and transport.
- Further delays resolution because of required negotiations with potential DHFs to agree on appropriate categorization of material. (Dependent on individual state regulations.)
- Requires concurrence of a number of parties (USACE, EPA, NRC, UDEQ, etc.) on the disposition of material with attendant time and cost impact.
- Brings into play numerous regulatory conflicts as to the characterization of the material and identification of generator status of the material, and whether or not there are any sites available to dispose of the entire Lot #78. Resolution of these conflicts, if even possible, has the potential for delaying disposition of the material for an undetermined amount of time.

**4.0 NEXT STEPS**

Recommend that the State of Utah and the NRC concur with preferred Option 1. In conjunction with this concurrence, MTA should provide IUC with a new manifest reflecting the non-hazardous nature of the material. IUC would then be able to proceed with processing.

If it is determined that all of part of Lot #78 must be removed, a determination as to its characterization will be necessary as well as a determination as to where it should be stored pending resolution of generator and disposal facility issues.