IUC INTERNATIONAL URANIUM (USA) CORPORATION

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December 19, 2000

Via Overnight Mail

40-8681

Mr. Phillip Ting, Branch Chief
Fuel Cycle and Safety and Safeguards Branch
Division of Fuel Cycle Licensing
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
2 White Flint North, Mail Stop T-7J9
11545 Rockville Pike
Rockville, MD 20852

Re: Amendment Request to Process an Alternate Feed Material from Molycorp at White Mesa Uranium Mill
Source Material License No. SUA-1358

Dear Mr. Ting:

International Uranium (USA) Corporation ("IUSA") hereby submits the enclosed request to amend Source Material License No. SUA-1358 to authorize receipt and processing of a uranium-bearing material resulting from the processing of natural ore for the extraction of lanthanides and other rare earth minerals. For ease of reference, this material is referred to herein as the "Uranium Material". The Uranium Material will be removed by Molycorp's Lanthanide Division ("Molycorp") from three former impoundments at their mine and mill site in Mountain Pass, California (the "Mountain Pass site").

Since the 1950's, Molycorp has operated a surface mining and milling operation for the recovery and chemical separation of lanthanides and other rare earths from bastnasite ores. From 1965 through 1984 Molycorp constructed and operated three lead sulfide ponds, pond areas P-8, P-11, and P-24, for the evaporation of lead sulfide sludges from the clarifier/thickener operation. The lead sulfide sludges contain uranium, which is also precipitated in the thickener. All three of the lead sulfide ponds were taken out of service prior to 1984. In 1997, Molycorp published a Closure Plan for the decommissioning of the three lead sulfide ponds, which required the removal and offsite disposal or recovery of the lead sulfide sludges contained in the ponds. This amendment request seeks authorization to process the lead sulfide sludges, referred to herein as the Uranium Material, at IUSA's White Mesa Mill (the "Mill") as an alternate feed/ore.

After excavation of the lead sulfide ponds, Molycorp plans to segregate a portion of the pond contents – flotation tailings – from the excavated material. Molycorp estimates that after separation of the flotation tailings, from 7,750 tons to a conservative estimate of 17,750 tons of

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lead sulfide sludges, containing uranium, will remain to be shipped off site. Material that will be shipped off site comprises the Uranium Material addressed in this request for amendment.

Molycorp estimates that the Uranium Material has a uranium content ranging from 0.002 percent to approximately 0.49 weight percent (0.0024 to 0.59 percent U_3O_8), or greater, with an estimated overall average grade of 0.15 percent uranium (0.18 percent U_3O_8) for the entire volume of Uranium Material.

The processing of the Uranium Material will not increase the Mill's production to exceed the License Condition No. 10.1 limit of 4,380 tons of U_3O_8 per calendar year. Because production will remain within the limits assessed in the original Environmental Assessment; the process will be essentially unchanged; and the Uranium Material is similar physically and in content to the Mill's existing tailings, this amendment will result in no significant environmental impacts beyond those originally evaluated.

The disposal of the 11e.(2) byproduct material resulting from processing the Uranium Material will not change the characteristics of the Mill tailings from the characteristics associated with normal milling operations.

It will be a condition of the license amendment that the Mill shall not accept any Uranium Material at the site until IUSA has determined, in accordance with a SERP-approved procedure, that the Mill has sufficient licensed tailings capacity. The tailings capacity must be sufficient to permanently store:

(a). all 11e.(2) byproduct material that would result from the processing of all the Uranium Material;
(b). all other ores and alternate feed materials on site; and
(c). all other materials required to be disposed of in the Mill's tailings impoundments pursuant to the Mill's reclamation plan.

Complete details are provided in the attached request to amend, which includes the following sections:

INTRODUCTION

1.0 Material Composition and Volume
- 1.1 Historical Summary of Sources
- 1.2 Radiochemical Data
- 1.3 Hazardous Constituent Data
- 1.4 Regulatory Considerations

2.0 Transportation Considerations

3.0 Process

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4.1 Control of Airborne Contamination
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5.0 Other Information
5.1 Added Advantage of Recycling

CERTIFICATION

Attachment 1	Molycorp Site Location Maps, Volume Estimates, and Process History
Attachment 2	Uranium Content Estimates, Material Description, and Analytical Data for Uranium Material
Attachment 3	IUSA/UDEQ Protocol for Determining Whether Alternate Feed Materials are RCRA Listed Hazardous Wastes
Attachment 4	Molycorp Affidavit Confirming No RCRA Listed Hazardous Waste in Uranium Material
Attachment 5	Radioactive Material Profile Record
Attachment 6	Memorandum from Independent Consultant Regarding No RCRA Listed Hazardous Waste in Uranium Material
Attachment 7	White Mesa Mill Equipment Release/Radiological Survey Procedure

To ensure that all pertinent information is included in this and anticipated supplemental submittals, the following guidelines were used in preparing this request to amend:

- U.S. Nuclear Regulatory Commission ("NRC") *Final Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores* (Federal Register Volume 60, No. 184, September 22, 1995).

- Energy Fuels Nuclear ("EFN") request to the NRC for the amendment to process uranium-bearing potassium diuranate ($K_2U_2O_7$) in a solution of potassium hydroxide/potassium fluoride in water ("KOH Amendment").

- NRC and State of Utah comments and requests for information relative to the KOH Amendment.

- EFN request to NRC for the Rhone-Poulenc alternate feed amendment.

- NRC and State of Utah comments and requests for information relative to the EFN request for the Rhone-Poulenc alternate feed amendment.

- EFN request to the NRC for the amendment to process uranium-bearing material owned by the Cabot Corporation.

- EFN request to the NRC for the amendment to process uranium-bearing material owned by the U.S. Department of Energy.

- IUSA request to the NRC for the amendment to process uranium-bearing material from U.S. Army Corps of Engineers Ashland 2 Site.

- NRC and State of Utah comments and requests for information relative to the IUSA request for the Ashland 2 Site alternate feed amendment, and procedures for determining whether or not the materials contain RCRA listed hazardous wastes.

- IUSA request to the NRC for license amendment to process uranium-bearing material owned by Cameco Corporation.

- IUSA request to the NRC for license amendment to process uranium bearing material from US Army Corps of Engineers Ashland 1 Site.

- IUSA request to the NRC for license amendment to process uranium bearing material from US Army Corps of Engineers St. Louis Site.

- IUSA request to the NRC for license amendment to process uranium bearing material from US Army Corps of Engineers Linde Site

- IUSA request to the NRC for license amendment to process uranium-bearing material owned by W.R. Grace Corporation.

- NRC and UDEQ comments and requests for information relative to the IUSA request for the W.R. Grace alternate feed amendment and dust control for the W.R. Grace Uranium Material.

- Protocol for Determining Whether Alternate Feed Materials Are Listed Hazardous Wastes, developed by IUSA with the concurrence of Utah DEQ, November 1999.

- NRC Initial Decision, February 9, 1999, in the Matter of IUSA Receipt of Material from Tonawanda, New York.

- NRC Memorandum and Order, February 14, 2000, in the Matter of IUSA Receipt of Material from Tonawanda, New York, Affirming the Presiding Officers' Initial Decision to Uphold the Ashland 2 License Amendment.

- IUSA request to the NRC for license amendment to process uranium-bearing material owned by Heritage Minerals, Inc.

Molycorp plans to start shipping on April 1, 2001. Their current excavation plan, as approved by Regional Water Quality Control Board, requires all pond material to be removed within ninety days of the commencement of shipping. NRC's timely review and approval of this request will assist IUSA in meeting Molycorp's mandated schedule.

We believe that use of the above guidance materials, supported by our discussions with the NRC concerning these amendment requests, has allowed us to prepare a complete, concise submittal. Therefore, IUSA requests that the NRC please review the enclosed information, and then attempt to reply to this request within 30 days of submittal. I can be reached at (303) 389.4131.

Sincerely,

Michelle R. Rehmann
Environmental Manager

MRR
Attachments

cc: Ronald E. Berg
William N. Deal
John Espinoza/Molycorp
David C. Frydenlund
Ron F. Hochstein
Bill von Till/NRC
William J. Sinclair/UDEQ
Don Verbica/UDEQ

Request to Amend
Source Material License SUA-1358
White Mesa Mill
Docket No. 40-8681

December 19, 2000

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INTRODUCTION

International Uranium (USA) Corporation ("IUSA") operates the NRC-licensed White Mesa Uranium Mill (the "Mill") located approximately six miles south of Blanding, Utah. The Mill processes natural (native, raw) uranium ores and feed materials other than natural ores. These alternate feed materials are generally processing products from other extraction procedures, which IUSA processes at the Mill, primarily for the source material content. All waste associated with this processing is, therefore, 11e.(2) byproduct material.

This application requests an amendment to NRC Source Material License No. SUA-1358 to allow IUSA to process a specific alternate feed, and to dispose of the associated 11e.(2) byproduct material in accordance with the Mill operating procedures.

1.0 MATERIAL COMPOSITION AND VOLUME

IUSA is requesting an amendment to Source Material License No. SUA-1358 to authorize receipt and processing of certain uranium-containing materials resulting from the processing of natural ore for the extraction of lanthanides and other rare earth minerals. For ease of reference, this material is referred to herein as the "Uranium Material". The Uranium Material is located at Molycorp's Lanthanide Division ("Molycorp") mine and mill site in Mountain Pass, California (the "Mountain Pass site").

The Uranium Material will be transported by Molycorp's transportation contractor from the Mountain Pass site to the Mill. The Uranium Material will be removed from three areas associated with former ponds at the Mountain Pass site. The Site Location Map in Attachment 1 shows the specific location of the Mountain Pass site.

1.1 Historical Summary of Sources

Since 1951, Molycorp has operated a surface mining and milling operation for the recovery and chemical separation of lanthanides and other rare earths from bastnasite ores. Bastnasite ore from a first stage flotation plant is roasted to remove excess carbonates, then leached in a hydrochloric acid solution. Insolubles from the leach solutions are fed to a cerium circuit. The dissolved fraction (leach liquor) is sent to a lead sulfide removal process. Ammonia, sodium hydrosulfide and flocculant are added to the leach liquor, which is fed to a clarifier. Thickened clarifier sludge from this process, containing lead sulfide, iron salts and uranium was transferred to the lead sulfide tailings ponds described in the paragraph below. The clarified leach liquor was fed to the SX-ion exchange circuit for recovery of lanthanides and other rare earth minerals. The process sketch in Attachment 1 is a schematic diagram of the lead sulfide removal process step that preceded the SX-ion exchange circuit.

From 1965 through 1984 Molycorp constructed and operated three lead sulfide ponds. Pond areas P-8, P-11, and P-24, for the evaporation of lead sulfide sludges from the clarifier/thickener operation. The lead sulfide sludges contain uranium, which is also precipitated in the thickener. All three of the lead sulfide ponds were taken out of service prior to 1984. In 1997, Molycorp published a Closure Plan for the decommissioning of the three ponds, which required the removal and offsite disposal or recovery of the lead sulfide sludges contained in the ponds. This amendment request seeks authorization to process the lead sulfide sludges, i.e., the Uranium Material, at the Mill.

Molycorp has requested that IUSA recycle the Uranium Material, and has asked that we submit this amendment request. After excavation of the lead sulfide ponds, Molycorp plans to segregate a portion of the pond contents – flotation tailings – from the excavated material. Molycorp estimates that after separation of the flotation tailings, from 7,750 tons to a conservative estimate of 17,750 tons of lead sulfide sludges, containing uranium, will remain to be shipped off site. Material that will be shipped off site comprises the Uranium Material addressed in this request for amendment.

Attachment 1 includes the following items describing Molycorp's process history and pond decommissioning plans:

1. Portions of the Molycorp letter to the California Regional Water Quality Control Board Regarding Investigation of the Process Ponds (Molycorp, Inc., November, 1995), which describe the operational history of the facility and the ponds, and summarize the analytical results from the initial characterization of the ponds.

2. A portion of the Closure Plan, Lead Sulfide Ponds (Molycorp, Inc., February 1997), which describes the ponds, their physical setting, and their contents.

3. Location maps of the Molycorp Mountain Pass site and the ponds.

4. Molycorp's letter to IUSA (November 1, 1999), which provides a regulatory history of the Uranium Material.

Attachment 2 contains the following information on the composition of the uranium material:

1. A radiochemistry table, which provides a summary of activity levels of uranium and other radionuclides in the Uranium Material.

2. Total Threshold Limit Concentration (TTLC) Tables 1 and 2 and the Unocal/Molycorp internal memos, which provide analytical results from samples of the lead iron filter cake that was fed to the ponds during their operation.

Physically, the Uranium Material is a partially dewatered sediment (sludge) consisting of dense, finely divided solids including uranium.

1.2 Radiochemical Data

As noted above, process history demonstrates that the Uranium Material results from the processing of natural, mined uranium-bearing ores, which were processed for the recovery of lanthanides and other rare earth minerals.

Analytical data provided to IUSA indicate uranium content ranging from 0.002 weight percent to approximately 0.49 weight percent (0.0024 to 0.59 percent U_3O_8), or greater, with an estimated overall average grade of 0.15 percent uranium (0.18 percent U_3O_8) for the entire volume of Uranium Material. Summaries of radionuclide concentrations in the Molycorp Pond Sludges are provided in Tables 1 and 2 and the Unocal internal information memo in Attachment 2. The values reported in the Unocal memo were reported as total concentration for each analyte. The values in Tables 1 and 2 were reported as TTLC values. These values were used to estimate the maximum uranium concentration of 0.49 weight percent and the overall average uranium content of 0.15 weight percent, stated above. However, total concentration is generally a somewhat higher value than TTLC values, for most metal analytes. Hence, the actual content of uranium may be somewhat higher than the reported maximum concentration of 0.49 percent, and the estimated overall average of 0.15 percent uranium.

1.3 Hazardous Constituent Data

NRC guidance suggests that if a proposed feed material consists of hazardous waste, listed under Section 261.30-33, Subpart D, of 40 CFR (or comparable RCRA authorized State regulations), it would be subject to EPA (or State) regulation under RCRA. To avoid the complexities of NRC/EPA dual regulation, such feed material may not be approved for processing at a licensed mill. If the licensee can show that the proposed feed material does not consist of a listed hazardous waste, this issue is resolved. NRC guidance further states that feed material exhibiting only a characteristic of hazardous waste (ignitable, corrosive, reactive, toxic) that is being recycled would not be regulated as hazardous waste and could therefore be approved for recycling and extraction of source material. The NRC Alternate Feed Guidance also states that NRC staff may consult with EPA (or the State) before making a determination on whether the feed material contains listed hazardous waste.

1.3.1 IUSA/UDEQ Listed Hazardous Waste Protocol

In a February 1999 decision regarding the Mill, the Atomic Safety and Licensing Board Presiding Officer suggested there was a general need for more specific protocols for determining if alternate feed materials contain hazardous components. In their Memorandum and Order of February 14, 2000, the Commission concluded that this issue warranted further staff refinement and standardization.

IUSA has been cognizant of the need for specific protocols to be used in making determinations as to whether or not any alternate feeds considered for processing at the Mill contain listed

hazardous wastes, and has taken a proactive role in the development of such a protocol. IUSA has established a "Protocol for Determining Whether Alternate Feed Materials are Listed Hazardous Wastes" (November 22, 1999). This Protocol was developed in conjunction with, and accepted by, the State of Utah Department of Environmental Quality ("UDEQ") (Letter of December 7, 1999). Copies of the Protocol and UDEQ letter are provided in Attachment 3. The provisions of the protocol can be summarized as follows:

- In all cases, the protocol requires that IUSA perform a source investigation to collect information regarding the composition and history of the material, and any existing generator or agency determinations regarding its regulatory status.

- The protocol states that if the material is known -- by means of chemical data or site history -- to contain no listed hazardous waste, IUSA and UDEQ will agree that the material is not a listed hazardous waste.

- If such a direct confirmation is not available, the protocol describes the additional chemical process and material handling history information that IUSA will collect and evaluate to assess whether the chemical contaminants in the material resulted from listed or non-listed sources.

- The protocol also specifies the situations in which ongoing confirmation/acceptance sampling will be used, in addition to the chemical process and handling history, to make a listed waste evaluation.

- If the results from any of the decision steps indicate that the material or a constituent of the material did result from a RCRA listed hazardous waste or RCRA listed process, the material will be rejected.

- The protocol also identifies the types of documentation that IUSA will obtain and maintain on file, to support the assessment for each different decision scenario.

The above components and conditions of the Protocol are summarized in a decision tree diagram, or logic flow diagram, included in Attachment 3, and hereinafter referred to as the "Protocol Diagram".

1.3.2 Application of the Listed Hazardous Waste Protocol

This section describes the relevant portions of the Protocol as they were applied to the Uranium Material.

The IUSA/UDEQ Protocol Diagram states in Decision Step 1, that IUSA will perform a source investigation regarding whether any listed hazardous wastes are located at the site from which the alternate feed material originates. The explanatory text for Protocol step 1 (on page 1, Item

1, bullet 1) states that the following is one type of information that would be considered satisfactory for decision making purposes in the subsequent Protocol Diagram steps:

> "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 that 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."

The Protocol Diagram states in Decision Diamond 2, that if a material "is known not to be or contain any listed hazardous waste", then IUSA and UDEQ will consider the material not to be listed hazardous waste. Item 2 of the Protocol text states that to make the determination in Decision Diamond 2, IUSA may,

> "Determine whether specific information from the Source Investigation exists about the generation and management of the material to support a conclusion that the Material is not (and does not contain) any listed hazardous waste. For example, if specific information exists that the Material was not generated by a listed source and that the Material has not been mixed with any listed wastes, the Material would not be a listed hazardous waste."

In the Affidavit included as Attachment 4, Molycorp confirms that the Uranium Material was generated from a known process under the control of the generator. Molycorp, based on site history, and generator's knowledge of their process, has also certified in the Radioactive Material Profile record ("RMPR") included as Attachment 5, that the Uranium Material contains no RCRA listed hazardous wastes.

Historic Process Review

All components of the Uranium Material are byproducts from the recovery of lanthanides and rare earths, which is not a RCRA listed process. The lead sulfides and uranium were precipitated before the SX-ion exchange circuit, hence, these materials were never in contact with any of the organic extractants applied downstream in the lanthanide circuit. In addition, the lead sulfide ponds were not used for disposal or treatment of any other organic or inorganic wastes at the site. At IUSA's request, Molycorp operations personnel investigated historic operational records to identify whether any other process or industrial wastes were disposed of in the ponds during their history. Molycorp has confirmed that the ponds were used solely for lead sulfide-uranium precipitates, and there are no records that the ponds have ever received any other wastes. Molycorp has further confirmed that during the pond decommissioning excavations, pond sludges will be segregated, containerized, and shipped separately from any other wastes at the site. Molycorp's confirmation that the Uranium Material contains no RCRA listed hazardous waste appears in their letter to IUSA of November 1, 1999 in Attachment 1.

Affidavit

IUSA has required that Molycorp provide an affidavit with a declaration that the Uranium Material is not and does not contain listed hazardous waste. This Affidavit is provided in Attachment 4.

Because the Uranium Material was generated from a known process under the control of the generator, the Affidavit meets the requirement for specific Source Investigation information in the Protocol Diagram Diamond 1 and Step 1. Also, the Affidavit contains specific information about the generation and management of the Uranium Material to support a conclusion that the Uranium Material is not and does not contain any RCRA listed waste as required by Protocol Diagram Diamond 2 and Step 2.

Hence, based on the Molycorp information and the Protocol, IUSA concurs that the Uranium Material is not a listed hazardous waste.

In order for IUSA to characterize the Uranium Material, Molycorp has completed IUSA's RMPR form, stating that the material is not RCRA listed waste. The certification section of the RMPR includes the following text:

> "I certify that the material described in this profile has been fully characterized and that hazardous constituents listed in 10 CFR 40 Appendix A Criterion 13 which are applicable to this material have been indicated on this form. I further certify and warrant to IUC that the material represented on this form is not a hazardous waste as identified by 40 CFR 261 and/or that this material is exempt from RCRA regulation under 40 CFR 261.4(a)(4)."

A copy of the RMPR prepared by Molycorp for IUSA is provided in Attachment 5.

1.3.3 Review by IUSA Independent Consultant

IUSA has also engaged an independent consultant, experienced in RCRA matters and chemical processing, who has reviewed the site history, analytical data, correspondence, IUSA/UDEQ Protocol, the Affidavit, the RMPR, and closure planning documents available from Molycorp to date. The consultant has confirmed that the Uranium Material is not and does not contain RCRA listed hazardous waste. A copy of the consultant's review is provided in Attachment 6.

1.3.4 Compatibility with IUSA Mill Tailings

The Uranium Material contains metals and other constituents that are already present in the Mill tailings disposed of in the Cell 3 impoundment. Generally, the composition of the Uranium Material is similar to the composition of the materials currently present in the Mill's tailings impoundments, because the Uranium Material resulted from the processing of uranium-bearing ores, and will not have an adverse impact on the overall Cell 3 tailings composition. Although the Uranium Material is known to contain elevated concentrations of lead, the lead is present at levels compatible with all other inorganic and organic components of the tailings system

Furthermore, the amount of tailings that would potentially be generated is comparable to the volume that would be generated from processing an equivalent volume of conventional ore. Molycorp, as described above, may be expected to excavate and ship, approximately 7,750 tons to at most, 17,750 tons of Uranium Material from the Mountain Pass site in the year 2001. This additional volume is well within the maximum annual throughput rate and tailings generation rate for the Mill of 680,000 tons per year. Additionally, the design of the existing impoundments has previously been approved by the NRC, and IUSA is required to conduct regular monitoring of the impoundment leak detection systems and of the groundwater in the vicinity of the impoundments to detect leakage if it should occur.

It will be a condition of the license amendment that the Mill shall not accept any Uranium Material at the site unless and until IUSA has determined that sufficient licensed tailings capacity is available to permanently store:

(a) all 11e.(2) byproduct material that would result from the processing of all the Uranium Materials,
(b) all other ores and alternate feed materials on site; and
(c) all other materials required to be disposed of in the Mill's tailings impoundments pursuant to the Mill's Reclamation Plan.

1.4 Regulatory Considerations

Uranium Material Qualifies as "Ore"

According to NRC guidance, for the tailings and wastes from the proposed processing to qualify as 11e.(2) byproduct material, the feed material must qualify as "ore". NRC has established the following definition of ore:

> "Ore is a natural or native matter that may be mined and treated for the extraction of any of its constituents or any other matter from which source material is extracted in a licensed uranium or thorium mill."

The Uranium Material is an "other matter" which will be processed primarily for its source material content in a licensed uranium mill, and therefore qualifies as "ore" under this definition.

Uranium Material Not Subject to RCRA

As described under Section 1.3 above, the Uranium Material to be processed at the Mill will not be subject to regulation as a listed hazardous waste as defined in the Resource Conservation and Recovery Act, as amended, 42 U.S.C. Section 6901-6991 and its implementing regulations, or comparable State laws or regulations governing the regulation of listed hazardous wastes.

Based on the site history, the determinations by Molycorp, and the analysis of IUSA's independent expert consultant, IUSA has concluded that Uranium Material from the Mountain Pass site does not contain any listed hazardous wastes subject to RCRA.

Justification of Certification Under Certification Test

In the Licensee Certification and Justification test set out in the NRC's *Final Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores*, the licensee must certify under oath or affirmation that the feed material is to be processed primarily for the recovery of uranium and for no other primary purpose. IUSA makes this certification below.

Under this *Guidance*, the licensee must also justify, with reasonable documentation, the certification. The justification can be based on financial considerations, the high uranium content of the feed material, or other grounds.

Uranium Content

As stated above, site history and available data indicate that recoverable uranium is present in the Uranium Material. Analytical data provided to IUSA indicate uranium content ranging from 0.002 to approximately 0.49 weight percent, or greater. Based on Molycorp's characterization and volume information, the overall average uranium content of the Uranium Material is estimated to be 0.15 percent uranium (0.18 percent U_3O_8) or higher. This value was derived from an arithmetic average of ten samples collected in the solid phase of the pond sludge, which were analyzed for U-234, U-235, and U-238.

This grade of approximately 0.15 percent uranium (0.18 percent U_3O_8) is higher than many grades of natural ores that have been processed at the Mill. The Mill has successfully extracted uranium from ores and alternate feed materials containing similar levels of uranium.

Financial Considerations

In addition to other financial considerations, IUSA will commit contractually to process the Uranium Material at the Mill for recycling of uranium in consideration of receiving a recycling fee.

Other Considerations

There are several other grounds to support the certification test, including the fact that IUSA has a history of successfully extracting uranium from alternate feed materials, and should be considered to have developed credibility with the NRC, not only for being technically competent, but also for fulfilling its proposals to recover uranium from alternate feeds.

Conclusion

As a result of the above factors, and based on the Commission's reasoning in the NRC *Memorandum and Order, February 14, 2000, In the Matter of International Uranium (USA) Corporation (Request for Materials License Amendment), Docket No. 40-8681-MLA-4*, it is reasonable for the NRC staff to conclude that uranium can be recovered from the Uranium Material and that the processing will indeed occur. As a result, this license amendment satisfies the Certification Test, and the other requirements of the Alternate Feed Guidance, and the tailings resulting from the processing of the Uranium Material will therefore be 11e.(2) byproduct material.

2.0 TRANSPORTATION CONSIDERATIONS

The Uranium Material will be shipped by exclusive-use trucks from the Mountain Pass facility to the Mill in lined, covered, aluminum end-dump trailers. The Uranium Material will be manifested, in accordance with U.S. DOT regulations, as ore for recycling. Molycorp will arrange with a materials handling contractor for the proper labeling, manifesting, and transport of each shipment of the Uranium Material. Each shipment will be "dedicated exclusive use" (i.e., the only material in each container will be the Uranium Material). Molycorp estimates it will ship approximately 60 to 70 trucks per week for an estimated period of less than sixty to, at most, ninety days.

After evaluation of several potential routes, Molycorp's transportation contractor has selected a route via I-15 and I-70 to U.S. Highway 191 at Crescent Junction, Utah, and via Highway 191 south to the Mill. For the following reasons, it is not expected that transportation impacts associated with the movement of the Uranium Material by truck from the Mountain Pass facility to the Mill will be significant:

- The material will be shipped as "ore for recycling" in dedicated, exclusive-use containers (i.e., no other material will be in the containers with the Uranium Material). The containers will be appropriately labeled and manifested, and shipments will be tracked by the shipping company from the Mountain Pass site until they reach the Mill.

- On average during 1998, 459 trucks per day traveled the stretch of State Road 191 between Monticello, UT and Blanding, UT (December 12, 2000 transmittal from State of Utah Department of Transportation ("UDOT") to IUSA).

- Based on the 1998 UDOT truck traffic information, an average of 60 to 70 additional trucks per week traveling this route to the Mill represents an increased traffic load of approximately 2 percent. Shipments are expected to take place over the course of a limited time period, from less than 60 to, at most, 90 days.

- The containers and trucks involved in transporting the material to the mill site will be surveyed and decontaminated, as necessary, prior to leaving the Mountain Pass site for the Mill and again prior to leaving the Mill site for the return trip.

- The uranium material will be transported in lined, covered containers, and airborne dusts will be minimal. Although the Uranium material is known to contain lead, there will be no lead related hazard associated with transport, because there will be no exposure pathway for ingestion or inhalation of the contents of the lined, covered containers during transport.

3.0 PROCESS

The Uranium Material will be temporarily stored on the existing ore storage pad until a sufficient quantity of material is available to begin processing activities. Provisions will be made to utilize water sprays, as required, to minimize dusting during dumping operations. The material will be processed utilizing an acid leach, in existing Mill equipment, to dissolve the uranium values.

The solution will be advanced through the remainder of the Mill circuitry with no significant modifications to either the circuit or recovery process anticipated. Since no significant physical changes to the Mill circuit will be necessary to process this Material, no significant construction impacts beyond those previously assessed will be involved.

Yellowcake produced from the processing of this material will not cause the currently-approved yellowcake production limit of 4,380 tons per year to be exceeded.

4.0 SAFETY MEASURES

Mill employees involved in handling the Uranium Material will be provided with personal protective equipment, including respiratory protection, as required. Airborne particulate and breathing zone sampling results will be used to establish health and safety guidelines to be implemented throughout the processing operations.

The Uranium Material will be delivered to the mill primarily in self-dumping trailers via truck. A small portion may arrive in drums via truck. The Uranium Material will be introduced into the mill circuit either through the trommel screen or through the existing drum handling equipment, previously installed to handle drums of other alternate feed materials. The material will proceed through the leach circuit, CCD circuit, and into the solvent extraction or ion exchange circuit in normal process fashion as detailed in Section 3.0 above. Since there are no major process

changes to the mill circuit, and since the extraction process sequence is very similar to processing conventional uranium solutions, it is anticipated that no extraordinary safety hazards will be encountered.

Employee exposure potential during material handling operations is expected to be no more significant than what is normally encountered during conventional milling operations. Employees will be provided with personal protective equipment including full-face respirators, if required. Airborne particulate samples will be collected and analyzed for gross alpha concentrations. If uranium airborne concentrations exceed 25 percent of the Derived Air Concentration ("DAC"), full-face respiratory protection will be implemented during the entire sequence of material dumping operations. Spills and splashed material that may be encountered during this initial material processing will be wetted and collected during routine work activity. Samples of the Uranium Material indicate it is a neutral material. Therefore, it is anticipated that no unusual PPE apparel will be required other than coveralls and rubber gloves during material handling activities. Respiratory protection will be implemented as determined.

Although the Uranium Material is known to contain lead compounds, IUSA does not anticipate any additional worker hazards due to lead. The primary potential hazards associated with lead result from inhalation or ingestion of particulates of lead or lead compounds. As described above, the Mill already maintains a particulate monitoring procedure and PPE appropriate for protection from airborne dust hazards.

4.1 Control of Airborne Contamination

IUSA does not anticipate unusual or extraordinary airborne contamination dispersion when handling and processing the Uranium Material. IUSA also does not anticipate unusual radon gas accumulation or radon exposure from storing or processing the Uranium Material. The contamination potential is expected to be comparable to what is normally encountered when handling or processing conventional uranium ore. The successive extraction process circuitry including leaching, CCD, solvent extraction or ion exchange, and precipitation are all liquid processes, and the potential for airborne contamination dispersion is minimal. The Uranium Material will already be in a moist solid or in a slurry form when it arrives at the Mill.

The efficiency of airborne contamination control measures during the material handling operations will be assessed after the Uranium Material is received at the Mill. Appropriate dust suppression techniques will be implemented as per the Mill Standard Operating Procedures. Airborne particulate samples and breathing zone samples will be collected in those areas during initial material processing activities and analyzed for gross alpha. The results will establish health and safety guidelines, which will be implemented throughout the material processing operations.

Personal protective equipment, including respiratory protection as required, will be provided to those individuals engaged in material processing. Additional environmental air samples will be taken at nearby locations in the vicinity of material processing activities to ensure adequate

contamination control measures are effective and that the spread of uranium airborne particulates has been prevented.

4.2 Radiation Safety

The radiation safety program which exists at the Mill, pursuant to the conditions and provisions of NRC License No. SUA-1358, and applicable Regulations of the Code of Federal Regulations, Title 10, is adequate to ensure the maximum protection of the worker and environment, and is consistent with the principle of maintaining exposures of radiation to individual workers and to the general public to levels As Low As Reasonably Achievable (ALARA).

Radiological doses to members of the public in the vicinity of the Mill will not be elevated above levels previously assessed and approved.

4.3 Vehicle Scan

After the cargo has been offloaded at the Mill site, a radiation survey of the vehicle and container will be performed consistent with standard Mill procedures (Attachment 7). In general, radiation levels are in accordance with applicable values contained in the NRC Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, U.S. NRC, May, 1987. If radiation levels indicate values in excess of the above limits, appropriate decontamination procedures would be implemented. However, these limits are appropriate for materials and equipment released for unrestricted use only, and do not apply to restricted exclusive use shipments. As stated in Section 2.0 above, the shipments of uranium material to and from the Mill will be dedicated, exclusive loads; therefore, radiation surveys and radiation levels consistent with DOT requirements will be applied to returning vehicles and cargo.

5.0 OTHER INFORMATION

5.1 Added Advantage of Recycling

Molycorp has expressed its preference for use of recycling and mineral recovery technologies for the Uranium Material to be removed from the lead sulfide ponds for three reasons: 1) for the environmental benefit of reclaiming valuable minerals; 2) for the added benefit of reducing radioactive material disposal costs; and 3) for the added benefit of minimizing or eliminating any long term contingent liability for the waste materials generated during processing.

Molycorp has noted that the NRC-licensed Mill has the technology necessary to recycle materials for the extraction of uranium, and to provide for disposal of the 11e.(2) byproduct material, resulting from processing primarily for the uranium, in the Mill's fully lined existing

tailings impoundments. As a result, Molycorp will contractually require IUSA to recycle the Uranium Material at the Mill primarily for the recovery of uranium.

.

Certification of International Uranium (USA) Corporation (the "Licensee")

I, David C. Frydenlund, the undersigned, for and on behalf of the Licensee, do hereby certify as follows:

1. The Licensee intends to enter into a contract with Unocal Molycorp Division (the "Material Supplier") under which the Licensee will process certain alternate feed material (the "Material") at the White Mesa Uranium Mill for the recovery of uranium. As demonstrated in the foregoing amendment application, based on the uranium content, financial considerations, and other considerations surrounding the Material and the processing transaction, the Licensee hereby certifies and affirms that the Material is being processed primarily for the recovery of uranium and for no other primary purpose.

2. The Licensee further certifies and affirms that the Material, as alternate feed to a licensed uranium mill, is not subject to regulation as a listed hazardous waste as defined in the Resource Conservation and Recovery Act, as amended, 42 U.S.C. Section 6901-6991 and its implementing regulations, or comparable State laws or regulations governing the regulation of listed hazardous wastes. The Licensee is obtaining the Material as an alternate feed, consistent with NRC guidance, for the uranium recovery process being conducted at the White Mesa Mill.

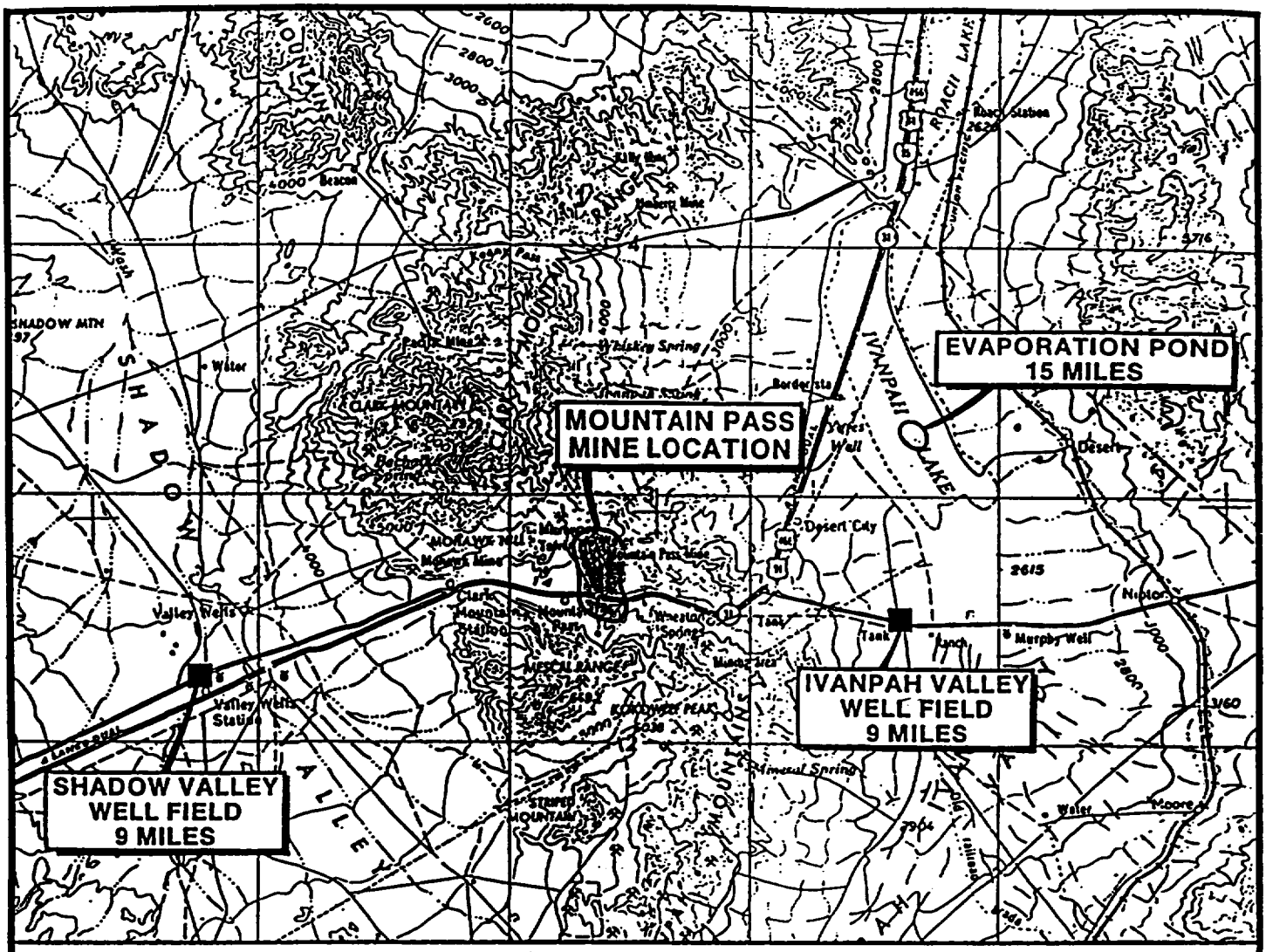
Signature

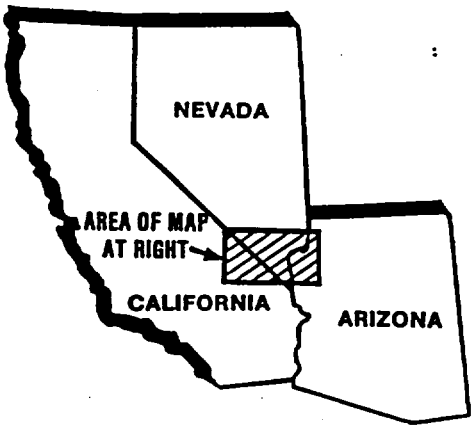
December 19, 2000
Date

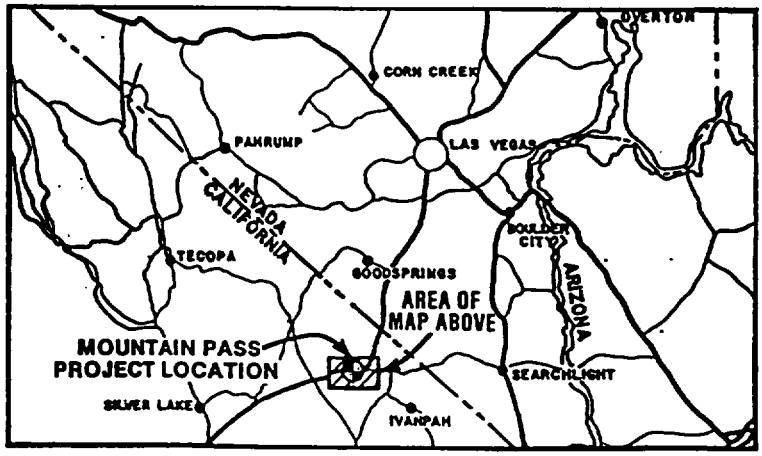
David C. Frydenlund
Vice President and General Counsel
International Uranium (USA) Corporation

ATTACHMENT 1

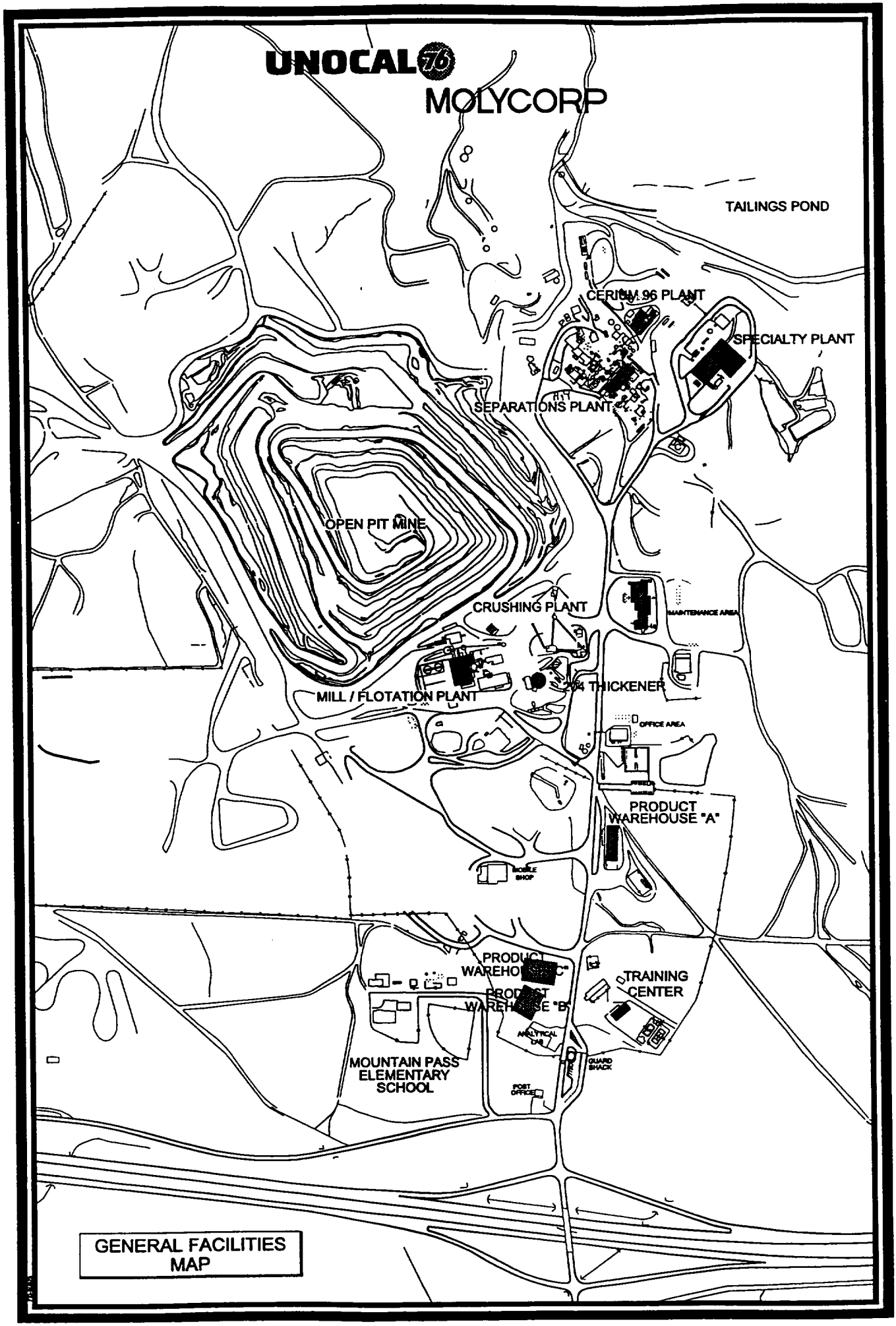
Molycorp Location Maps,
Process History, and
Flow Diagram







FACILITY LOCATION


UNOCAL 76
MOLYCORP
TAILINGS POND
CERIUM 96 PLANT
SPECIALTY PLANT
SEPARATIONS PLANT
OPEN PIT MINE
CRUSHING PLANT
MAINTENANCE AREA
MILL / FLOTATION PLANT
204 THICKENER
OFFICE AREA
PRODUCT WAREHOUSE "A"
MOBILE SHOP
PRODUCT WAREHOUSE "C"
PRODUCT WAREHOUSE "B"
TRAINING CENTER
ANALYTICAL LAB
GUARD SHACK
MOUNTAIN PASS ELEMENTARY SCHOOL
POST OFFICE
GENERAL FACILITIES MAP

Molycorp Inc.
P.O. Box 124
Mountain Pass, California 92366
Telephone: (619) 856-2201
Facsimile: (619) 856-2253

UNOCAL 76
MOLYCORP

1995 MTP LRLQCB (Gen/Oth)
19951106 Moly2 LRWQCB – Lead Ponds
-Don't scan Converse Rpt (Attach A) → loose pages only
- Please fax this report to John Espinoza ASAP Thanks

Mr. Curt Shifrer
California Regional Water Quality Control Board
Lahontan Region
Victorville Branch Office
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359

Re: Investigation of Process Ponds P-8, P- 11, P-24

Dear Mr. Shifrer:

Molycorp, Inc. has prepared this letter report to satisfy requirements set forth in Section II (9) (b) of Board Order 6-91-836 for the investigation and inventory of process ponds. These ponds contain materials with lanthanide concentrations averaging over 20% with elevated concentrations of lead sulfide. The ponds addressed in this letter report are P-8, P-11 and P-24.

PRODUCTION HISTORY

Molycorp began operations at Mountain Pass in 1952 using a rod mill left from a predecessor company operating a small gold operation at Mountain Pass. Molycorp installed a ball mill and flotation cells. Production was initially very limited with only bastnasite concentrate being produced.

In the fall of 1964 Molycorp learned that one of the minor metals, europium, was in critical demand as a red phosphor for color televisions. To meet the new demand for europium, Molycorp constructed the Europium Plant, now the Chemical Plant, and placed it in operation in November of 1965.

As a consequence of the new process used in the recovery of europium, a process stream was generated which contained lanthanide minerals with elevated levels of lead sulfide and iron hydroxide.

MELISSA M. ALLAIN

NOV 1 3 1995

Bastnasite concentrate was delivered from the flotation plant to the Europium Plant where it was roasted to drive off carbon dioxide and oxidize the cerium to a less soluble (+3 to +4) valence state. This material was then subjected to a HCl leach which solubilized all the lanthanides except cerium. The cerium was settled out as a solid residue, filtered, dried and packaged as a finished product. The solution remaining after cerium removal was processed to remove iron hydroxide and lead sulfide.

The lead and iron removal was a continuous separation process. Iron was precipitated first by using ammonia to increase the pH. The iron-free supernatant overflowed to a second tank for lead precipitation using sodium hydrogen sulfide. The remaining solution was then circulated in preparation for introduction into the solvent extraction circuits.

The process stream enriched in lanthanide chlorides, iron hydroxide and lead sulfide was gravity discharged at various times to three unlined impoundment's as shown on the attached facility map.

During the initial startup at the Europium Plant, iron was not precipitated into the process stream. However, at a later date iron hydroxide was introduced to this stream. The effluent from this initial activity was gravity discharged into P-24 from approximately 1965 to 1967. Pond P-8 was the next facility used to store the lead iron residue. It was operated from approximately 1967 to 1981. The last pond to receive this waste stream was P-11 which was operated from 1981 to 1984. None of the ponds received additional material after 1984.

The process resulting in the production of the lead iron residue was the same basic process that resulted in the production of lead iron filter cake barreled and stored at Molycorp after 1984. The major difference was that the barreled material was placed in a filter press to reduce free moisture before storage. Also, the lead iron pond residues have greater concentrations of lanthanides than filter cake because of the lanthanide rich solutions that carried the residue. Barreled lead iron filter cake was stabilized by Molycorp under the terms of a Settlement Agreement finalized with the California Department of Toxic Substances in 1995, and is currently being fed to process for the purpose of lanthanide recovery.

WASTE CHARACTERIZATION STUDY

A field project was undertaken on August 8, 1995 to quantify volumes and characterize the material in the process ponds. The site sampling program was conducted by Converse Consultants Southwest, Las Vegas. Pond profiles were developed by logging of pond materials retrieved from split spoon auger samples obtained from pond power augering or hand auger samples where more appropriate. A complete description of the sampling program including sampling procedures and calculated pond volumes are attached as Attachment A, "Lead Pond Waste Management Unit Characterization".

Samples were shipped to Lockheed Analytical Laboratory, a California state certified laboratory for analysis. Analysis performed by Lockheed included metals listed in Title 22 of the California Health and Safety code and total uranium and thorium concentrations. Sample splits were analyzed at Molycorp's in-house laboratory for chloride, sulfate, lanthanides and moisture content. All constituents are reported on a dry weight basis.

POND DESCRIPTION

Volumes and cross-sections of the ponds are presented in Attachment A. Ponds were found to contain a total of between 3,851 and 4,326 cubic yards of lead iron residue.

Pond P-8 was found to consist of approximately 445 cubic yards of lead iron residue. This material is overlain with approximately 1,445 cubic yards of mill tailings averaging five feet in thickness. The lead iron residue in pond P-8 appears to be in the reduced state due to the tailings cover.

Pond P-11 was found to have a cap of oxidized lead iron residue overlying unoxidized lead iron residue. The oxidized residue is estimated to have a volume of between 300 to 775 cubic yards with a maximum thickness of 4.5 feet near the center of the pond. The reduced lead iron residue consists of approximately 2,815 cubic yards.

Pond P-24 was found to be very shallow with a depth of approximately 1 foot of mixed oxidized and reduced lead iron residue encountered. The total volume of lead iron residue in P-24 is estimated to be 285 cubic yards.

ANALYTICAL RESULTS

Analytical results for the lead iron residue containing lead and iron are summarized in Tables 1 and 2. Table 3 summarizes analytical results of the mill tailings in P-8. Table 4 compares analysis of barreled lead iron filter cake that was subsequently stabilized and is being fed back to process with pond lead iron residue.

Figure 2 and 3 show graphical representations of comparative concentrations of key chemical constituents in each pond. Figure 4 shows a graphical comparison of tailings material to lead iron residue, clearly establishing the distinct chemical composition of each material. A discussion of the differences found between the barreled material prior to stabilization and the pond material follows.

Lead

Lead concentrations in the barreled material ranges from 52,000 to 100,000 mg/kg while the material in the ponds ranges from 1,544 to 262,410 mg/kg. The low lead values are believed to occur in zones intermingled with mill tailings. Further evidence for this is the high barium content of the material containing comparatively low lead concentrations. As indicated above, the lead concentration in the pond material is much greater than the barreled stabilized material.

Barium

Barium in the barreled material averages 4 mg/kg while barium in the ponded material averages 6629 mg/kg in the oxidized lead iron residue and 6884 mg/kg in the unoxidized lead iron residue (Refer to Figure 2 for illustration). The high barium values are attributable to the interlayering of mill tailings.

Lanthanides

The total lanthanide content reported as an oxide in the oxidized lead/iron residue averages 21.77% while the average in the reduced material averages 14%. The unoxidized material may have a lower average content due to more interbedded mill tailings. The barreled material averaged 60% lanthanides reported as chlorides.

Radionuclides

Total uranium in the barreled material averages 2800 mg/kg. Oxidized material in the pond averages 1351 mg/kg while the unoxidized material averages 1333 mg/kg. These values are lower than the barreled material due to the intermingling of mill tailings with the lead iron residue.

Pond P-24 contains lower uranium and thorium values than the other two process ponds. This could be a result of this pond receiving effluent before iron was precipitated and added to the process stream.

Total thorium in the barreled material averages 240 mg/kg. The oxidized lead iron residue in the ponds averages 1152 mg/kg. The concentration of thorium in the unoxidized lead iron residue in the ponds averages 457 mg/kg.. The thorium concentration is much higher in one sample of oxidized lead iron residue from P-24 (5954 mg/kg). The composition of lead iron residue is well known and this thorium concentration is much higher than expected. Therefore, this sample has not been included in the calculation of the average concentrations within the ponds, since it is considered an anomaly.

Trace Constituents

The concentrations of the remaining Title 22 metal concentrations are similar between the barreled material and lead iron residue contained in the ponds.

ECONOMICS OF THE RECOVERY OF LANTHANIDES FROM POND RESIDUES

Attachment B to this letter discusses the value of reintroduction of the lead iron residue lanthanide material containing lead and iron to the current lanthanide recovery process . If reintroduced to the Chemical Plant using facilities currently being utilized for stabilized filter cake introduction, a cost for processing of the material is estimated at $0.50 a pound of recovered lanthanum oxide with a current market value of approximately $1.15/lb. Thus, the processing of pond residues for the recovery of lanthanides is economically justified.

PLAN FOR DETERMINING METHOD FOR POND CLOSURE

Molycorp is working diligently towards the processing or disposal of mining by-products at Mountain Pass. During 1995, lanthanide lead iron filter cake was stabilized at the Mountain Pass site. The stabilized material is currently being fed to the Chemical Plant for the recovery of lanthanides. The schedule mandated in the Settlement Agreement with the California Department of Toxic Substances requires that all stabilized material be processed for recovery of lanthanides or removed for disposal within a three year period beginning in August, 1995.

The reintroduction of stabilized filter cake has required the development of new process knowledge and techniques to keep lanthanide products within quality specifications while maximizing lanthanide recovery from the stabilized material. The same types of considerations are inherent to the processing of lead iron residue contained in the ponds.

For this reason, Molycorp proposes to evaluate several options for the permanent closure of the ponds. These options are listed below.

Processing of Pond Material in the Chemical Plant

Processing of Pond Material in the Mill

Close Ponds in Place Using an Engineered Cover and Diversion Ditches

As feasibility is considered, it is possible that other options may become attractive for the processing, containment or off site processing of the lead iron residue for lead recovery.

SCHEDULE FOR EVALUATION OF OPTIONS

Molycorp proposes to conduct the necessary engineering and process feasibility studies during the next six months. A report that provides a comparison of the feasibility and results of bench testing for the various options will be submitted by May 1, 1996. A preferred option(s) will be proposed at that time.

After submittal of this feasibility report, the recommended option(s) will be pilot tested under actual operating conditions. This process will take up to 6 months. At the conclusion of the pilot testing, Molycorp will submit a project schedule and detailed plan for the processing or containment of the pond residues.

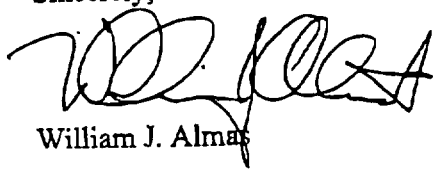
CONCLUSION

- Molycorp has determined the volume and characterized the pond materials contained in P-8, P-11, P-24. These results are submitted as part of this report.
- Analysis of the pond materials shows it contains significant lanthanide and lead values and could be economically processed for the recovery of lanthanides.
- Reintroduction of similar, stabilized material presently being introduced to the Chemical Plant indicates that the pond residue can be introduced to the Molycorp process for the recovery of lanthanides.
- Molycorp proposes a schedule allowing systematic engineering and economic evaluation of the various options available for processing or containment.
- Results of feasibility and bench testing of the pond residues will be summarized and submitted in a report on May 1, 1996. A detailed plan and schedule for the processing or covering of the pond material based on actual pilot testing in operating conditions will be submitted no later than one year from the date of this submittal (November 1, 1996).

Depending on the best method for processing or containment, action will either commence immediately after review or approval of the detailed plan, or be sequenced to allow processing or cover after the stabilized lead/iron filter cake has been fed to process.

Please do not hesitate to call me if you have any questions concerning this matter.

Sincerely,



William J. Almas

attachments

cc: M. Allain, Unocal Law

1.0 INTRODUCTION

This Closure Plan has been prepared for the closure of three lead sulfide ponds (P-8, P-11, and P-24) located at the Molycorp, Inc. (Molycorp) mine in Mountain Pass, California. Surface mining, milling, and the chemical separation of lanthanides and other rare earths are performed at this site. The three ponds were used in the past to hold mill tailings, and to collect lead/iron filtrate material from processing facilities in the form of a sulfide complex (Converse Environmental Consultants, September 1995).

This plan has been prepared under the California Regional Water Quality Control Board (CRWQCB), Lahontan Region, Board Order No. 6-91-836, Item 10.h, in accordance with Title 23 of the California Code of Regulations (23 CCR), Chapter 15, Articles 7 and 8. Closure procedures are discussed below. A Sampling and Analytical Plan (S&AP), which discusses cleanup criteria and cleanup confirmation methodology, is presented as Attachment 1. A Health & Safety Plan (H&SP), which discusses general site requirements and specific safety concerns for field work, is presented as Attachment 2.

2.0 FACILITY INFORMATION

2.1 Location

The mine is located in the Eastern California Mojave Desert at an elevation of approximately 4,800 feet above mean sea level. The mine is located in a pass between the Ivanpah and Clark Mountains in a region characterized as mountainous. The climate is a semiarid. The mine site encompasses approximately 2,109 acres, of which approximately 355 acres are involved in active mining and processing. Accessibility to the site by road is through Interstate Highway 15 (I-15), 1 mile north on

Bailey Road. Because the mine is located in the vicinity of a major freeway, the site is not considered remote.

The three lead sulfide ponds are located generally down gradient, to the south and east of the open pit mine and ore processing facilities at the Mountain Pass mine. The ponds are remote and relatively isolated from facility traffic. The locations of the three ponds are illustrated on Figure 1. Figure 1A illustrates the topography in the vicinity of the ponds.

2.2 Geology

The mine is situated within a northwest-trending, fault-bounded block of metamorphic rocks. The rocks exposed to the west, across the Clark Mountain Fault, are comprised primarily of limestone and dolomite. To the east of the metamorphic complex is quaternary alluvium.

The metamorphic complex is characterized by gneisses of varying compositions, pegmatitic intrusives, and carbonatite intrusives. The carbonatite intrusives contain the mineral bastnaesite, the principal target of the mine's operations. Bastnaesite contains all of the principal lanthanide series elements, including Cerium, Lanthanum, Neodymium, Praseodymium, and others.

2.3 Hydrology

Young alluvium is the primary water bearing unit. Groundwater runs approximately north to south under the site, after which the flow splits and moves easterly towards Ivanpah Dry Lake and westerly towards Shadow Valley. According to the Regional Water Quality Control Board (RWQCB) Order No. 6-91-836, past wastewater disposal operations have caused degradation of underlying ground waters. Impacts to groundwater are being managed under a separate Corrective Action Plan.

3.0 WASTE MANAGEMENT UNITS

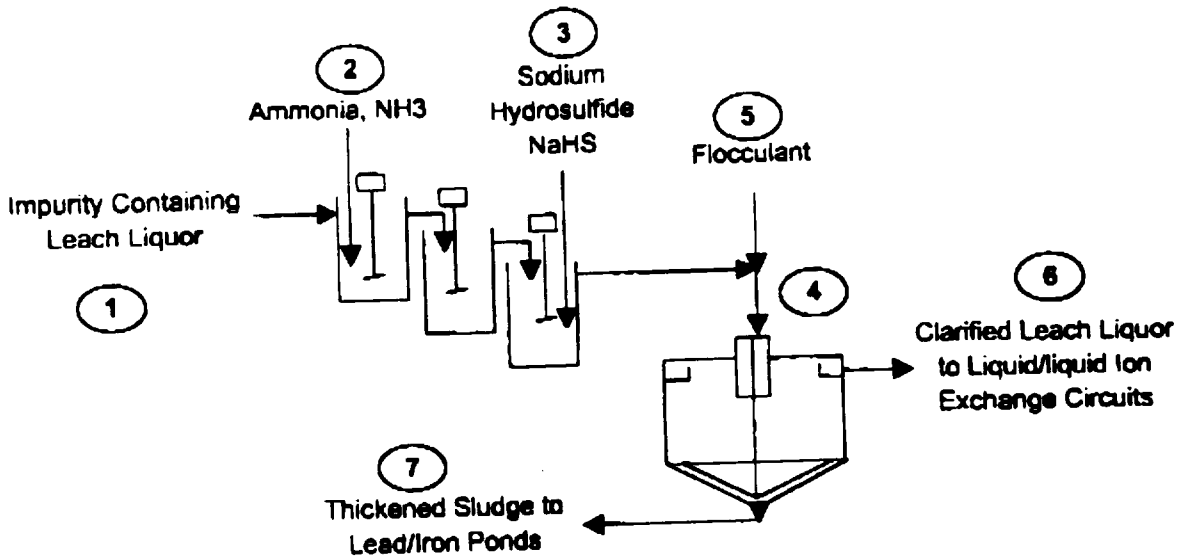
3.1 Physical Description

Three pond areas, P-8, P-11, and P-24, formerly accepted water discharges from the mill and lanthanide recovery operation. These ponds range in size from 4,300 ft^2 to 14,000 ft^2 in surface area. The ponds are relatively shallow and are defined by soil dams and berms. The ponded material extends to a maximum depth of approximately 11 feet below grade surface (bgs) in ponds P-8 and P-11, and 2 feet bgs in pond P-24. Although the surface of the ponds is dry, moisture is present inches below the surface in some locations. The ponded sediment is underlain with bedrock and/or native soil in all three management units. A plan view map of the 3 pond areas is presented in Figure 1. Information regarding the estimated overall dimensions and materials of the ponds is summarized in the table below.

The sediments deposited in Ponds P-11 and P-24 are present in banded layers of lead iron residue and oxidized lead iron residue (also referred to as lead sulfide residues in previous reports). Oxidized lead iron residue is found in the upper layers of the ponds. In Pond P-8, the lead iron residue materials are overlain by mill tailings material. Cross-sectional drawings of Pond P-8, P-11, and P-24, prepared by Converse Environmental Consultants Southwest, Inc. (Converse), are presented as Figure 2A/2B, Figures 3A/3B, and Figures 4A/4B, respectively.

The ponded material is defined by 23 CCR as a Group B mining waste, and is regulated by the RWQCB, Lahontan Region. The ponds have not been in operation since prior to 1984.

PbS Pond Residue Process Diagram



1. Bastnasite concentrate from the flotation plant is roasted to remove excess carbonates prior to the leaching process. The roasted bastnasite is leached in a hydrochloric acid solution. The insoluble material becomes the cerium feedstock and the leach liquor is sent for further impurity removal and lanthanide recovery using SX-Ion exchange.

2. Ammonia was added to the circuit to precipitate iron. Incidental lanthanide precipitation also occurred.

3. Sodium hydrosulfide was added to the circuit to precipitate lead. The uranium followed the lead in precipitation.

4. The slurry reports to the thickener for settling.

5. Flocculent is added to the slurry at the thickener.

6. The thickener overflow liquor reports to the SX circuit.

7. The thickener underflow, PbS residue, reported to the PbS settling ponds.

Molycorp, Inc.
Lanthanide Group
6775C Bailey Road P O Box 124
Mountain Pass, CA 92366
Telephone (760) 856-2201
Facsimile (760) 856-2253

NOV - 5 1999

1 November 1999

Ms. Michelle Rehmann
International Uranium Corporation
Environmental Manager
Independence Plaza, Suite 950
1050 Seventeenth Street
Denver, CO 80265

Re: Information Needed for Filing an Amendment for Reception of Lead Sulfide Materials

Dear Ms. Rehmann:

In response to your letter dated 14 October 1999 and our telephone discussion, the following is given in response to your questions:

1. The estimated volume of the lead sulfide pond residues.

   The estimated volume in the three ponds is 155,000 ft³ total including approximately 39,000 ft³ of flotation tailings that Molycorp will attempt to separate from the lead sulfide residues while excavating the pond materials.

2. A process sketch or description of the lanthanide recovery process that generated the streams discharged to the three ponds.

   See attached diagram.

3. A description of other sources (if any) of streams discharged to the three ponds.

   Approximately 39,000 ft³ of material contained in the ponds is mill tailings from the flotation concentration of bastnasite minerals which became the feedstock that produced the lead sulfide residues. Molycorp will attempt to separate this material from the lead sulfide residues while excavating the pond materials.

4. Confirmation or evidence that the non-radioactive metals in the three ponds did not come from a RCRA listed processes. It would be most useful to receive a formal statement or other confirmation that the pond contents are exempt from RCRA under the Bevill amendments.

   None of the materials placed in the lead sulfide ponds are a listed hazardous waste.

5. Organic analysis of the three ponds, or confirmation that the pond sludges contain no organic constituents.

   No analysis is available at this time. Molycorp believes that no significant amount of organics, if any, exist in the lead sulfide pond residues.

6. Confirmation or evidence that organic compounds (if any) in the three ponds did not come from RCRA listed processes.

   The materials shipped to the White Mesa Mill, IUC, from the lead ponds will not contain any compound, either inorganic or organic, whose origin is a RCRA-listed process.

7. Information on organic solvent use (if any) at the site.

   The lanthanide separations process uses kerosene in the SX circuit. However, the lead sulfide residues were created, and removed from the process, upstream of the SX circuit.

If you have any further questions, please contact me by telephone at (760) 856-7645 or fax at (760) 856-6691.

Cordially Yours,

ATTACHMENT 2

Uranium Content Estimates
Material Description and Analytical Data
for Uranium Material

Attachment D.2.

RADIOCHEMISTRY OF P8, P11, AND P24: LEAD PONDS

Sample ID	Ra^{226}	Ra^{228}	Total Ra	Th^{228}	Th^{230}	Th^{232}	Total Th	U^{234}	U^{235}	U^{238}	Total U	Total Activity
P8-2-5.0 - 5.5	3.3	2.7	6	7.45	2.29	5.55	15	1.91	0.1	2.13	4	25
P8-5-2.0 - 2.5	0.7	0.8	1	11.8	5.15	13.9	31	101	-4.9	104	200	232
P8-1-6.0 - 6.5	28.8	18.6	47	30.7	8.88	16.2	56	607	57.4	379	1043	1147
P8-5-3.0 - 3.5	1.9	1.5	3	7.47	9.9	10.8	28	4.32	1.02	5.22	11	42
P8-5-6.0 - 6.5	30.8	21.6	52	50.22	20.9	41.0	112	392	-2.43	452	842	1006
P8-6-6.0 - 6.5	34.2	63.2	97	41.8	20.9	52.3	115	776	28.6	816	1621	1833
P11-4-2.2 - 2.5	30.4	25.1	56	32.8	31.4	21.2	85	990	83.3	1090	2163	2304
P11-4-4.8 - 5.0	65.4	68.7	134	23.7	13.7	22.6	60	367	53.3	430	850	1044
P24-1-Bag (Comp)	10.8	14	25	135	15.8	87.7	239	191	224	25.3	440	704

Tables 1,2,3 and 4

Total Threshold Limit Concentrations for Constituents Listed

Investigation of Process Ponds, Molycorp, Inc., November 6, 1955

Total Threshold Limit Concentration (TTLC) Analysis on Dry-Weight Basis
Unoxidized Lead\Iron Residue

Table 1

Constituent	P8-4 (4.5-4.0) Concentration (mg/kg)	P8-4 (6.5-7.0) Concentration (mg/kg)	P8-5 (5.0-5.5) Concentration (mg/kg)	P8-6 (8.0-8.5) Concentration (mg/kg)	P11-1 (5.0-5.5) Concentration (mg/kg)	P11-1 (6.5-7.0) Concentration (mg/kg)	P11-2 (4.5-5.0) Concentration (mg/kg)	P11-2 (7.0-7.5) Concentration (mg/kg)	P11-2 (10.0-10.5) Concentration (mg/kg)	P11-3 (4.5-5.0) Concentration (mg/kg)
Antimony	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
Arsenic	9.0	<2.0	12	<2.0	<2.0	32.9	<2.0	61.7	<2.0	<2.0
Barium	14,804	589	22190	708	374	1549	695	26244	477	1213
Beryllium	22	105	10	31	36	39	43	13	37	38
Cadmium	<4.0	<4.0	<4.0	6.9	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Chromium	<2.0	<2.0	2.3	<2.0	<2.0	<2.0	<2.0	24.7	<2.0	<2.0
Cobalt	22	41	19	<10	16	33	36	29	21	<10
Copper	<5.0	435	6	163	179	203	221	<5.0	97	117
Fluoride	<0.5	41	3.7	9.1	7.5	0.9	10.9	<0.5	10.5	20.0
Lead	1,571	235595	2441	278870	128472	172085	189545	1544	114450	112113
Mercury	0.56	1.16	0.12	0.71	0.41	0.58	0.74	0.48	0.21	0.46
Molybdenum	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
Nickel	<8.0	51	<8.0	21	21	39	52	31	14	15
Selenium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	122.0	174.9	<2.0
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thorium ^{232}	137.61	666.61	450.46	100.92	455.05	153.21	1338.45	95.41	366.61	539.45
Thorium ^{230}	2.96E-04	5.69E-04	2.46E-04	1.41E-04	1.72E-04	1.95E-04	6.83E-04	1.79E-04	1.80E-04	1.91E-04
Thorium ^{228}	2.30E-08	6.93E-08	8.76E-08	2.20E-08	3.13E-08	6.66E-08	1.99E-07	1.63E-08	6.65E-08	3.61E-08
Total Thorium	137.61	666.61	450.46	100.92	455.05	153.21	1339.45	95.41	366.61	539.45
Uranium ^{235}	17.57	4074.65	18.98	1505.99	1736.53	232.93	2149.70	15.90	1086.83	1625.75
Uranium ^{234}	2.87	612.62	2.49	221.03	257.48	33.46	310.28	2.39	171.03	262.15
Uranium ^{235}	1.32	219.22	2.25	81.68	87.99	14.41	225.23	2.01	60.96	75.68
Total Uranium	21.77	4906.69	23.72	1808.70	2081.99	280.81	2685.21	20.30	1318.82	1963.57
Vanadium	199	<10	43	<10	<10	19	<10	136	25	<10
Zinc	415	435	51	161	358	3129	727	117	223	98

Constituent	P8-4 (5.0-5.5) Concentration (mg/kg)	P8-4 (7.0-7.5) Concentration (mg/kg)	P8-5 (5.5-6.0) Concentration (mg/kg)	P8-6 (8.5-9.0) Concentration (mg/kg)	P11-1 (4.0-4.5) Concentration (mg/kg)	P11-1 (6.0-6.5) Concentration (mg/kg)	P11-2 (5.0-5.5) Concentration (mg/kg)	P11-2 (8.0-8.5) Concentration (mg/kg)	P11-2 (10.5-11.0) Concentration (mg/kg)	P11-3 (4.0-4.5) Concentration (mg/kg)
Chloride	3,300	7,200	6,500	9,300	11,900	69,900	14,300	46,500	8,300	700
LnO	130,000	16,600	274,500	236,100	29,300	337,800	43,600	304,100	26,300	2,200
Sulfate	160,700	119,800	14,400	124,300	136,300	188,800	105,600	168,100	243,700	117,200
% H2O	44.61%	60.95%	9.87%	64.63%	62.62%	56.44%	57.95%	54.37%	58.96%	53.58%

Total Threshold Limit Concentration (TTLC) Analysis on Dry-Weight Basis
Oxidized Lead\Iron Residue

Table 2

Constituent	P11-1 (2.0-2.5) Concentration (mg/kg)	P11-2 (2.0-2.5) Concentration (mg/kg)	P11-3 (2.5-3.0) Concentration (mg/kg)	P24-1 (0.5-1.0) Concentration (mg/kg)	P24-1 (1.5-2.0) Concentration (mg/kg)	P24-4 (0.5-1.0) Concentration (mg/kg)	P24-5 (0.5-1.0) Concentration (mg/kg)
Antimony	<12	<12	<12	<12	<12	<12	<12
Arsenic	4.6	47	5.3	24	11.2	5.7	4.7
Barium	8,309	24,139	411	8,222	2,580	2290	454
Beryllium	105	12.7	20	58	3.7	16	2.6
Cadmium	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Chromium	<2.0	19	<2.0	<2.0	56	<2.0	45
Cobalt	<10	33	13	58	30	<10	<10
Copper	612	<5.0	64	<5.0	41	110	15
Fluoride	72	9.02	3.1	122	47	31	23
Lead	262,410	5,463	75,447	33,333	12,043	228,984	2,213
Mercury	1.53	0.36	0.21	0.51	<0.10	0.6	<0.10
Molybdenum	<40	<40	<40	<40	<40	<40	<40
Nickel	<8.0	25	<8.0	69	50	16	38
Selenium	<5.0	<5.0	<5.0	<5.0	11.2	<5.0	<1.0
Silver	<2.0	<2.0	<2.0	111	<2.0	<2.0	<2.0
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Thorium ^{232}	219.27	372.48	571.56	749.54	133.03	5954.13	62.39
Thorium ^{230}	1.54E-04	3.72E-04	2.61E-04	2.81E-04	7.64E-05	2.14E-03	5.68E-05
Thorium ^{228}	4.99E-08	1.19E-07	1.25E-07	9.96E-08	1.77E-08	7.61E-07	8.05E-09
Total Thorium	219.27	372.48	571.56	749.54	133.03	5954.13	62.39
Uranium ^{238}	2529.94	3502.99	1197.60	80.54	20.15	317.37	5.93
Uranium ^{234}	389.72	546.73	195.33	13.41	2.86	75.23	1.04
Uranium ^{235}	135.14	198.20	104.80	12.61	2.04	126.13	0.57
Total Uranium	3054.79	4247.92	1497.74	106.56	25.07	518.73	7.53
Vanadium	<10	71	<10	111	82	72	33
Zinc	700	534	777	911	237	229	71

Constituent	P11-1 (2.5-3.0) Concentration (mg/kg)	P11-2 (2.5-3.0) Concentration (mg/kg)	P11-3 (3.0-3.5) Concentration (mg/kg)	P24-1 (0.5-1.0) Concentration (mg/kg)	P24-1 (1.5-2.0) Concentration (mg/kg)	P24-4 (0.5-1.0) Concentration (mg/kg)	P24-5 (1.0-1.5) Concentration (mg/kg)
Chloride	4,600	2,400	30,200	12,300	3,600	9,300	12,700
LnO	332,100	128,400	389,400	280,500	3,300	305,700	84,800
Sulfate	141,600	8,400	135,300	145,200	113,700	11,700	33,100
% H2O	54.27%	21.29%	9.87%	55.00%	53.50%	30.12%	14.14%

Total Threshold Limit Concentration (TTLC) Analysis on Dry-Weight Basis
Mill Tailings Cover in Pond P-8

Table 3

Constituent	P8-4 (2.0-2.5) Concentration (mg/kg)	P8-6 (2.0-2.5) Concentration (mg/kg)
Antimony	<12	<12
Arsenic	10.7	11.0
Barium	11,717	12,620
Beryllium	4.7	6.8
Cadmium	<4.0	<4.0
Chromium	<2.0	<2.0
Cobalt	11	14
Copper	<5.0	<5.0
Fluoride	5.5	20.7
Lead	2,876	2,180
Mercury	0.15	0.22
Molybdenum	<40	<40
Nickel	<8.0	<8.0
Selenium	<5.0	<5.0
Silver	<2.0	<2.0
Thallium	<2.0	<2.0
Vanadium	17	32
Zinc	43	69

Constituent	P8-4 (2.5-3.0) Concentration (mg/kg)	P8-6 (2.5-3.0) Concentration (mg/kg)
Chloride	4,100	2,700
LnO	30,200	67,800
Sulfate	83,000	77,100
% H2O	6.52%	14.73%

Total Threshold Limit Concentration (TTLC) Analysis on Dry-Weight Basis
Comparison of Average Compositions of Barreled Material, Pond Material and Mill Tailings

Table 4

Constituent	Barrel Comp. Concentration (mg/kg)	Oxidized Concentration (mg/kg)	Unoxidized Concentration (mg/kg)	Mill Tailings Concentration (Mg/Kg)
Antimony	<4	<12	<12	<6
Arsenic	4.0	14.6	11.5	12.4
Barium	4	6,629	6,884	23,150
Beryllium	90	31.1	37.3	<2
Cadmium	24	<4.0	0.89	<1
Chromium	12	17	2.7	<2
Cobalt	18	19	21.7	<2
Copper	480	120	142.1	33
Fluoride	NA	44	10.3	NA
Lead	52,600	88,556	123,768	1,553
Mercury	2.00	0.46	0.544	0.22
Molybdenum	56	<40	<40	<2
Nickel	36	28.3	24.54	<2
Selenium	<0.4	1.6	<5.0	<.4
Silver	<1.0	15.8	29.7	<2
Thallium	84	<2.0	<2.0	<2
Total Thorium	240	1152	466	NA
Total Uranium	2800	1352	1333	NA
Vanadium	20	52.7	42.2	<2
Zinc	840	494	571.3	29

NA = Not Analyzed

NEL LABORATORIES
Reno • Las Vegas
Phoenix • Burbank

Las Vegas Division
4208 Arcata Way, Suite A • Las Vegas, NV 89030
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1-888-368-3282

CLIENT: Molycorp, Inc.
67750 Bailey Road
Mountain Pass, CA 92366
ATTN: Geoff Nason

PROJECT NAME: NA
PROJECT NUMBER: NA

NEL ORDER ID: L9802117

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 2/12/98.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process.
Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.
Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

LEAD Ponds Radiochemistry

Michael Stanton for S.V.W.
Stan Van Wagenen
Laboratory Manager

3/5/98
Date

CERTIFICATIONS:

	Reno	Las Vegas	Burbank
Arizona	AZ0520	AZ0518	AZ0325
California	1707	2002	1192
US Army Corps of Engineers	Certified	Certified	Certified

	Reno	Las Vegas	Burbank
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
Washington			Certified

2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Radium 226/228
Method: EPA 903.0/9

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	3.29	0.35	0.048	PCI/G
							Radium-228	2.71	0.64	0.75	PCI/G
P-8-5-2.0-2.5	16940-004	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	0.67	0.10	0.087	PCI/G
							Radium-228	0.81	0.55	0.88	PCI/G
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	28.8	2.8	0.050	PCI/G
							Radium-228	18.6	2.2	0.97	PCI/G
P-8-5-3.0-3.5	16940-006	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	1.94	0.22	0.054	PCI/G
							Radium-228	1.69	0.68	1.02	PCI/G
P-8-5-6.0-6.5	16940-007	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	30.8	3.0	0.048	PCI/G
							Radium-228	21.6	2.6	1.06	PCI/G
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	34.2	3.4	0.078	PCI/G
							Radium-228	63.2	6.5	1.73	PCI/G
P-24-1-BAG	16940-009	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	10.8	1.09	0.054	PCI/G
							Radium-228	14.0	1.6	0.83	PCI/G
NA	QCBLK165050-1	Soil	NA	NA	02/20/98	02/26/98	Radium-226	0.006	0.028	0.049	PCI/G
							Radium-228	0.09	0.24	0.60	PCI/G
NA	QCLCS165050-1	Soil	NA	NA	02/20/98	02/26/98	Radium-226	76	---	---	%REC
							Radium-228	94	---	---	%REC

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

2 March 1998

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: HASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	MD	---	0.36	PCI/G
							Potassium-40	29.4	7.9	5.26	PCI/G
							Lead-210	4.92	2.81	3.07	PCI/G

Draft
2 March 1998

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4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: NAIL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Lead-212	18.3	1.9	0.92	PCI/G
							Thallium-208	5.79	1.22	0.92	PCI/G
							Lead-214	1.85	0.48	0.49	PCI/G
P-8-5-2.0-2.5	16940-004	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	9.87	1.99	1.54	PCI/G
							Cesium-137	ND	---	0.76	PCI/G
							Radium-226	41.9	28.7	7.88	PCI/G
							Thorium-234	28.0	5.6	3.30	PCI/G
							Lead-210	11.9	7.4	6.28	PCI/G
							Lead-212	30.8	3.3	1.68	PCI/G
							Thallium-208	20.4	2.5	1.38	PCI/G
							Lead-214	3.10	0.92	0.93	PCI/G
							Thorium-231	6.88	3.96	3.37	PCI/G
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	26.2	2.4	2.09	PCI/G
							Cesium-137	ND	---	1.49	PCI/G
							Radium-226	117	103	16.7	PCI/G
							Uranium-235	25.4	4.9	5.08	PCI/G
							Thorium-234	248	26	18.0	PCI/G
							Lead-210	73.2	17.5	14.8	PCI/G
							Lead-212	96.5	9.2	3.34	PCI/G
							Thallium-208	49.3	5.7	3.27	PCI/G
							Bismuth-214	17.7	2.9	2.31	PCI/G
							Lead-214	15.3	2.4	1.93	PCI/G
							Thorium-231	59.5	12.2	9.22	PCI/G

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Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: HASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	2Sigma Error (+/-)	MDA	Units
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	65.6	5.5	5.71	PCI/G
P-8-5-3.0-3.5	16940-006	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	0.53	PCI/G
							Potassium-40	8.80	4.62	4.30	PCI/G
							Lead-212	16.4	2.3	1.37	PCI/G
							Bismuth-212	52.8	13.3	17.6	PCI/G
							Thallium-208	10.4	1.7	1.24	PCI/G
							Lead-214	2.72	0.68	0.66	PCI/G
P-8-5-6.0-6.5	16940-007	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	15.0	1.6	2.02	PCI/G
							Cesium-137	ND	---	1.77	PCI/G
							Radium-226	140	94	20.3	PCI/G
							Uranium-235	15.8	5.0	5.70	PCI/G
							Thorium-234	166	21	11.9	PCI/G
							Lead-210	68.6	18.6	16.0	PCI/G
							Lead-212	139	11	4.33	PCI/G
							Bismuth-212	289	64	47.7	PCI/G
							Thallium-208	77.3	7.7	3.37	PCI/G
							Lead-214	3.77	2.10	2.29	PCI/G
							Thorium-231	44.0	12.5	9.62	PCI/G
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	103	8	5.11	PCI/G
							Cesium-137	ND	---	1.77	PCI/G
							Radium-226	232	135	21.5	PCI/G
							Uranium-235	38.6	6.2	6.22	PCI/G
							Thorium-234	338	34	13.6	PCI/G

2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: EASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Lead-210	126	26	16.5	PCI/G
							Lead-212	136	11	4.22	PCI/G
							Bismuth-212	212	57	55.0	PCI/G
							Thallium-208	69.4	7.9	4.00	PCI/G
							Thorium-231	85.0	16.9	10.5	PCI/G
							Actinium-228	108	8	5.93	PCI/G
P-24-1-BAG	16941-009	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	2.04	PCI/G
							Potassium-40	33.5	14.0	15.6	PCI/G
							Lead-210	24.1	17.0	16.0	PCI/G
							Lead-212	364	24	5.00	PCI/G
							Bismuth-212	1090	132	67.1	PCI/G
							Thallium-208	328	22	4.41	PCI/G
							Manganese 54	44.2	12.3	11.0	PCI/G
							Thorium-231	114	19	8.82	PCI/G
							Actinium-228	204	22	6.10	PCI/G
NA	QC9LX165052-1	Soil	NA	NA	02/17/98	02/23/98	Cesium-137	ND	---	0.27	PCI/G
NA	PCLCS165052-1	Soil	NA	NA	02/17/98	02/23/98	Americium-241	91	---	---	%REC
							Cesium-137	97	---	---	%REC
							Cobalt-60	96	---	---	%REC

Quanterra
2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
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Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Thorium
Method: MAS-RA-5004

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	7.45	1.98	0.12	PCI/G
							Thorium-230	2.29	0.70	0.14	PCI/G
							Thorium-232	5.55	1.51	0.13	PCI/G
P-8-5-2.0-2.5	16940-004	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	11.8	6.4	5.61	PCI/G
							Thorium-230	5.15	3.76	4.00	PCI/G
							Thorium-232	13.9	6.8	2.76	PCI/G
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	30.7	8.4	1.19	PCI/G
							Thorium-230	8.88	3.13	0.96	PCI/G
							Thorium-232	16.2	4.9	0.41	PCI/G
P-8-5-3.0-3.5	16940-006	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	7.47	2.91	1.79	PCI/G
							Thorium-230	9.90	3.48	0.94	PCI/G
							Thorium-232	10.8	3.7	1.05	PCI/G
P-8-5-6.0-6.5	16940-007	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	50.2	14.6	1.59	PCI/G
							Thorium-230	20.9	7.8	2.07	PCI/G
							Thorium-232	49.0	12.2	1.31	PCI/G
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	41.8	11.9	1.19	PCI/G
							Thorium-230	20.9	6.7	1.33	PCI/G
							Thorium-232	52.3	14.5	1.19	PCI/G

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Thorium
Method: EAS-HS-3004

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-24-1-BA6	16940-009	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	135	33	0.96	PCI/G
							Thorium-230	15.8	6.8	1.15	PCI/G
							Thorium-232	87.7	21.8	0.96	PCI/G
NA	QCBLK165884-1	Soil	NA	NA	02/25/98	02/27/98	Thorium-228	-0.049	0.029	0.18	PCI/G
							Thorium-230	0.077	0.082	0.11	PCI/G
							Thorium-232	-0.011	0.012	0.11	PCI/G
NA	QCLCS165884-1	Soil	NA	NA	02/25/98	02/27/98	Thorium-228	94	---	---	%REC
							Thorium-230	92	---	---	%REC
							Thorium-232	94	---	---	%REC

2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Uranium
Method: HAS-HS-300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-B-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	1.91	0.63	0.14	PCI/G
							Uranium-238	2.13	0.69	0.11	PCI/G
							Uranium-235/236	0.10	0.12	0.16	PCI/G
P-B-5-2.0-2.5	16940-004	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	101	69	55.8	PCI/G
							Uranium-238	106	72	64.9	PCI/G
							Uranium-235/236	-4.9	27.6	80.4	PCI/G
P-B-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	607	204	60.7	PCI/G
							Uranium-238	379	148	48.2	PCI/G
							Uranium-235/236	57.4	57.5	59.8	PCI/G
P-B-5-3.0-3.5	16940-006	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	4.32	1.15	0.10	PCI/G
							Uranium-238	5.22	1.36	0.12	PCI/G
							Uranium-235/236	1.02	0.39	0.11	PCI/G
P-B-5-6.0-6.5	16940-007	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	392	150	41.2	PCI/G
							Uranium-238	452	164	26.6	PCI/G
							Uranium-235/236	-2.43	4.89	50.8	PCI/G
P-B-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	776	251	31.4	PCI/G
							Uranium-238	816	260	48.2	PCI/G
							Uranium-235/236	28.6	40.9	38.7	PCI/G

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Uranium
Method: MAS-NS-3050

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-24-1-BAG	16940-009	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	191	98	69.1	PCI/G
							Uranium-238	224	107	27.7	PCI/G
MA	QCBLK165886-1	Soil	MA	MA	02/25/98	02/26/98	Uranium-235/236	23.3	36.2	34.3	PCI/G
							Uranium-234	0.900	0.085	0.086	PCI/G
							Uranium-238	0.048	0.051	0.060	PCI/G
MA	QCLCS165886-1	Soil	MA	MA	02/25/98	02/26/98	Uranium-235/236	0.042	0.063	0.095	PCI/G
							Uranium-234	103	---	---	%REC
							Uranium-238	92	---	---	%REC

NEL LABORATORIES

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CHAIN OF CUSTODY

Las Vegas Division • 4208 Arcata Way, Ste. A • Las Vegas, NV 89030
(702) 657-1010 • FAX: (702) 657-1577 • 1-888-368-3282

Company: MOLYCORP Attn.: Rocky Bowman

Address: 67750 Bailey RD MTN Pass, CA 92366

Phone No.: 760-856-7607 Fax No.: 760-856-2253

Billing Address: Same Expected Due Date: 3/5/98

Requested Turnaround: ____ 5 Day (Normal) ____ 48 Hr. ____ 24 Hr. ____ Other

Project Name: LEAD POND SAMPLES Project No.:

P.O. No.: Sampled By: NASON

Sample Date/Time	Sample ID	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Expected Concentration (Box #3)	Analysis: Isotopic U	Analysis: " " Th	Analysis: " " Ra	Analysis: Gross Alpha Beta	Analysis: Gamma Spec.	Analysis: pH (for lab use only)	Remarks
2/8/95	P-8-1-6.0-6.5	69802111-01	1										
	P-8-2-5.0-5.5	-02	1										
	P-8-5-2.0-2.5	-03	1										
	P-8-5-3.0-3.5	-04	1										
	P-8-5-6.0-6.5	-05	1										
sample →	P-8-5-8.0-8.5		1										
	P-8-6-6.0-6.5	-06	1										Did not Rec.
sample →	P-11-2-6.0-6.5		2										Did not RECEIVE
sample →	P-11-4-4.5-5.0		2										2.12.98 mc
	P-24-1 BAG	-07	1										

Custody Seal intact? Y N None Temp. 2.1 °C

Condition when received good

Box #1: DW - Drinking Water; WW - Waste Water; RW - RCRA Water; OL - Oil; SG - Sludge; SO - Soil; SD - Solid; AQ - Aqueous; A - Air

Box #2: A. HCl; B. HNO_3; C. H_2SO_4; D. NaOH; E. Ice Only; F. Other ____; G. Not Preserved

Box #3: H - High; M - Medium; L - Low; U - Unknown

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
R Bowman		2/12/98 7:23 AM	Geoff Nason		2/12/98 9:23 AM
Geoff Nason		2/12/98 1:34 PM	Mike Empey		2/12/98 1344

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Las Vegas Division
4208 Arcata Way, Suite A • Las Vegas, NV 89030
(702) 657-1010 • Fax: (702) 657-1577
1-888-368-3282

FACSIMILE TRANSMISSION

TO: Geoff Nason

COMPANY: Molycorp.

PHONE:

FAX:

FROM: Bruce

DATE: 3/5/98

NO. OF PAGES: 8
(including cover page)

☐ *Hard copy will follow* ☐ *Hard copy will not follow*

Rad data

2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Radium 226/228
Method: EPA 903.0/9

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
-11-4-2.2-2.5	16960-001	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	30.6	3.0	0.093	PCI/G
							Radium-228	25.1	3.0	1.19	PCI/G
-11-4-6.8-5.0	16960-002	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	65.4	6.4	0.060	PCI/G
							Radium-228	68.7	7.2	1.28	PCI/G

2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Thorium
Method: HAS-HASL-300A

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
-11-6-2.2-2.5	16940-001	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	32.8	10.0	1.15	PCI/G
							Thorium-230	31.6	9.6	1.36	PCI/G
							Thorium-232	21.2	7.0	1.52	PCI/G
11-6-4.8-5.0	16940-002	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	23.7	7.0	1.83	PCI/G
							Thorium-230	93.7	4.5	1.36	PCI/G
							Thorium-232	22.6	6.7	1.43	PCI/G

2 March 1998

Nevada Environmental Laboratories
6208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Uranium
Method: HAS-NS-3050

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
11-4-2.2-2.5	16960-001	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	990	273	45.4	PCI/G
							Uranium-238	1090	295	42.1	PCI/G
							Uranium-235/236	83.3	62.4	52.1	PCI/G
11-4-6.8-5.0	16960-002	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	367	140	56.8	PCI/G
							Uranium-238	430	154	26.3	PCI/G
							Uranium-235/236	53.3	51.1	46.6	PCI/G

2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gross Alpha-Beta
Method: EPA 9310

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-11-4-2.2-2.5	16940-001	Soil	08/09/95	02/13/98	02/25/98	02/25/98	Gross Alpha	3690	342	10.2	PCi/G
							Gross Beta	2070	207	7.38	PCi/G
P-11-4-4.8-5.0	16940-002	Soil	08/09/95	02/13/98	02/25/98	02/25/98	Gross Alpha	1920	198	7.25	PCi/G
							Gross Beta	1050	105	5.33	PCi/G

2 March 1998

Nevada Environmental Laboratories
1208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: HASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
11-4-2.2-2.5	16940-001	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	1.51	PCI/G
							Radium-226	241	138	19.4	PCI/G
							Uranium-235	36.2	5.9	5.96	PCI/G
							Thorium-234	356	35	11.4	PCI/G
							Lead-210	140	28	16.8	PCI/G
							Lead-212	99.5	9.9	3.89	PCI/G
							Bismuth-212	196	47	50.8	PCI/G
							Thallium-208	56.8	6.2	3.60	PCI/G
							Bismuth-214	12.4	2.4	2.71	PCI/G
							Lead-214	10.9	2.1	2.12	PCI/G
							Thorium-231	99.1	19.6	9.12	PCI/G
							Actinium-228	64.5	6.1	6.42	PCI/G
1-4-4.8-5.0	16940-002	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	1.92	PCI/G
							Radium-226	143	100	20.3	PCI/G
							Uranium-235	16.2	5.3	5.98	PCI/G
							Thorium-234	166	22	10.1	PCI/G
							Lead-210	71.6	22.0	17.3	PCI/G
							Lead-212	136	11	3.95	PCI/G
							Thallium-208	66.9	7.9	3.93	PCI/G
							Thorium-231	50.1	16.3	9.64	PCI/G
							Actinium-228	90.3	7.3	4.79	PCI/G

ATTACHMENT 3

IUSA/UDEQ Protocol
for Determining Whether Alternate feed Materials
are RCRA Listed Hazardous Wastes

State of Utah

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF SOLID AND HAZARDOUS WASTE

Michael O. Leavitt
Governor

Dianne R. Nielson, Ph.D.
Executive Director

Dennis R. Downs
Director

288 North 1460 West
P.O. Box 144880
Salt Lake City, Utah 84114-4880
(801) 538-6170
(801) 538-6715 Fax
(801) 536-4414 T.D.D.
www.deq.state.ut.us Web

December 7, 1999

M. Lindsay Ford
Parsons, Behle and Latimer
One Utah Center
201 South Main Street
Suite 1800
Post Office Box 45898
Salt Lake City, Utah 84145-0898

RE: Protocol for Determining Whether Alternate Feed Materials are Listed Hazardous Wastes

Dear Mr. Ford:

On November 22, 1999, we received the final protocol to be used by International Uranium Corporation (IUSA) in determining whether alternate feed materials proposed for processing at the White Mesa Mill are listed hazardous wastes. We appreciate the effort that went into preparing this procedure and feel that it will be a useful guide for IUSA in its alternate feed determinations.

As was discussed, please be advised that it is IUSA's responsibility to ensure that the alternate feed materials used are not listed hazardous wastes and that the use of this protocol cannot be used as a defense if listed hazardous waste is somehow processed at the White Mesa Mill.

Thank you again for your corporation. If you have any questions, please contact Don Verbica at 538-6170.

Sincerely,

Dennis R. Downs, Executive Secretary
Utah Solid and Hazardous Waste Control Board

c: Bill Sinclair, Utah Division of Radiation Control

F:\SHW\HWB\DVERBICA\WP\whitemesa.wpd

Parsons
Behle &
Latimer

A PROFESSIONAL
LAW CORPORATION

One Utah Center
201 South Main Street
Suite 1800
Post Office Box 45898
Salt Lake City, Utah
84145-0898
Telephone 801 532-1234
Facsimile 801 536-6111

November 22, 1999

Don Verbica
Utah Division of Solid & Hazardous Waste
288 North 1460 West
Salt Lake City, Utah

Re: Protocol for Determining Whether Alternate Feed Materials are Listed Hazardous Wastes

Dear Don:

I am pleased to present the final protocol to be used by International Uranium (USA) Corporation ("IUSA") in determining whether alternate feed materials proposed for processing at the White Mesa Mill are listed hazardous wastes. Also attached is a red-lined version of the protocol reflecting final changes made to the document based on our last discussion with you as well as some minor editorial changes from our final read-through of the document. We appreciate the thoughtful input of you and Scott Anderson in developing this protocol. We understand the Division concurs that materials determined not to be listed wastes pursuant to this protocol are not listed hazardous wastes.

We also recognize the protocol does not address the situation where, after a material has been determined not to be a listed hazardous waste under the protocol, new unrefutable information comes to light that indicates the material is a listed hazardous waste. Should such an eventuality arise, we understand an appropriate response, if any, would need to be worked out on a case-by-case basis.

Thank you again for your cooperation on this matter. Please call me if you have any questions.

Very truly yours,

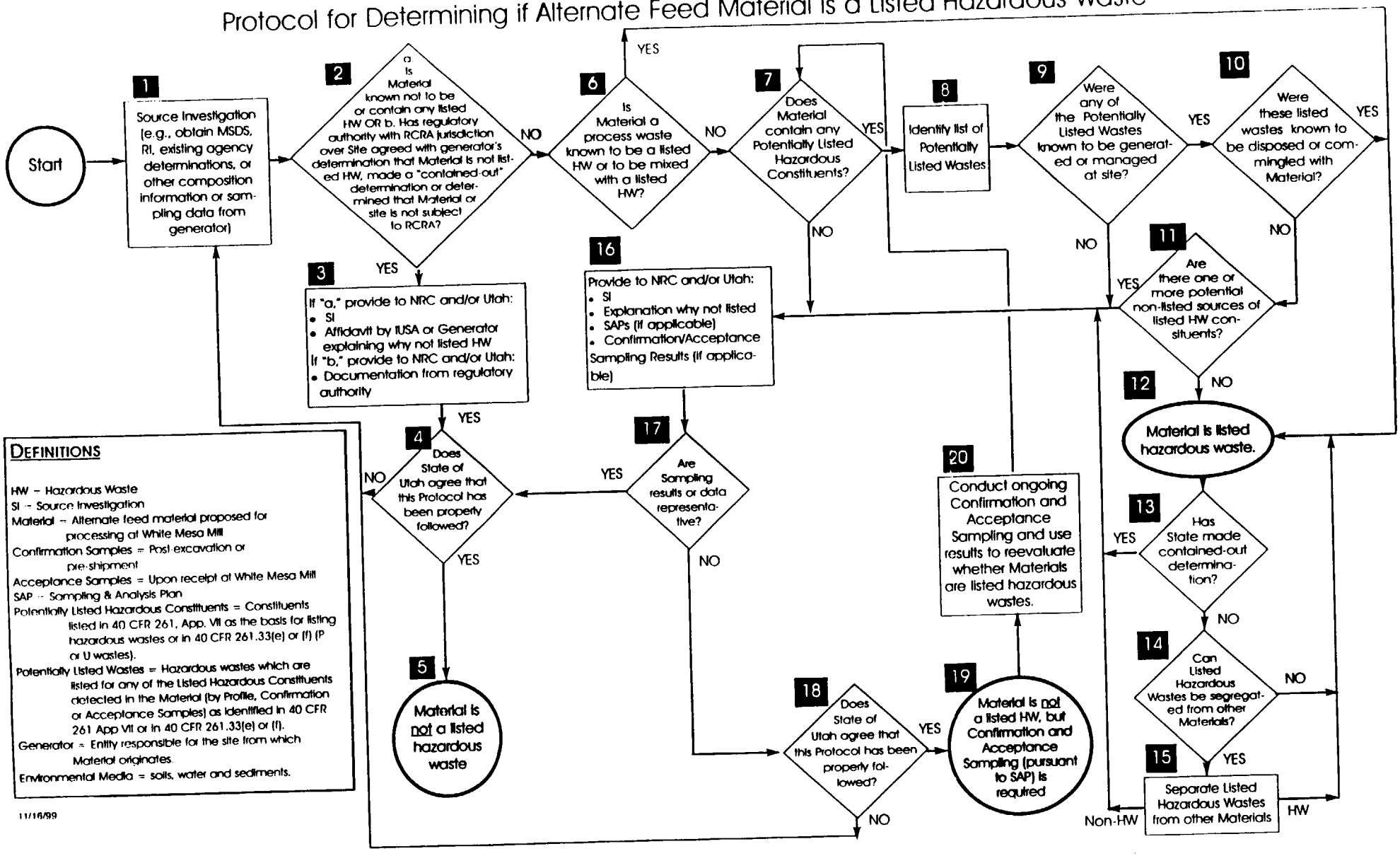
Parsons Behle & Latimer

Lindsay Ford

M. Lindsay Ford

cc: (with copy of final protocol only)
Dianne Nielson
Fred Nelson
Brent Bradford
Don Ostler
Loren Morton
Bill Sinclair
David Frydenlund
David Bird
Tony Thompson

Protocol for Determining if Alternate Feed Material is a Listed Hazardous Waste



DEFINITIONS

HW – Hazardous Waste
SI – Source Investigation
Material – Alternate feed material proposed for processing at White Mesa Mill
Confirmation Samples – Post-excavation or pre-shipment
Acceptance Samples – Upon receipt at White Mesa Mill
SAP – Sampling & Analysis Plan
Potentially Listed Hazardous Constituents – Constituents listed in 40 CFR 261, App. VII as the basis for listing hazardous wastes or in 40 CFR 261.33(e) or (f) (P or U wastes).
Potentially Listed Wastes – Hazardous wastes which are listed for any of the Listed Hazardous Constituents detected in the Material (by Profile, Confirmation or Acceptance Samples) as identified in 40 CFR 261 App VII or in 40 CFR 261.33(e) or (f).
Generator – Entity responsible for the site from which Material originates.
Environmental Media – soils, water and sediments.

11/16/99

PROTOCOL FOR DETERMINING WHETHER ALTERNATE FEED MATERIALS ARE LISTED HAZARDOUS WASTES[1]

NOVEMBER 16, 1999

1. SOURCE INVESTIGATION.

Perform a good faith investigation (a "Source Investigation" or "SI")[2] regarding whether any listed hazardous wastes[3] are located at the site from which alternate feed material[4] ("Material") originates (the "Site"). This investigation will be conducted in conformance with EPA guidance[5] and the extent of information required will vary with the circumstances of each case. Following are examples of investigations that would be considered satisfactory under EPA guidance and this Protocol for some selected situations:

- 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 that 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.

---

1 This Protocol reflects the procedures that will be followed by International Uranium (USA) Corporation ("IUSA") for determining whether alternate feed materials proposed for processing at the White Mesa Mill are (or contain) listed hazardous wastes. It is based on current Utah and EPA rules and EPA guidance under the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §§ 6901 et seq. This Protocol will be changed as necessary to reflect any pertinent changes to RCRA rules or EPA guidance.

2 This investigation will be performed by IUSA, by the entity responsible for the site from which the Material originates (the "Generator"), or by a combination of the two.

3 Attachment 1 to this Protocol provides a summary of the different classifications of RCRA listed hazardous wastes.

4 Alternate feed materials that are primary or intermediate products of the generator of the material (*e.g.*, "green" or "black" salts) are not RCRA "secondary materials" or "solid wastes," as defined in 40 CFR 261, and are not covered by this Protocol.

5 EPA guidance identifies the following sources of site- and waste-specific information that may, depending on the circumstances, be considered in such an investigation: hazardous waste manifests, vouchers, bills of lading, sales and inventory records, material safety data sheets, storage records, sampling and analysis reports, accident reports, site investigation reports, interviews with employees/former employees and former owners/operators, spill reports, inspection reports and logs, permits, and enforcement orders. *See e.g.*, 61 Fed. Reg. 18805 (April 29, 1996).

- Where specific information exists about the generation process and management of the Material: (a) an affidavit, certificate, profile record or similar document from the Generator or Site Manager, to that effect, together with (b) an MSDS for the Material, limited profile sampling data or a preexisting investigation performed at the Site pursuant to CERCLA, RCRA or other state or federal environmental laws or programs.
- Where potentially listed processes are known to have been conducted at a Site, an investigation considering the following sources of information: site investigation reports prepared under CERCLA, RCRA or other state or federal environmental laws or programs (*e.g.*, an RI/FS, ROD, RFI/CMS, hazardous waste inspection report); interviews with persons possessing knowledge about the Material and/or Site; and review of publicly available documents concerning process activities or the history of waste generation and management at the Site.
- If material from the same source is being or has been accepted for direct disposal as 11e.(2) byproduct material in an NRC-regulated facility in the State of Utah with the consent or acquiescence of the State of Utah, the Source Investigation performed by such facility.

Proceed to Step 2.

2. SPECIFIC INFORMATION OR AGREEMENT/DETERMINATION BY RCRA REGULATORY AUTHORITY THAT MATERIAL IS NOT A LISTED HAZARDOUS WASTE?

a. Determine whether specific information from the Source Investigation exists about the generation and management of the Material to support a conclusion that the Material is not (and does not contain) any listed hazardous waste. For example, if specific information exists that the Material was not generated by a listed waste source and that the Material has not been mixed with any listed wastes, the Material would not be a listed hazardous waste.

b. Alternatively, determine whether the appropriate state or federal authority with RCRA jurisdiction over the Site agrees in writing with the generator's determination that the Material is not a listed hazardous waste, has made a "contained-out" determination[6] with respect to the Material or has concluded the Material or Site is not subject to RCRA.

---

6 EPA explains the "contained-out" (also referred to as "contained-in") principle as follows:

> In practice, EPA has applied the contained-in principle to refer to a process where a site-specific determination is made that concentrations of hazardous constituents in any given

(footnote continued on next page)

If yes to either question, proceed to Step 3.

If no to both questions, proceed to Step 6.

3. PROVIDE INFORMATION TO NRC AND UTAH.

a. If specific information exists to support a conclusion that the Material is not, and does not contain, any listed hazardous waste, IUSA will provide a description of the Source Investigation to NRC and/or the State of Utah Department of Environmental Quality, Division of Solid and Hazardous Waste (the "State"), together with an affidavit explaining why the Material is not a listed hazardous waste.

b. Alternatively, if the appropriate regulatory authority with RCRA jurisdiction over the Site agrees in writing with the generator's determination that the Material is not a listed hazardous waste, makes a contained-out determination or determines the Material or Site is not subject to RCRA, IUSA will provide documentation of the regulatory authority's determination to NRC and the State. IUSA may rely on such determination provided that the State agrees the conclusions of the regulatory authority were reasonable and made in good faith.

Proceed to Step 4.

4. DOES STATE OF UTAH AGREE THAT ALL PREVIOUS STEPS HAVE BEEN PERFORMED IN ACCORDANCE WITH THIS PROTOCOL?

Determine whether the State agrees that this Protocol has been properly followed (including that proper decisions were made at each decision point). The State shall review the information provided by IUSA in Step 3 or 16 with reasonable speed and advise IUSA if it believes IUSA has not properly followed this Protocol in determining

---

(footnote continued from previous page)

> volume of environmental media are low enough to determine that the media does not "contain" hazardous waste. Typically, these so-called "contained-in" [or "contained-out"] determinations do not mean that no hazardous constituents are present in environmental media but simply that the concentrations of hazardous constituents present do not warrant management of the media as hazardous waste. ...
>
> EPA has not, to date, issued definitive guidance to establish the concentrations at which contained-in determinations may be made. As noted above, decisions that media do not or no longer contain hazardous waste are typically made on a case-by-case basis considering the risks posed by the contaminated media.

63 Fed. Reg. 28619, 28621-22 (May 26, 1998) (Phase IV LDR preamble).

that the Material is not listed hazardous waste, specifying the particular areas of deficiency.

If this Protocol has not been properly followed by IUSA in making its determination that the Material is not a listed hazardous waste, then IUSA shall redo its analysis in accordance with this Protocol and, if justified, resubmit the information described in Step 3 or 16 explaining why the Material is not a listed hazardous waste. The State shall notify IUSA with reasonable speed if the State still believes this Protocol has not been followed.

If yes, proceed to Step 5.

If no, proceed to Step 1.

5. MATERIAL IS NOT A LISTED HAZARDOUS WASTE.

The Material is not a listed hazardous waste and no further sampling or evaluation is necessary in the following circumstances:

- Where the Material is determined not to be a listed hazardous waste based on specific information about the generation/management of the Material OR the appropriate RCRA regulatory authority with jurisdiction over the Site agrees with the generator's determination that the Material is not a listed HW, makes a contained-out determination, or concludes the Material or Site is not subject to RCRA (and the State agrees the conclusions of the regulatory authority were reasonable and made in good faith) (Step 2); or
- Where the Material is determined not to be a listed hazardous waste (in Steps 6 through 11, 13 or 15) and Confirmation/Acceptance Sampling are determined not to be necessary (under Step 17).

6. IS MATERIAL A PROCESS WASTE KNOWN TO BE A LISTED HAZARDOUS WASTE OR TO BE MIXED WITH A LISTED HAZARDOUS WASTE?

Based on the Source Investigation, determine whether the Material is a process waste known to be a listed hazardous waste or to be mixed with a listed hazardous waste. If the Material is a process waste and is from a listed hazardous waste source, it is a listed hazardous waste. Similarly, if the Material is a process waste and has been mixed with a listed hazardous waste, it is a listed hazardous waste under the RCRA "mixture rule." If

the Material is an Environmental Medium,[7] it cannot be a listed hazardous waste by direct listing or under the RCRA "mixture rule."[8] If the Material is a process waste but is not known to be from a listed source or to be mixed with a listed waste, or if the Material is an Environmental Medium, proceed to Steps 7 through 11 to determine whether it is a listed hazardous waste.

If yes, proceed to Step 12.

If no, proceed to Step 7.

7. DOES MATERIAL CONTAIN ANY POTENTIALLY LISTED HAZARDOUS CONSTITUENTS?

Based on the Source Investigation (and, if applicable, Confirmation and Acceptance Sampling), determine whether the Material contains any hazardous constituents listed in the then most recent version of 40 CFR 261, Appendix VII (which identifies hazardous constituents for which F- and K-listed wastes were listed) or 40 CFR 261.33(e) or (f) (the P and U listed wastes) (collectively "Potentially Listed Hazardous Constituents"). If the Material contains such constituents, a source evaluation is necessary (pursuant to Steps 8 through 11). If the Material does not contain any Potentially Listed Hazardous Constituents, it is not a listed hazardous waste. The Material also is not a listed hazardous waste if, where applicable, Confirmation and Acceptance Sampling results do not reveal the presence of any "new" Potentially Listed Hazardous Constituents (*i.e.*, constituents other than those that have already been identified by the Source Investigation (or previous Confirmation/Acceptance Sampling) and determined not to originate from a listed source).

If yes, proceed to Step 8.

If no, proceed to Step 16.

8. IDENTIFY POTENTIALLY LISTED WASTES.

Identify potentially listed hazardous wastes ("Potentially Listed Wastes") based on Potentially Listed Hazardous Constituents detected in the Material, *i.e.*, wastes which are listed for any of the Potentially Listed Hazardous Constituents detected in the Material, as

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7 The term "Environmental Media" means soils, ground or surface water and sediments.

8 The "mixture rule" applies only to mixtures of listed hazardous wastes and other "solid wastes." *See* 40 CFR § 261.3(a)(2)(iv). The mixture rule does not apply to mixtures of listed wastes and Environmental Media, because Environmental Media are not "solid wastes" under RCRA. *See* 63 Fed. Reg. 28556, 28621 (May 26, 1998).

identified in the then most current version of 40 CFR 261 Appendix VII or 40 CFR 261.33(c) or (f).[9] With respect to Potentially Listed Hazardous Constituents identified through Confirmation and/or Acceptance Sampling, a source evaluation (pursuant to Steps 8 through 11) is necessary only for "new" Potentially Listed Hazardous Constituents (*i.e.*, constituents other than those that have already been identified by the Source Investigation (or previous Confirmation/Acceptance Sampling) and determined not to originate from a listed source).

Proceed to Step 9.

9. WERE ANY OF THE POTENTIALLY LISTED WASTES KNOWN TO BE GENERATED OR MANAGED AT SITE?

Based on information from the Source Investigation, determine whether any of the Potentially Listed Wastes identified in Step 8 are known to have been generated or managed at the Site. This determination involves identifying whether any of the specific or non-specific sources identified in the K- or F-lists has ever been conducted or located at the Site, whether any waste from such processes has been managed at the Site, and whether any of the P- or U-listed commercial chemical products has ever been used, spilled or managed there. In particular, this determination should be based on the following EPA criteria:

Solvent Listings (F001-F005)

Under EPA guidance, "to determine if solvent constituents contaminating a waste are RCRA spent solvent F001-F005 wastes, the [site manager] must know if:

- The solvents are *spent* and *cannot be reused without reclamation* or cleaning.
- The solvents were *used exclusively for their solvent properties*.
- The solvents are spent *mixtures and blends that contained, before use, a total of 10 percent or more (by volume) of the solvents* listed in F001, F002, F004, and F005.

If the solvents contained in the [wastes] are RCRA listed wastes, the [wastes] are RCRA hazardous waste. When the [site manager] does not have guidance information on the use of the solvents and their characteristics before use, the [wastes] cannot be classified as containing a

9 For example, if the Material contains tetrachloroethylene, the following would be Potentially Listed Wastes: F001, F002, F024, K019, K020, K150, K151 or U210. *See* 40 CFR 261 App. VII.

listed spent solvent."[10] The person performing the Source Investigation will make a good faith effort to obtain information on any solvent use at the Site. If solvents were used at the Site, general industry standards for solvent use in effect at the time of use will be considered in determining whether those solvents contained 10 percent or more of the solvents listed in F001, F002, F004 or F005.

K-Listed Wastes and F-Listed Wastes Other Than F001-F005

Under EPA guidance, to determine whether K wastes and F wastes other than F001-F005 are RCRA listed wastes, the generator "must know the *generation process information* (about each waste contained in the RCRA waste) described in the listing. For example, for [wastes] to be identified as containing K001 wastes that are described as 'bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol,' the [site manager] must know the manufacturing process that generated the wastes (treatment of wastewaters from wood preserving process), feedstocks used in the process (creosote and pentachlorophenol), and the process identification of the wastes (bottom sediment sludge)."[11]

P- and U-Listed Wastes

EPA guidance provides that "P and U wastes cover only unused and unmixed commercial chemical products, particularly spilled or off-spec products. Not every waste containing a P or U chemical is a hazardous waste. To determine whether a [waste] contains a P or U waste, the [site manager] must have direct evidence of product use. In particular, the [site manager] should ascertain, if possible, whether the chemicals are:

- Discarded (as described in 40 CFR 261.2(a)(2)).
- Either off-spec commercial products or a commercially sold grade.
- Not used (soil contaminated with spilled unused wastes is a P or U waste).

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10 Management of Investigation-Derived Wastes During Site Inspections, EPA/540/G-91/009, May 1991 (emphasis added).

11 Management of Investigation-Derived Wastes During Site Inspections, EPA/540/G-91/009, May 1991 (emphasis added).

- The sole active ingredient in a formulation."[12]

If Potentially Listed Wastes were known to be generated or managed at the Site, further evaluation is necessary to determine whether these wastes were disposed of or commingled with the Material (Steps 10 and possibly 11). If Potentially Listed Wastes were not known to be generated or managed at the Site, then information concerning the source of Potentially Listed Hazardous Constituents in the Material will be considered "unavailable or inconclusive" and, under EPA guidance,[13] the Material will be assumed not to be a listed hazardous waste.

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12 Management of Investigation-Derived Wastes During Site Inspections, EPA/540/G-91/009, May 1991.

13 EPA guidance consistently provides that, where information concerning the origin of a waste is unavailable or inconclusive, the waste may be assumed not to be a listed hazardous waste. *See e.g.*, Memorandum from Timothy Fields (Acting Assistant Administrator for Solid Waste & Emergency Response) to RCRA/CERCLA Senior Policy Managers regarding "Management of Remediation Waste Under RCRA," dated October 14, 1998 ("Where a facility owner/operator makes a good faith effort to determine if a material is a listed hazardous waste but cannot make such a determination because documentation regarding a source of contamination, contaminant, or waste is *unavailable or inconclusive*, EPA has stated that one may assume the source, contaminant, or waste is not listed hazardous waste"); NCP Preamble, 55 Fed. Reg. 8758 (March 8, 1990) (Noting that "it is often necessary to know the origin of the waste to determine whether it is a listed waste and that, *if such documentation is lacking, the lead agency may assume it is not a listed waste*); Preamble to proposed Hazardous Waste Identification Rule, 61 Fed. Reg. 18805 (April 29, 1996) ("Facility owner/operators should make a good faith effort to determine whether media were contaminated by hazardous wastes and ascertain the dates of placement. The Agency believes that by using available site- and waste-specific information ... facility owner/operators would typically be able to make these determinations. However, as discussed earlier in the preamble of today's proposal, *if information is not available or inconclusive, facility owner/operators may generally assume that the material contaminating the media were not hazardous wastes.*"); Preamble to LDR Phase IV Rule, 63 Fed. Reg. 28619 (May 26, 1998) ("As discussed in the April 29, 1996 proposal, the Agency continues to believe that, *if information is not available or inconclusive, it is generally reasonable to assume that contaminated soils do not contain untreated hazardous wastes* ..."); and Memorandum from John H. Skinner (Director, EPA Office of Solid Waste) to David Wagoner (Director, EPA Air and Waste Management Division, Region VII) regarding "Soils from Missouri Dioxin Sites," dated January 6, 1984 ("The analyses indicate the presence of a number of toxic compounds in many of the soil samples taken from various sites. However, the presence of these toxicants in the soil does not automatically make the soil a RCRA hazardous waste. The origin of the toxicants must be known in order to determine that they are derived from a listed hazardous waste(s). *If the exact origin of the toxicants is not known, the soils cannot be*
(footnote continued on next page)

If yes, proceed to Step 10.

If no, proceed to Step 16.

10. WERE LISTED WASTES KNOWN TO BE DISPOSED OF OR COMMINGLED WITH MATERIAL?

If listed wastes identified in Step 9 were known to be generated at the Site, determine whether they were known to be disposed of or commingled with the Material?

If yes, proceed to Step 12.

If no, proceed to Step 11.

11. ARE THERE ONE OR MORE POTENTIAL NON-LISTED SOURCES OF LISTED HAZARDOUS WASTE CONSTITUENTS?

In a situation where Potentially Listed Wastes were known to have been generated/managed at the Site, but the wastes were not known to have been disposed of or commingled with the Material, determine whether there are potential non-listed sources of Potentially Listed Hazardous Constituents in the Material. If not, unless the State agrees otherwise, the constituents will be assumed to be from listed sources (proceed to Step 12). If so, the Material will be assumed not to be a listed hazardous waste (proceed to Step 16). Notwithstanding the existence of potential non-listed sources at a Site, the Potentially Listed Hazardous Constituents in the Material will be considered to be from the listed source(s) if, based on the relative proximity of the Material to the listed and non-listed source(s) and/or information concerning waste management at the Site, the evidence is compelling that the listed source(s) is the source of Potentially Listed Hazardous Constituents in the Material.

If yes, proceed to Step 16.

If no, proceed to Step 12.

12. MATERIAL IS A LISTED HAZARDOUS WASTE.

The Material is a listed hazardous waste under the following circumstances:

(footnote continued from previous page)

considered RCRA hazardous wastes unless they exhibit one or more of the characteristics of hazardous waste ...").

- If the Material is a process waste and is known to be a listed hazardous waste or to be mixed with a listed hazardous waste (Step 6),
- If Potentially Listed Wastes were known to be generated/managed at the Site and to be disposed of/commingled with the Material (Step 10) (subject to a "contained-out" determination in Step 13), or
- If Potentially Listed Wastes were known to be generated/managed at the Site, were not known to be disposed of/commingled with the Material but there are not any potential non-listed sources of the Potentially Listed Hazardous Constituents detected in the Material (Step 11) (subject to a "contained-out" determination in Step 13).

Proceed to Step 13.

13. HAS STATE OF UTAH MADE A CONTAINED-OUT DETERMINATION.

If the Material is an Environmental Medium, and:

- the level of any listed waste constituents in the Material is "de minimis"; or
- all of the listed waste constituents or classes thereof are already present in the White Mesa Mill's tailings ponds as a result of processing conventional ores or other alternate feed materials in concentrations at least as high as found in the Materials

the State of Utah will consider whether it is appropriate to make a contained-out determination with respect to the Material.

If the State makes a contained-out determination, proceed to Step 16.

If the State does not make a contained-out determination, proceed to Step 14.

14. IS IT POSSIBLE TO SEGREGATE LISTED HAZARDOUS WASTES FROM OTHER MATERIALS?

Determine whether there is a reasonable way to segregate material that is a listed hazardous waste from alternate feed materials that are not listed hazardous wastes that will be sent to IUSA's White Mesa Mill. For example, it may be possible to isolate material from a certain area of a remediation site and exclude that material from Materials that will be sent to the White Mesa Mill. Alternatively, it may be possible to increase

sampling frequency and exclude materials with respect to which the increased sampling identifies constituents which have been attributed to listed hazardous waste.

If yes, proceed to Step 15.

If no, proceed to Step 12.

15. SEPARATE LISTED HAZARDOUS WASTES FROM MATERIALS.

Based on the method of segregation determined under Step 14, materials that are listed hazardous wastes are separated from Materials that will be sent to the White Mesa Mill.

For materials that are listed hazardous wastes, proceed to Step 12.

For Materials to be sent to the White Mesa Mill, proceed to Step 16.

16. PROVIDE INFORMATION TO NRC AND UTAH.

If the Material does not contain any Potentially Listed Hazardous Constituents (as determined in Step 7), where information concerning the source of Potentially Listed Hazardous Constituents in the Material is "unavailable or inconclusive" (as determined in Steps 8 through 11), or where the State of Utah has made a contained-out determination with respect to the Material (Step 13), the Material will be assumed not to be (or contain) a listed hazardous waste. In such circumstances, IUSA will submit the following documentation to NRC and the State:

- A description of the Source Investigation;
- An explanation of why the Material is not a listed hazardous waste.
- Where applicable, an explanation of why Confirmation/Acceptance Sampling has been determined not to be necessary in Step 17.
- If Confirmation/Acceptance Sampling has been determined necessary in Step 17 , a copy of IUSA's and the Generator's Sampling and Analysis Plans.
- A copy of Confirmation and Acceptance Sampling results, if applicable. IUSA will submit these results only if they identify the presence of "new" Potentially Listed Hazardous Constituents (as defined in Steps 7 and 8).

Proceed to Step 17.

17. ARE SAMPLING RESULTS OR DATA REPRESENTATIVE?

Determine whether the sampling results or data from the Source Investigation (or, where applicable, Confirmation/Acceptance Sampling results) are representative. The purpose of this step) is to determine whether Confirmation and Acceptance Sampling (or

continued Confirmation and Acceptance Sampling) are necessary. If the sampling results or data are representative of all Material destined for the White Mesa Mill, based on the extent of sampling conducted, the nature of the Material and/or the nature of the Site (*e.g.*, whether chemical operations or waste disposal were known to be conducted at the Site), future Confirmation/Acceptance Sampling will not be necessary. If the sampling results are not representative of all Material destined for the White Mesa Mill, then additional Confirmation/Acceptance sampling may be appropriate. Confirmation and Acceptance Sampling will be required only where it is reasonable to expect that additional sampling will detect additional contaminants not already detected. For example:

- Where the Material is segregated from Environmental Media, *e.g.*, the Material is containerized, there is a high probability the sampling results or data from the Source Investigation are representative of the Material and Confirmation/Acceptance Sampling would not be required.
- Where IUSA will be accepting Material from a discrete portion of a Site, *e.g.*, a storage pile or other defined area, and adequate sampling characterized the area of concern for radioactive and chemical contaminants, the sampling for that area would be considered representative and Confirmation/Acceptance sampling would not be required.
- Where Material will be received from a wide area of a Site and the Site has been carefully characterized for radioactive contaminants, but not chemical contaminants, Confirmation/Acceptance sampling would be required.
- Where the Site was not used for industrial activity or disposal before or after uranium material disposal, and the Site has been adequately characterized for radioactive and chemical contaminants, the existing sampling would be considered sufficient and Confirmation/Acceptance sampling would not be required.
- Where listed wastes were known to be disposed of on the Site and the limits of the area where listed wastes were managed is not known, Confirmation/Acceptance sampling would be required to ensure that listed wastes are not shipped to IUSA (see Step 14).

If yes, proceed to Step 4.

If no, proceed to Step 18.

18. DOES STATE OF UTAH AGREE THAT ALL PREVIOUS STEPS HAVE BEEN PERFORMED IN ACCORDANCE WITH THIS PROTOCOL?

Determine whether the State agrees that this Protocol has been properly followed (including that proper decisions were made at each decision point). The State shall

review the information provided by IUSA in Step 16 with reasonable speed and advise IUSA if it believes IUSA has not properly followed this Protocol in determining that the Material is not listed hazardous waste, specifying the particular areas of deficiency.

If this Protocol has not been properly followed by IUSA in making its determination that the Material is not a listed hazardous waste, then IUSA shall redo its analysis in accordance with this Protocol and, if justified, resubmit the information described in Step 16 explaining why the Material is not a listed hazardous waste. The State shall notify IUSA with reasonable speed if the State still believes this Protocol has not been followed.

If yes, proceed to Step 19.

If no, proceed to Step 1.

19. MATERIAL IS NOT A LISTED HAZARDOUS WASTE, BUT CONFIRMATION AND ACCEPTANCE SAMPLING ARE REQUIRED.

The Material is not a listed hazardous waste, but Confirmation and Acceptance Sampling are required, as determined necessary under Step 17.

Proceed to Step 20.

20. CONDUCT ONGOING CONFIRMATION AND ACCEPTANCE SAMPLING.

Confirmation and Acceptance Sampling will continue until determined no longer necessary under Step 17. Such sampling will be conducted pursuant to a Sampling and Analysis Plan ("SAP") that specifies the frequency and type of sampling required. If such sampling does not reveal any "new" Potentially Listed Hazardous Constituents (as defined in Steps 7 and 8), further evaluation is not necessary (as indicated in Step 7). If such sampling reveals the presence of "new" constituents, Potentially Listed Wastes must be identified (Step 8) and evaluated (Steps 9 through 11) to determine whether the new constituent is from a listed hazardous waste source. Generally, in each case, the SAP will specify sampling comparable to the level and frequency of sampling performed by other facilities in the State of Utah that dispose of 11e.(2) byproduct material, either directly or that results from processing alternate feed materials.

Proceed to Step 7.

Attachment 1

Summary of RCRA Listed Hazardous Wastes

There are three different categories of listed hazardous waste under RCRA:

- *F-listed wastes from non-specific sources (40 CFR § 261.31(a))*: These wastes include spent solvents (F001-F005), specified wastes from electroplating operations (F006-F009), specified wastes from metal heat treating operations (F010-F012), specified wastes from chemical conversion coating of aluminum (F019), wastes from the production/manufacturing of specified chlorophenols, chlorobenzenes, and chlorinated aliphatic hydrocarbons (F019-F028), specified wastes from wood preserving processes (F032-F035), specified wastes from petroleum refinery primary and secondary oil/water/solids separation sludge (F037-F038), and leachate resulting from the disposal of more than one listed hazardous waste (F039).
- *K-listed wastes from specific sources (40 CFR § 261.32)*: These include specified wastes from wood preservation, inorganic pigment production, organic chemical production, chlorine production, pesticide production, petroleum refining, iron and steel production, copper production, primary and secondary lead smelting, primary zinc production, primary aluminum reduction, ferroalloy production, veterinary pharmaceutical production, ink formulation and coking.
- *P- and U-listed commercial chemical products (40 CFR § 261.33)*: These include commercial chemical products, or manufacturing chemical intermediates having the generic name listed in the "P" or "U" list of wastes, container residues, and residues in soil or debris resulting from a spill of these materials.[1] "The phrase 'commercial chemical product or manufacturing chemical intermediate ...' refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a material, such as a manufacturing process waste, that contains any of the [P- or U-listed substances]."[2]

Appendix VII to 40 CFR part 261 identifies the hazardous constituents for which the F- and K-listed wastes were listed.

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1 P-listed wastes are identified as "acutely hazardous wastes" and are subject to additional management controls under RCRA. 40 CFR § 261.33(e) (1997). U-listed wastes are identified as "toxic wastes." Id. § 261.33(f).

2 40 CFR § 261.33(d) note (1997).

ATTACHMENT 4

Molycorp Affidavit
Confirming No RCRA Listed Hazardous Waste
in Uranium Material

Molycorp, Inc.
67750 Bailey Road
Mountain Pass, California 92366
Telephone (760) 856-2201
Facsimile (760) 856-2253

Molycorp

July 18, 2000

Ms. Michelle Rehmann
International Uranium Corporation
Environmental Manager
Independence Plaza, Suite 950
1050 Seventeenth Street
Denver, CO 80265

Re: Molycorp, Inc. Lead Pond Documentation

Dear Ms. Rehmann,

This letter is a follow up to my previous letter dated July 18, 2000. I have enclosed an affidavit signed by Mr. Sharrer for your review. This affidavit will replace the unsigned July 18, 2000 affidavit.

I look forward to talking with you about any comments or suggestions you may have regarding this submittal.

Please contact me by telephone at 760-856-7697 or fax at 760-856-6691.

Sincerely,

John F. Espinoza
Environmental Specialist

AFFIDAVIT

I, William L. Sharrer, being duly sworn according to law, depose and state as follows:

1. I am presently employed as the Public and Environmental Affairs Manager by Molycorp, Inc. at the company's Mountain Pass facility. ("the Facility"). In that capacity I am responsible for insuring that the Facility operates in a clean, safe, and environmentally responsible manner. My experience with the Mountain Pass facility dates back to 1999 when I was first employed at that facility. I have personal knowledge of the raw materials used, the production procedures employed, and the waste handling procedures followed at the Facility. I am also familiar with the hazardous waste regulations set out in U.S. Code of Federal Regulations, Title 40261, Subpart D, as amended by the U.S. Federal Register August 6, 1998.

2. Molycorp proposes to ship to IUSA's White Mesa Mill in Blanding Utah, the following materials: lead sulfide pond sludges from three ponds areas, P-8, P-11, and P-23, for processing as alternate feed materials. All of the proposed alternate feed materials are secondary products or waste streams produced in the extraction of rare earth minerals at the Facility, and contain no materials or wastes from any other source.

3. The settling pond residues consist of material from the extraction of rare earth minerals from bastnasite ores. Bastnasite ore is generated from a first stage flotation plant where the ore is separated from tailing. The ore was then roasted to remove excess carbonates, then leached in a hydrochloric acid solution. The dissolved fraction was sent to a lead sulfide removal process, where ammonia, sodium hydrosulfide and flocculant were added, and the mixture fed to a clarifier. Thickened clarifier sludge from this process, containing lead sulfide, iron salts, and uranium, was transferred to the

lead sulfide ponds. All constituents of the lead sulfide pond sludges come from the rare earth extraction process. No material from any other source has been or will be added to the lead sulfide pond sludges.

4. Based on the production steps employed in the recovery of rare earth elements, the proposed alternate feed materials do not contain any of the listed wastes enumerated in U.S. Code of Federal Regulations, Title 40 Part 261, Subpart D as amended by the U.S. Federal Register August 6, 1998.

5. Based on my knowledge of waste management at the Facility, the proposed alternate feed materials have not been mixed with wastes from any other source, which may have been defined as or which may have contained listed wastes enumerated in U.S. Code of Federal Regulations, Title 40 Section 261, Subpart D as amended by the U.S. Federal Register August 6, 1998.

6. Specifically, the proposed alternate feed materials do not contain hazardous wastes from non-specific sources (U.S. RCRA F type wastes) because (a) Molycorp does not conduct any operations at the Facility which produce the types of wastes listed in Section 261.31 of Title 40 of the U.S. Code of Federal Regulations, and (b) Molycorp has never accepted at the Facility, nor have the proposed alternate feed materials ever been combined with, wastes from any other source which contains U.S. RCRA F type wastes as defined therein.

7. Specifically, the proposed alternate feed materials do not contain hazardous wastes from specific sources (U.S. RCRA K type wastes) because Molycorp does not conduct any operations which produce the types of wastes listed in Section 262.31 of Title 40 of the U.S. Code of Federal Regulations, and (b) Molycorp has never accepted at the Facility, nor have the proposed alternate feed materials ever been combined with, wastes from any other source which contain U.S. RCRA K type wastes as defined therein.

8. Specifically, the proposed alternate feed materials are not U.S. RCRA P or U type wastes as defined in Section 261.33 of Title 40 of the U.S. Code of Federal Regulations because they (a) are not manufactured or formulated commercially pure grade chemicals, off spec commercial chemical products or manufacturing chemical intermediates, residues from containers that held commercial chemical products or manufacturing chemical intermediates, or any residue or contaminated soil, water or other debris resulting form a spill cleanup as these terms are defined in 40 CFR Section 261.33, and (b) Molycorp has never accepted, nor have the proposed alternate feed materials ever been combined with, wastes from any other source which contain U.S. RCRA P or U type wastes as defined therein.

William T. Shaver
(Signature)

Sworn to and subscribed before me
this 8th day of August, 2000

Arnold C. Davis
Notary Public

ARNOLD C. DAVIS
Notary Public, State of Nevada
Appointment No. 9422011
My Appt. Expires Sept. 22, 2002

My Commission Expires: Sept 22, 2002

ATTACHMENT 5

Radioactive Material Profile Record

Exhibit A

RADIOACTIVE MATERIAL PROFILE RECORD

Generator Name: Molycorp Generator/Waste Stream #: TBD; Volume of Waste Material 7,750 - 17,750 Tons
Contractor Name: N/A, Waste Stream Name: Lead Ponds, Delivery Date: TBD
Check appropriate boxes: Licensed Y ___ N ___ NORM/NARM ___; LLRW ___; MW ___; MW Treated ___; MW Needing Trtmt ___;
DOE ___; 11e.(2) ___;
Original Submission: Y _____ N _____; Revision # _____; Date of Revision: _____
Name and Title of Person Completing Form: John F. Espinoza Phone: 760-856-7697

A. CUSTOMER INFORMATION:

GENERAL: Please read carefully and complete this form for one waste stream. This information will be used to determine how to properly manage the material. Should there be any questions while completing this form, contact IUC at 303.389.4131. MATERIALS CANNOT BE ACCEPTED AT IUC WHITE MESA MILL UNLESS THIS FORM IS COMPLETED. If a category does not apply, please indicate. This form must be updated annually.

1. GENERATOR INFORMATION

EPA ID# N/A EPA Hazardous Waste Number(s) (if applicable) N/A
Mailing Address: 67750 Bailey Road Mountain Pass, CA 92366
Phone: 760-856-2201 Fax: 760-856-2253
Location of Material (City, ST): Mountain Pass, CA
Generator Contact: John F. Espinoza Title: Maintenance Planner
Mailing Address (if different from above): _____
Phone: 760-856-7697 Fax: 760-856-6691

B. MATERIAL PHYSICAL PROPERTIES (Should you have any questions while completing this section, contact IUC Environmental Management at (303) 389-4131.

1. PHYSICAL DATA (Indicate percentage of material that will pass through the following grid sizes, e,g, 12" 100%, 4" 96%, 1" 74%, 1/4" 50%, 1/40" 30%, 1/200" .5%)

GRADATION OF MATERIAL:

12"	100%
4"	95%
1"	90%
1/4"	84%
1/40"	65%
1/200"	57%

2. DESCRIPTION: Color ___ Brown/Multi ✓ Odor ___ Odorless ✓
Liquid ___ Solid ✓ Sludge ___ Powder/Dust ___

3. DENSITY RANGE: (Indicate dimensions) 90 - 100 S.G. (lb./ft³) lb./yd³

4. GENERAL CHARACTERISTICS (% OF EACH)
Soil ___ Building Debris ___ Rubble ___ Pipe Scale ___ Tailings 25 Product 75 Concrete ___
Plastic/Resin ___
Other constituents and approximate % contribution of each: N/A

5. MOISTURE CONTENT: (For soil or soil-like materials).
(Use Std Proctor Method ASTM D-698)

Optimum Moisture Content: 55 %
Average Moisture Content: 45 %
Moisture Content Range: 12-65 %

6. DESCRIPTION OF MATERIAL (Please attach a description of the material with respect to its physical composition and characteristics. This description can be attached separately or included with the attachment for Item D.1.) See Attachment D.2.

Generator or Contractor Initials: JFE

C. RADIOLOGICAL EVALUATION

1. MATERIAL INFORMATION. For each radioactive isotope associated with the material, please list the following information. IUC's license assumes daughter products to be present in equilibrium, these are not required to be listed below and do not require manifesting. (Use additional copies of this form if necessary).

	Isotopes	Concentration Range (pCi/g)	Weighted Average (pCi/g)		Isotopes	Concentration Range (pCi/g)	Weighted Average (pCi/g)
a.	_____	_____ to _____	_____	b.	_____	_____ to _____	_____
c.	(Attachment	to D.2)	_____	d.	_____	_____ to _____	_____
e.	_____	_____ to _____	_____	f.	_____	_____ to _____	_____

ND – Analyte not detected.

2. Y (N) Is the radioactivity contained in the waste material Low-Level Radioactive Waste as defined in the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 5820.2A, Chapter III? (Please Circle) If yes, check "LLRW" block on line 3 of page 1.

3. Y (N) LICENSED MATERIAL: Is the waste material listed or included on an active Nuclear Regulatory Commission or Agreement State license? (Please Circle)

(If Yes) TYPE OF LICENSE: Source ____; Special Nuclear Material ____; By-Product ____; Norm ____; NARM ____;

LICENSING AGENCY: _____

D. CHEMICAL AND HAZARDOUS CHARACTERISTICS

1. DESCRIPTION AND HISTORY OF MATERIAL (Attachment D.3)

Please attach a description of the material to this profile. Include the following as applicable: The process by which the material was generated. Available process knowledge of the material. The basis of hazardous material or waste determinations. A list of the chemicals, materials or wastes used in or commingled with the material; a list of any and all applicable EPA Hazardous Waste Numbers, current or former, and a list of any and all applicable land-disposal prohibition or hazardous-waste exclusions, extensions, exemptions, effective dates, variances or delistings. Attach the most recent or applicable analytical results of the material's hazardous-waste characteristics or constituents. Attach any applicable analytical results involving the composition of the material. Attach any product information or Material Safety Data Sheets associated with the material. If a category on this Material Profile Record does not apply, describe why it does not.

Please describe the history, and include the following:

Y (N) Was this material mixed, treated, neutralized, solidified, commingled, dried, or otherwise processed at any time after generation?

Y (N) Has this material been transported or otherwise removed from the location or site where it was originally generated?

Y (N) Was this material derived from (or is the material a residue of) the treatment, storage, and/or disposal of hazardous waste defined by 40 CFR 261?

Y (N) Has this material been treated at any time to meet any applicable treatment standards?

2. LIST ALL KNOWN AND POSSIBLE CHEMICAL COMPONENTS OR HAZARDOUS WASTE CHARACTERISTICS

		(Y)	(N)			(Y)	(N)			(Y)	(N)
a.	Listed HW		✓	b.	"Derived-From" HW		✓	c.	Toxic	✓	
d.	Cyanides		✓	e.	Sulfides	✓		f.	Dioxins		✓
g.	Pesticides		✓	h.	Herbicides		✓	i.	PCBs		✓
j.	Explosives		✓	k.	Pyrophorics		✓	l.	Solvents		✓
m.	Organics		✓	n.	Phenolics		✓	o.	Infectious		✓
p.	Ignitable		✓	q.	Corrosive		✓	r.	Reactive		✓
s.	Antimony		✓	t.	Beryllium	✓		u.	Copper	✓	
v.	Nickel	✓		w.	Thallium		✓	x.	Vanadium	✓	
y.	Alcohols		✓	z.	Arsenic	✓		aa.	Barium	✓	
bb.	Cadmium		✓	cc.	Chromium	✓		dd.	Lead	✓	
ee.	Mercury	✓		ff.	Selenium		✓	gg.	Silver	✓	
hh.	Benzene		✓	ii.	Nitrate	✓		jj.	Nitrite		✓
kk.	Fluoride	✓		ll.	Oil		✓	mm.	Fuel		✓
nn.	Chelating Agents		✓	oo.	Residue from water treatment						

pp. Other Known or Possible Materials or Chemicals Sulfates, Chlorides, Lanthanide Oxides

Generator or Contractor Initials: JFE

3. ANALYTICAL RESULTS FOR TOXICITY CHARACTERISTICS. (Please transcribe results on the blank spaces provided. Attach additional sheets if needed, indicate range or worst-case results). (See Attachment D.3)

Metals (circle one): (Total (mg/kg)) or TCLP (mg/l)

		Organics (circle one): Total (mg/kg) or TCLP (mg/l)	
Lead			
Barium			
Mercury			
Cadmium			
Zinc			
Chromium			
Copper			

ND – Analyte not detected

4. ANALYTICAL RESULTS FOR REQUIRED PARAMETERS: (Please transcribe results on the blank spaces provided. Attached additional sheets if needed).

Soil pH 5-9

Paint Filter Test (Pass/Fail) Liquids _____ No Free Liquid ✓

Cyanide _____ Not detected ✓ Released mg/kg

Sulfide _____ Not detected ✓ Released mg/kg

5. IGNITABILITY (40 CFR 261.21[a][2].[4].)

Flash Point N/A °F °C Is the waste a RCRA oxidizer? Y (N)

6. CHEMICAL COMPOSITION (List all known chemical components and circle the applicable concentration dimensions. Use attachments to complete, if necessary.)

Chemical Component	Concentration	Chemical Component	Concentration
(See Attached Sheets)	% mg/kg		% mg/kg
	% mg/kg		% mg/kg
	% mg/kg		% mg/kg

E. REQUIRED CHEMICAL LABORATORY ANALYSIS. Generator must submit results of analyses of samples of the material. Results are required from a qualified laboratory for the following analytical parameters unless nonapplicability of the analysis for the material can be stated and justified in attached statements. Attach all analytical results and QA/QC

documentation available. (CAUTION: PRIOR TO ARRANGING FOR LABORATORY ANALYSIS, CHECK WITH IUC AND LABORATORY REGARDING UTAH LABORATORY CERTIFICATIONS.)

FOR ALL MATERIAL TYPES: CHEMICAL ANALYSIS: Soil pH (9045), Paint Filter Liquids Test (9095): Reactivity (cyanide and sulfide).

1. MINIMUM ADDITIONAL ANALYTICAL REQUIRED FOR:

   a. Non-RCRA Waste (Non Mixed Waste e.g., LLRW, NORM): TCLP including the 32 organics, 8 metals, and copper (Cu) and zinc (Zn).

2. REQUIRED RADIOLOGICAL ANALYSES. Please obtain sufficient samples to adequately determine a range and weighted average of activity in the material. Have a sufficient number of samples analyzed by gamma spectral analysis for all natural isotopes such that they support the range and weighted average information for the material that will be recorded in item D.1. If Uranium, Thorium, or other non-gamma emitting nuclides are present in the material, have at least (1) sample evaluated by radiochemistry to determine the concentration of these additional contaminants in the material.

Generator or Contractor Initials: JFE

3. PRE-SHIPMENT SAMPLES OF MATERIAL TO IUC

   Once permission has been obtained from IUC, and unless amenability samples have previously been sent to IUC, please send 5 representative samples of the material to IUC. A completed chain of custody form must be included with the sampling containers. These samples will be used to establish the material's incoming shipment acceptance parameter tolerances and may be analyzed for additional parameters. Send about two pounds (one liter) for each sample in an air-tight clean glass container via United Parcel Post (UPS) or Federal Express to:

   International Uranium (USA) Corporation, Attn: Sample Control, 6425 S. Highway 191, P.O. Box 809, Blanding, UT 84511
   Phone: (435) 678-2221

4. LABORATORY CERTIFICATION INFORMATION. Please indicate below which of the following categories applies to your laboratory data.

   a. All radiologic data used to support the data in item C.1. must be from a certified laboratory.

   ___ UTAH CERTIFIED. The laboratory holds a current certification for the applicable chemical or radiological parameters from the Utah Department of Health insofar as such official certifications are given.

   ✓ GENERATOR'S STATE CERTIFICATION. The laboratory holds a current certification for the applicable chemical parameters from the generator's State insofar as such official certifications are given, or

   ___ GENERATOR'S STATE LABORATORY REQUIREMENTS. The laboratory meets the requirements of the generator's State or cognizant agency for chemical laboratories, or:

   If using a non-Utah certified laboratory, briefly describe the generator state's requirements for chemical analytical laboratories to defend the determination that the laboratory used meets those requirements, especially in terms of whether the requirements are parameter specific, method specific, or involve CLP or other QA data packages. Note: When process or project knowledge of this waste is applied, additional analytical results may not be necessary to complete Section B. D.2. D.5. or D.6. of this form.

   b. For analytical work done by Utah-certified laboratories, please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for analyses required by this form.

   c. For analytical work done by laboratories which are not Utah-Certified, please provide the following information:

State or Other Agency Contact Person	Generator's State	Telephone Number
Stan Van Wagenen	Nevada	702-657-1010
Lab Contact Person	Laboratory's State	Telephone Number

F. CERTIFICATION

GENERATOR'S CERTIFICATION: I also certify that where necessary those representative samples were or shall be provided to IUC and to qualified laboratories for the analytical results reported herein. I also certify that the information provided on this form is complete, true and correct and is accurately supported and documented by any laboratory testing as required by IUC. I certify that the results of any said testing have been submitted to IUC. I certify that the material described in this profile has been fully characterized and that hazardous constituents listed in 10 CFR 40 Appendix A Criterion 13 which are applicable to this material have been indicated on this form. I further certify and warrant to IUC that the material represented on this form is not a hazardous waste as defined by 40 CFR 261 and/or that this material is exempt from RCRA regulation under 40 CFR 261.4(a)(4).

The Generator's responsibilities with respect to the material described in this form are for policy, programmatic, funding and scheduling decisions, as well as general oversight. The Contractor's responsibilities with respect to this material are for the day-to-day operations (in accordance with general directions given by the Generator as part of its general oversight responsibility), including but not limited to the following responsibilities: waste characterization, analysis and handling; sampling; monitoring; record keeping; reporting and contingency planning. Accordingly, the Contractor has the requisite knowledge and authority to sign this certification on behalf of itself, and as agent for the Generator, on behalf of the Generator. By signing this certification, the Contractor is signing on its own behalf and on behalf of the Generator.

Generator's or Contractor's Signature W. L. Shaner Title Mgr. Public and Environmental Affairs

Date 12-18-00

(Sign for the above certifications).

D. 1.

Molycorp Inc.
P.O. Box 124
Mountain Pass, California 92366
Telephone: (619) 856-2201
Facsimile: (619) 856-2253

UNOCAL 76
MOLYCORP

1995 MTP LRLQCB (Gen/Oth)
19951106 Moly2 LRwQCB – Lead Ponds
-Don't scan Convose Rpt (Attach A) loose pages only
- Please fax this report to John Espinoza ASAP Thanks

Mr. Curt Shifrer
California Regional Water Quality Control Board
Lahontan Region
Victorville Branch Office
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359

Re: Investigation of Process Ponds P-8, P- 11, P-24

Dear Mr. Shifrer:

Molycorp, Inc. has prepared this letter report to satisfy requirements set forth in Section II (9) (b) of Board Order 6-91-836 for the investigation and inventory of process ponds. These ponds contain materials with lanthanide concentrations averaging over 20% with elevated concentrations of lead sulfide. The ponds addressed in this letter report are P-8, P-11 and P-24.

PRODUCTION HISTORY

Molycorp began operations at Mountain Pass in 1952 using a rod mill left from a predecessor company operating a small gold operation at Mountain Pass. Molycorp installed a ball mill and flotation cells. Production was initially very limited with only bastnasite concentrate being produced.

In the fall of 1964 Molycorp learned that one of the minor metals, europium, was in critical demand as a red phosphor for color televisions. To meet the new demand for europium, Molycorp constructed the Europium Plant, now the Chemical Plant, and placed it in operation in November of 1965.

As a consequence of the new process used in the recovery of europium, a process stream was generated which contained lanthanide minerals with elevated levels of lead sulfide and iron hydroxide.

MELISSA M. ALLAIN

NOV 13 1995

Bastnasite concentrate was delivered from the flotation plant to the Europium Plant where it was roasted to drive off carbon dioxide and oxidize the cerium to a less soluble (+3 to +4) valence state. This material was then subjected to a HCl leach which solubilized all the lanthanides except cerium. The cerium was settled out as a solid residue, filtered, dried and packaged as a finished product. The solution remaining after cerium removal was processed to remove iron hydroxide and lead sulfide.

The lead and iron removal was a continuous separation process. Iron was precipitated first by using ammonia to increase the pH. The iron-free supernatant overflowed to a second tank for lead precipitation using sodium hydrogen sulfide. The remaining solution was then circulated in preparation for introduction into the solvent extraction circuits.

The process stream enriched in lanthanide chlorides, iron hydroxide and lead sulfide was gravity discharged at various times to three unlined impoundment's as shown on the attached facility map.

During the initial startup at the Europium Plant, iron was not precipitated into the process stream. However, at a later date iron hydroxide was introduced to this stream. The effluent from this initial activity was gravity discharged into P-24 from approximately 1965 to 1967. Pond P-8 was the next facility used to store the lead iron residue. It was operated from approximately 1967 to 1981. The last pond to receive this waste stream was P-11 which was operated from 1981 to 1984. None of the ponds received additional material after 1984.

The process resulting in the production of the lead iron residue was the same basic process that resulted in the production of lead iron filter cake barreled and stored at Molycorp after 1984. The major difference was that the barreled material was placed in a filter press to reduce free moisture before storage. Also, the lead iron pond residues have greater concentrations of lanthanides than filter cake because of the lanthanide rich solutions that carried the residue. Barreled lead iron filter cake was stabilized by Molycorp under the terms of a Settlement Agreement finalized with the California Department of Toxic Substances in 1995, and is currently being fed to process for the purpose of lanthanide recovery.

WASTE CHARACTERIZATION STUDY

A field project was undertaken on August 8, 1995 to quantify volumes and characterize the material in the process ponds. The site sampling program was conducted by Converse Consultants Southwest, Las Vegas. Pond profiles were developed by logging of pond materials retrieved from split spoon auger samples obtained from pond power augering or hand auger samples where more appropriate. A complete description of the sampling program including sampling procedures and calculated pond volumes are attached as Attachment A, "Lead Pond Waste Management Unit Characterization".

Samples were shipped to Lockheed Analytical Laboratory, a California state certified laboratory for analysis. Analysis performed by Lockheed included metals listed in Title 22 of the California Health and Safety code and total uranium and thorium concentrations. Sample splits were analyzed at Molycorp's in-house laboratory for chloride, sulfate, lanthanides and moisture content. All constituents are reported on a dry weight basis.

POND DESCRIPTION

Volumes and cross-sections of the ponds are presented in Attachment A. Ponds were found to contain a total of between 3,851 and 4,326 cubic yards of lead iron residue.

Pond P-8 was found to consist of approximately 445 cubic yards of lead iron residue. This material is overlain with approximately 1,445 cubic yards of mill tailings averaging five feet in thickness. The lead iron residue in pond P-8 appears to be in the reduced state due to the tailings cover.

Pond P-11 was found to have a cap of oxidized lead iron residue overlying unoxidized lead iron residue. The oxidized residue is estimated to have a volume of between 300 to 775 cubic yards with a maximum thickness of 4.5 feet near the center of the pond. The reduced lead iron residue consists of approximately 2,815 cubic yards.

Pond P-24 was found to be very shallow with a depth of approximately 1 foot of mixed oxidized and reduced lead iron residue encountered. The total volume of lead iron residue in P-24 is estimated to be 285 cubic yards.

ANALYTICAL RESULTS

Analytical results for the lead iron residue containing lead and iron are summarized in Tables 1 and 2. Table 3 summarizes analytical results of the mill tailings in P-8. Table 4 compares analysis of barreled lead iron filter cake that was subsequently stabilized and is being fed back to process with pond lead iron residue.

Figure 2 and 3 show graphical representations of comparative concentrations of key chemical constituents in each pond. Figure 4 shows a graphical comparison of tailings material to lead iron residue, clearly establishing the distinct chemical composition of each material. A discussion of the differences found between the barreled material prior to stabilization and the pond material follows.

Lead

Lead concentrations in the barreled material ranges from 52,000 to 100,000 mg/kg while the material in the ponds ranges from 1,544 to 262,410 mg/kg. The low lead values are believed to occur in zones intermingled with mill tailings. Further evidence for this is the high barium content of the material containing comparatively low lead concentrations. As indicated above, the lead concentration in the pond material is much greater than the barreled stabilized material.

Barium

Barium in the barreled material averages 4 mg/kg while barium in the ponded material averages 6629 mg/kg in the oxidized lead iron residue and 6884 mg/kg in the unoxidized lead iron residue (Refer to Figure 2 for illustration). The high barium values are attributable to the interlayering of mill tailings.

Lanthanides

The total lanthanide content reported as an oxide in the oxidized lead/iron residue averages 21.77% while the average in the reduced material averages 14%. The unoxidized material may have a lower average content due to more interbedded mill tailings. The barreled material averaged 60% lanthanides reported as chlorides.

Radionuclides

Total uranium in the barreled material averages 2800 mg/kg. Oxidized material in the pond averages 1351 mg/kg while the unoxidized material averages 1333 mg/kg. These values are lower than the barreled material due to the intermingling of mill tailings with the lead iron residue.

Pond P-24 contains lower uranium and thorium values than the other two process ponds. This could be a result of this pond receiving effluent before iron was precipitated and added to the process stream.

Total thorium in the barreled material averages 240 mg/kg. The oxidized lead iron residue in the ponds averages 1152 mg/kg. The concentration of thorium in the unoxidized lead iron residue in the ponds averages 457 mg/kg.. The thorium concentration is much higher in one sample of oxidized lead iron residue from P-24 (5954 mg/kg). The composition of lead iron residue is well known and this thorium concentration is much higher than expected. Therefore, this sample has not been included in the calculation of the average concentrations within the ponds, since it is considered an anomaly.

Trace Constituents

The concentrations of the remaining Title 22 metal concentrations are similar between the barreled material and lead iron residue contained in the ponds.

ECONOMICS OF THE RECOVERY OF LANTHANIDES FROM POND RESIDUES

Attachment B to this letter discusses the value of reintroduction of the lead iron residue lanthanide material containing lead and iron to the current lanthanide recovery process . If reintroduced to the Chemical Plant using facilities currently being utilized for stabilized filter cake introduction, a cost for processing of the material is estimated at $0.50 a pound of recovered lanthanum oxide with a current market value of approximately $1.15/lb. Thus, the processing of pond residues for the recovery of lanthanides is economically justified.

PLAN FOR DETERMINING METHOD FOR POND CLOSURE

Molycorp is working diligently towards the processing or disposal of mining by-products at Mountain Pass. During 1995, lanthanide lead iron filter cake was stabilized at the Mountain Pass site. The stabilized material is currently being fed to the Chemical Plant for the recovery of lanthanides. The schedule mandated in the Settlement Agreement with the California Department of Toxic Substances requires that all stabilized material be processed for recovery of lanthanides or removed for disposal within a three year period beginning in August, 1995.

The reintroduction of stabilized filter cake has required the development of new process knowledge and techniques to keep lanthanide products within quality specifications while maximizing lanthanide recovery from the stabilized material. The same types of considerations are inherent to the processing of lead iron residue contained in the ponds.

For this reason, Molycorp proposes to evaluate several options for the permanent closure of the ponds. These options are listed below.

Processing of Pond Material in the Chemical Plant

Processing of Pond Material in the Mill

Close Ponds in Place Using an Engineered Cover and Diversion Ditches

As feasibility is considered, it is possible that other options may become attractive for the processing, containment or off site processing of the lead iron residue for lead recovery.

SCHEDULE FOR EVALUATION OF OPTIONS

Molycorp proposes to conduct the necessary engineering and process feasibility studies during the next six months. A report that provides a comparison of the feasibility and results of bench testing for the various options will be submitted by May 1, 1996. A preferred option(s) will be proposed at that time.

After submittal of this feasibility report, the recommended option(s) will be pilot tested under actual operating conditions. This process will take up to 6 months. At the conclusion of the pilot testing, Molycorp will submit a project schedule and detailed plan for the processing or containment of the pond residues.

CONCLUSION

- Molycorp has determined the volume and characterized the pond materials contained in P-8, P-11, P-24. These results are submitted as part of this report.
- Analysis of the pond materials shows it contains significant lanthanide and lead values and could be economically processed for the recovery of lanthanides.
- Reintroduction of similar, stabilized material presently being introduced to the Chemical Plant indicates that the pond residue can be introduced to the Molycorp process for the recovery of lanthanides.
- Molycorp proposes a schedule allowing systematic engineering and economic evaluation of the various options available for processing or containment.
- Results of feasibility and bench testing of the pond residues will be summarized and submitted in a report on May 1, 1996. A detailed plan and schedule for the processing or covering of the pond material based on actual pilot testing in operating conditions will be submitted no later than one year from the date of this submittal (November 1, 1996).

Depending on the best method for processing or containment, action will either commence immediately after review or approval of the detailed plan, or be sequenced to allow processing or cover after the stabilized lead/iron filter cake has been fed to process.

Please do not hesitate to call me if you have any questions concerning this matter.

Sincerely,

William J. Almas

attachments

cc: M. Allain, Unocal Law

Attachment D.2.

RADIOCHEMISTRY OF P8, P11, AND P24: LEAD PONDS

Sample ID	Ra^{226}	Ra^{228}	Total Ra	Th^{228}	Th^{230}	Th^{232}	Total Th	U^{234}	U^{235}	U^{238}	Total U	Total Activity
P8-2-5.0 - 5.5	3.3	2.7	**6**	7.45	2.29	5.55	**15**	1.91	0.1	2.13	**4**	**25**
P8-5-2.0 - 2.5	0.7	0.8	**1**	11.8	5.15	13.9	**31**	101	-4.9	104	**200**	**232**
P8-1-6.0 - 6.5	28.8	18.6	**47**	30.7	8.88	16.2	**56**	607	57.4	379	**1043**	**1147**
P8-5-3.0 - 3.5	1.9	1.5	**3**	7.47	9.9	10.8	**28**	4.32	1.02	5.22	**11**	**42**
P8-5-6.0 - 6.5	30.8	21.6	**52**	50.22	20.9	41.0	**112**	392	-2.43	452	**842**	**1006**
P8-6-6.0 - 6.5	34.2	63.2	**97**	41.8	20.9	52.3	**115**	776	28.6	816	**1621**	**1833**
P11-4-2.2 - 2.5	30.4	25.1	**56**	32.8	31.4	21.2	**85**	990	83.3	1090	**2163**	**2304**
P11-4-4.8 - 5.0	65.4	68.7	**134**	23.7	13.7	22.6	**60**	367	53.3	430	**850**	**1044**
P24-1-Bag (Comp)	10.8	14	**25**	135	15.8	87.7	**239**	191	224	25.3	**440**	**704**

NEL LABORATORIES
Reno • Las Vegas
Phoenix • Burbank

Las Vegas Division
4208 Arcata Way, Suite A • Las Vegas, NV 89030
(702) 657-1010 • Fax: (702) 657-1577
1-888-368-3282

CLIENT: Molycorp, Inc.
67750 Bailey Road
Mountain Pass, CA 92366
ATTN: Geoff Nason

PROJECT NAME: NA
PROJECT NUMBER: NA

NEL ORDER ID: L9802117

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 2/12/98.

Samples were analyzed as received.

Where applicable we have included the following quality control data:

Method blank - used to demonstrate absence of contamination or interferences in the analytical process.
Laboratory Control Spike (LCS) - used to demonstrate laboratory ability to perform the method within specifications by spiking representative analytes into a clean matrix.
Surrogates - compounds added to each sample to ensure that the method requirements are met for each individual sample.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

LEAD Ponds Radiochemistry

Michael Stewart for S.V.W.
Stan Van Wagenen
Laboratory Manager

3/5/98
Date

CERTIFICATIONS:

	Reno	Las Vegas	Burbank
Arizona	AZ0520	AZ0518	AZ0325
California	1707	2002	1192
US Army Corps of Engineers	Certified	Certified	Certified
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
Washington			Certified

2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Radium 226/228
Method: EPA 903.0/9

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	3.29	0.35	0.048	PCI/G
							Radium-228	2.71	0.64	0.73	PCI/G
P-8-5-2.0-2.5	16940-004	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	0.67	0.10	0.087	PCI/G
							Radium-228	0.81	0.55	0.88	PCI/G
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	28.8	2.8	0.050	PCI/G
							Radium-228	18.6	2.2	0.97	PCI/G
P-8-5-3.0-3.5	16940-006	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	1.94	0.22	0.054	PCI/G
							Radium-228	1.49	0.68	1.02	PCI/G
P-8-5-6.0-6.5	16940-007	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	30.8	3.0	0.048	PCI/G
							Radium-228	21.6	2.6	1.06	PCI/G
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	34.2	3.4	0.078	PCI/G
							Radium-228	63.2	6.5	1.13	PCI/G
P-24-1-BAG	16940-009	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	10.8	1.09	0.054	PCI/G
							Radium-228	14.0	1.6	0.83	PCI/G
NA	QCBLK165050-1	Soil	NA	NA	02/20/98	02/26/98	Radium-226	0.006	0.028	0.049	PCI/G
							Radium-228	0.09	0.24	0.40	PCI/G
NA	QCLCS165050-1	Soil	NA	NA	02/20/98	02/26/98	Radium-226	76	---	---	%REC
							Radium-228	94	---	---	%REC

[redacted]
2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: HASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	0.36	PCI/G
							Potassium-40	29.4	7.9	5.26	PCI/G
							Lead-210	4.92	2.81	3.07	PCI/G

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: HASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Lead-212	18.3	1.9	0.92	PCI/G
							Thallium-208	5.79	1.22	0.92	PCI/G
							Lead-214	1.85	0.40	0.49	PCI/G
P-8-5-2.0-2.5	16940-004	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	9.87	1.99	1.54	PCI/G
							Cesium-137	ND	---	0.74	PCI/G
							Radium-226	41.9	28.7	7.88	PCI/G
							Thorium-234	28.0	5.6	3.30	PCI/G
							Lead-210	11.9	7.4	6.28	PCI/G
							Lead-212	30.8	3.3	1.68	PCI/G
							Thallium-208	20.4	2.5	1.38	PCI/G
							Lead-214	3.10	0.92	0.95	PCI/G
							Thorium-231	6.88	3.96	3.37	PCI/G
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	26.2	2.4	2.09	PCI/G
							Cesium-137	ND	---	1.49	PCI/G
							Radium-226	117	103	16.7	PCI/G
							Uranium-235	25.4	4.9	5.08	PCI/G
							Thorium-234	248	26	11.0	PCI/G
							Lead-210	73.2	17.5	14.8	PCI/G
							Lead-212	96.5	9.2	3.34	PCI/G
							Thallium-208	49.3	5.7	3.27	PCI/G
							Bismuth-214	17.7	2.9	2.31	PCI/G
							Lead-214	15.3	2.4	1.93	PCI/G
							Thorium-231	59.5	12.2	9.22	PCI/G

Nevada Environmental Laboratories
4205 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: HASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	65.6	5.5	5.71	PCI/G
P-8-5-3.0-3.5	16940-006	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	0.53	PCI/G
							Potassium-40	8.80	4.82	4.30	PCI/G
							Lead-212	16.4	2.3	1.37	PCI/G
							Bismuth-212	52.8	13.3	17.6	PCI/G
							Thallium-208	10.4	1.7	1.24	PCI/G
							Lead-214	2.72	0.68	0.66	PCI/G
P-8-5-6.0-6.5	16940-007	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	15.0	1.6	2.02	PCI/G
							Cesium-137	ND	---	1.77	PCI/G
							Radium-226	140	94	20.3	PCI/G
							Uranium-235	15.8	5.0	5.70	PCI/G
							Thorium-234	166	21	11.9	PCI/G
							Lead-210	68.6	18.6	16.0	PCI/G
							Lead-212	139	11	4.33	PCI/G
							Bismuth-212	289	64	47.7	PCI/G
							Thallium-208	77.3	7.7	3.37	PCI/G
							Lead-214	3.77	2.10	2.29	PCI/G
							Thorium-231	44.0	12.5	9.62	PCI/G
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Actinium-228	103	8	5.11	PCI/G
							Cesium-137	ND	---	1.77	PCI/G
							Radium-226	232	135	21.5	PCI/G
							Uranium-235	30.6	6.2	6.22	PCI/G
							Thorium-234	338	34	13.6	PCI/G

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: EASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Lead-210	126	26	16.5	PCI/G
							Lead-212	136	11	4.22	PCI/G
							Bismuth-212	212	57	55.0	PCI/G
							Thallium-208	69.4	7.9	4.00	PCI/G
							Thorium-231	85.0	16.9	10.5	PCI/G
							Actinium-228	108	8	5.93	PCI/G
P-24-1-BAG	16940-009	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	2.04	PCI/G
							Potassium-40	33.5	14.0	15.6	PCI/G
							Lead-210	24.1	17.0	16.0	PCI/G
							Lead-212	364	24	5.00	PCI/G
							Bismuth-212	1090	132	67.1	PCI/G
							Thallium-208	328	22	4.41	PCI/G
							Manganese 54	44.2	12.3	11.0	PCI/G
							Thorium-231	114	19	8.82	PCI/G
							Actinium-228	204	22	6.10	PCI/G
NA	QCBLK165052-1	Soil	NA	NA	02/17/98	02/23/98	Cesium-137	ND	---	0.27	PCI/G
NA	QCLCS165052-1	Soil	NA	NA	02/17/98	02/23/98	Americium-241	91	---	---	%REC
							Cesium-137	97	---	---	%REC
							Cobalt-60	96	---	---	%REC

Quanterra
2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Thorium
Method: HASL-HASL-300A

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Signa Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	7.45	1.98	0.12	PCI/G
							Thorium-230	2.29	0.70	0.14	PCI/G
							Thorium-232	5.55	1.51	0.15	PCI/G
P-8-5-2.0-2.5	16940-004	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	11.8	6.4	5.61	PCI/G
							Thorium-230	5.15	3.76	4.00	PCI/G
							Thorium-232	13.9	6.8	2.74	PCI/G
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	30.7	8.4	1.19	PCI/G
							Thorium-230	8.88	3.13	0.96	PCI/G
							Thorium-232	16.2	4.9	0.41	PCI/G
P-8-5-3.0-3.5	16940-006	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	7.47	2.91	1.79	PCI/G
							Thorium-230	9.90	3.48	0.94	PCI/G
							Thorium-232	10.8	3.7	1.05	PCI/G
P-8-5-6.0-6.5	16940-007	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	50.2	14.6	1.59	PCI/G
							Thorium-230	20.9	7.0	2.07	PCI/G
							Thorium-232	41.0	12.2	1.31	PCI/G
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	41.8	11.9	1.19	PCI/G
							Thorium-230	20.9	6.7	1.33	PCI/G
							Thorium-232	52.3	14.5	1.19	PCI/G

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Thorium
Method: BAS-RS-3004

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-24-1-BAG	16940-009	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	135	33	0.96	PCI/G
							Thorium-230	15.8	4.8	1.75	PCI/G
							Thorium-232	87.7	21.8	0.96	PCI/G
NA	QCBLK165884-1	Soil	NA	NA	02/25/98	02/27/98	Thorium-228	-0.049	0.029	0.18	PCI/G
							Thorium-230	0.077	0.082	0.11	PCI/G
							Thorium-232	-0.011	0.012	0.11	PCI/G
NA	QCLCS165884-1	Soil	NA	NA	02/25/98	02/27/98	Thorium-228	94	---	---	%REC
							Thorium-230	92	---	---	%REC
							Thorium-232	94	---	---	%REC

[redacted]
2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Uranium
Method: HAS-HS-3050

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-8-2-5.0-5.5	16940-003	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	1.91	0.63	0.14	PCI/G
							Uranium-238	2.13	0.69	0.11	PCI/G
							Uranium-235/236	0.10	0.12	0.16	PCI/G
P-8-5-2.8-2.5	16940-004	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	101	69	55.8	PCI/G
							Uranium-238	104	72	64.9	PCI/G
							Uranium-235/236	-4.9	27.6	80.4	PCI/G
P-8-1-6.0-6.5	16940-005	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	607	204	60.7	PCI/G
							Uranium-238	379	148	48.2	PCI/G
							Uranium-235/236	57.4	57.5	59.8	PCI/G
P-8-5-3.0-3.5	16940-006	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	4.32	1.15	0.10	PCI/G
							Uranium-238	5.22	1.36	0.12	PCI/G
							Uranium-235/236	1.02	0.39	0.11	PCI/G
P-8-5-6.0-6.5	16940-007	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	392	150	41.2	PCI/G
							Uranium-238	452	164	26.6	PCI/G
							Uranium-235/236	-2.43	4.89	50.8	PCI/G
P-8-6-6.0-6.5	16940-008	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	776	251	31.4	PCI/G
							Uranium-238	816	260	48.2	PCI/G
							Uranium-235/236	28.6	40.9	38.7	PCI/G

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Quanterra
2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Uranium
Method: EPA-NS-3050

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-24-1-BAG	16940-009	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	191	98	49.1	PCI/G
							Uranium-238	224	107	27.7	PCI/G
NA	QCBLK165886-1	Soil	NA	NA	02/25/98	02/26/98	Uranium-235/236	25.3	36.2	34.3	PCI/G
							Uranium-234	0.100	0.065	0.086	PCI/G
							Uranium-238	0.040	0.051	0.060	PCI/G
NA	QCLCS165886-1	Soil	NA	NA	02/25/98	02/26/98	Uranium-235/236	0.042	0.063	0.093	PCI/G
							Uranium-234	103	---	---	%REC
							Uranium-238	92	---	---	%REC

NEL LABORATORIES — CHAIN OF CUSTODY

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Las Vegas Division • 4208 Arcata Way, Ste. A • Las Vegas, NV 89030
(702) 657-1010 • FAX: (702) 657-1577 • 1-888-388-3282

Project Name: LEAD POND SAMPLES
Project No.:
P.O. No.:
Sampled By: NASON

Company: Molycorp
Attn.: Rocky Bowman
Address: 67750 Bailey RD MTN Pass, CA 92366
Phone No.: 760-856-7607
Fax No.: 760-856-2253
Billing Address: Same
Expected Due Date: 3/5/98

Requested Turnaround: ____ 5 Day (Normal) ____ 48 Hr. ____ 24 Hr. ____ Other

Sample Date/Time	Sample ID	N.E.L. Identification	# of Containers	Matrix (Box #1)	Preservative (Box #2)	Expected Concentration (Box #3)	Isotopic U	" " Ra	Gross Alpha Ra 226	Gamma Spec.	pH (for lab use only)	Remarks
8/95	P-8-1-6.0-6.5	L9802111-01	1									
	P-8-2-5.0-5.5	-02	1									
	P-8-5-2.0-2.5	-03	1									
	P-8-5-3.0-3.5	-04	1									
	P-8-5-6.0-6.5	-05	1									
Sample →	P-8-5-8.0-8.5	per PM	1									
	P-8-6-6.0-6.5	-06	1									
Sample →	P-11-2-6.0-6.5		2									Did not Rec
Sample →	P-11-4-4.5-5.0		2									Did not Receive
	P-24-1 BAG	-07	1									2.12.98 mc

Custody Seal intact? Y N None Temp. 21°C
Condition when received good

Box #1: DW - Drinking Water; WW - Waste Water; RW - RCRA Water; OL - Oil; SG - Sludge; SO - Soil; SD - Solid; AQ - Aqueous; A - Air

Box #2: A. HCl; B. HNO_3; C. H_2SO_4; D. MeOH; E. Ice Only; F. Other ____; G. Not Preserved

Box #3: H - High; M - Medium; L - Low; U - Unknown

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
R Bowman	RBS	2/12/98 7:23 AM	Geoff Nason	Geoff Nason	2/12/98 9:23 AM
Geoff Nason	Geoff Nason	2/12/98 1:34PM	Mike Empey		2/12/98 13:44

NEL LABORATORIES
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Las Vegas Division
4208 Arcata Way, Suite A • Las Vegas, NV 89030
(702) 657-1010 • Fax: (702) 657-1577
1-888-368-3282

FACSIMILE TRANSMISSION

TO: Geoff Nason

COMPANY: Molycorp.

PHONE: _____

FAX: _____

FROM: Bruce

DATE: 3/5/98

NO. OF PAGES: 8
(including cover page)

☐ *Hard copy will follow* ☐ *Hard copy will **not** follow*

Rad. data

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

2 March 1998

Project: Nevada Environmental Laboratories

Category: Radium 226/228
Method: EPA 903.0/9

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
-11-4-2.2-2.5	16960-001	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	30.4	3.0	0.093	PCI/G
							Radium-228	25.1	3.0	1.19	PCI/G
-11-4-4.8-5.0	16960-002	Soil	08/09/95	02/13/98	02/20/98	02/26/98	Radium-226	65.4	6.4	0.060	PCI/G
							Radium-228	68.7	7.2	1.28	PCI/G

2 March 1998

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Isotopic Thorium
Method: HAS-HASL-300A

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
-11-4-2.2-2.5	16940-001	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	32.8	10.0	1.15	PCI/G
							Thorium-230	31.4	9.6	1.36	PCI/G
							Thorium-232	21.2	7.0	1.52	PCI/G
-11-4-4.8-5.0	16940-002	Soil	08/09/95	02/13/98	02/25/98	02/27/98	Thorium-228	23.7	7.0	1.85	PCI/G
							Thorium-230	13.7	4.5	1.36	PCI/G
							Thorium-232	22.6	6.7	1.43	PCI/G

[redacted]

2 March 1998

levada Environmental Laboratories
208 Arcata Way
uite A
as Vegas, NV 89030

roject: Nevada Environmental Laboratories

Category: Isotopic Uranium
Method: HAS-NS-3050

lient D	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
-11-6-2.2-2.5	16940-001	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	990	273	45.4	PCI/G
							Uranium-238	1090	295	42.1	PCI/G
							Uranium-235/236	83.3	62.4	52.1	PCI/G
-11-6-6.8-5.0	16940-002	Soil	08/09/95	02/13/98	02/25/98	02/26/98	Uranium-234	367	140	56.8	PCI/G
							Uranium-238	430	154	24.3	PCI/G
							Uranium-235/236	53.3	51.1	46.4	PCI/G

Nevada Environmental Laboratories
4208 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gross Alpha-Beta
Method: EPA 9310

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
P-11-4-2.2-2.5	16940-001	Soil	08/09/95	02/13/98	02/25/98	02/25/98	Gross Alpha	3490	362	10.2	PCi/g
							Gross Beta	2070	207	7.38	PCi/g
P-11-4-4.8-5.0	16940-002	Soil	08/09/95	02/13/98	02/25/98	02/25/98	Gross Alpha	1920	198	7.25	PCi/g
							Gross Beta	1050	105	5.33	PCi/g

2 March 1998

Nevada Environmental Laboratories
6204 Arcata Way
Suite A
Las Vegas, NV 89030

Project: Nevada Environmental Laboratories

Category: Gamma Spec.
Method: HASL 300

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Prep Date	Date Analyzed	Parameter	Result	Sigma Error (+/-)	MDA	Units
-11-4-2.2-2.5	16940-001	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	1.51	PCI/G
							Radium-226	241	138	19.4	PCI/G
							Uranium-235	36.2	5.9	5.96	PCI/G
							Thorium-234	356	35	11.4	PCI/G
							Lead-210	140	28	16.8	PCI/G
							Lead-212	99.5	9.9	3.89	PCI/G
							Bismuth-212	196	47	50.8	PCI/G
							Thallium-208	56.8	6.2	3.60	PCI/G
							Bismuth-214	12.4	2.4	2.71	PCI/G
							Lead-214	10.9	2.1	2.12	PCI/G
							Thorium-231	99.1	19.6	9.12	PCI/G
							Actinium-228	64.5	6.1	6.62	PCI/G
11-4-4.8-5.0	16940-002	Soil	08/09/95	02/13/98	02/17/98	02/23/98	Cesium-137	ND	---	1.92	PCI/G
							Radium-226	143	100	20.3	PCI/G
							Uranium-235	16.2	5.3	5.98	PCI/G
							Thorium-234	166	22	10.1	PCI/G
							Lead-210	71.6	22.0	17.3	PCI/G
							Lead-212	136	11	3.95	PCI/G
							Thallium-208	66.9	7.9	3.95	PCI/G
							Thorium-231	50.1	16.3	9.64	PCI/G
							Actinium-228	90.3	7.3	4.79	PCI/G

D.3.

Molycorp, Inc.
Lanthanide Group
67750 Bailey Road, P.O. Box 124
Mountain Pass, CA 92366
Telephone (760) 856-2201
Facsimile (760) 856-2253

molycorp

1 November 1999

Ms. Michelle Rehmann
International Uranium Corporation
Environmental Manager
Independence Plaza, Suite 950
1050 Seventeenth Street
Denver, CO 80265

Re: Information Needed for Filing an Amendment for Reception of Lead Sulfide Materials

Dear Ms. Rehmann:

In response to your letter dated 14 October 1999 and our telephone discussion, the following is given in response to your questions:

1. The estimated volume of the lead sulfide pond residues.

   The estimated volume in the three ponds is 155,000 ft^3 total including approximately 39,000 ft^3 of flotation tailings that Molycorp will attempt to separate from the lead sulfide residues while excavating the pond materials.

2. A process sketch or description of the lanthanide recovery process that generated the streams discharged to the three ponds.

   See attached diagram.

3. A description of other sources (if any) of streams discharged to the three ponds.

   Approximately 39,000 ft^3 of material contained in the ponds is mill tailings from the flotation concentration of bastnasite minerals which became the feedstock that produced the lead sulfide residues. Molycorp will attempt to separate this material from the lead sulfide residues while excavating the pond materials.

4. Confirmation or evidence that the non-radioactive metals in the three ponds did not come from a RCRA listed processes. It would be most useful to receive a formal statement or other confirmation that the pond contents are exempt from RCRA under the Bevill amendments.

   None of the materials placed in the lead sulfide ponds are a listed hazardous waste.

5. Organic analysis of the three ponds, or confirmation that the pond sludges contain no organic constituents.

   No analysis is available at this time. Molycorp believes that no significant amount of organics, if any, exist in the lead sulfide pond residues.

6. Confirmation or evidence that organic compounds (if any) in the three ponds did not come from RCRA listed processes.

   The materials shipped to the White Mesa Mill, IUC, from the lead ponds will not contain any compound, either inorganic or organic, whose origin is a RCRA-listed process.

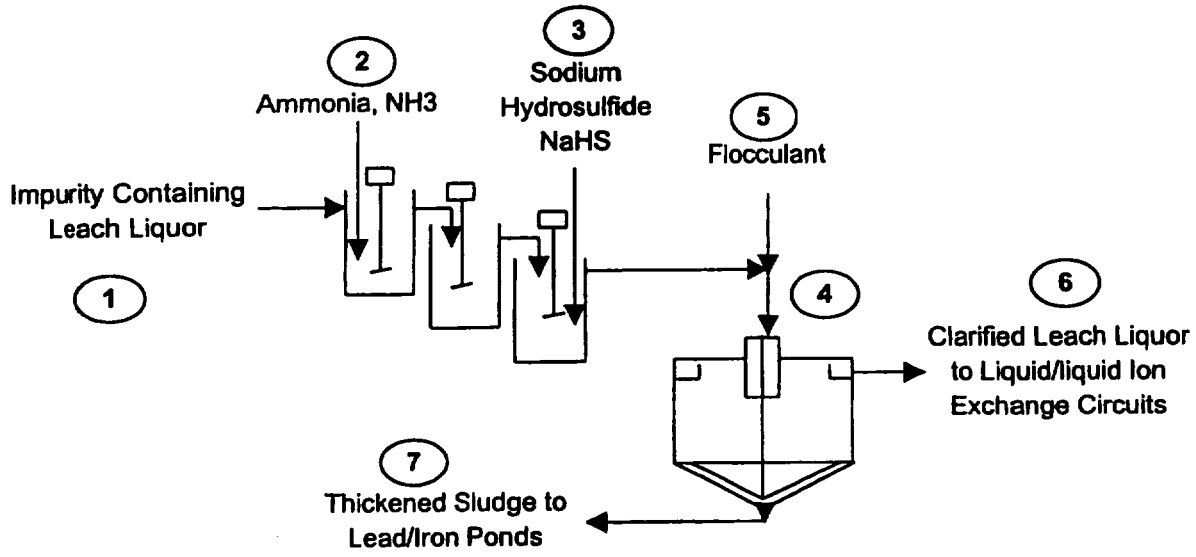
7. Information on organic solvent use (if any) at the site.

   The lanthanide separations process uses kerosene in the SX circuit. However, the lead sulfide residues were created, and removed from the process, upstream of the SX circuit.

If you have any further questions, please contact me by telephone at (760) 856-7645 or fax at (760) 856-6691.

Cordially Yours,

PbS Pond Residue Process Diagram



1. Bastnasite concentrate from the flotation plant is roasted to remove excess carbonates prior to the leaching process. The roasted bastnasite is leached in a hydrochloric acid solution. The insoluble material becomes the cerium feedstock and the leach liquor is sent for further impurity removal and lanthanide recovery using SX-Ion exchange.

2. Ammonia was added to the circuit to precipitate iron. Incidental lanthanide precipitation also occurred.

3. Sodium hydrosulfide was added to the circuit to precipitate lead. The uranium followed the lead in precipitation.

4. The slurry reports to the thickener for settling.

5. Flocculent is added to the slurry at the thickener.

6. The thickener overflow liquor reports to the SX circuit.

7. The thickener underflow, PbS residue, reported to the PbS settling ponds.

ATTACHMENT 6

Memorandum from Independent Consultant
Regarding
No RCRA Listed Waste in Uranium Material

REVIEW OF MOLYCORP INFORMATION TO ASSESS THE POTENTIAL PRESENCE OF RCRA LISTED HAZARDOUS WASTE

I have performed an independent evaluation of the information available to date on Uranium Material from the Molycorp settling ponds to assess whether any RCRA Listed Hazardous Waste is present.

IUSA has developed a "Protocol for Determining Whether Alternate Feed Materials are Listed Hazardous Wastes" (the "Protocol") (November 22, 1999). This Protocol has been developed in conjunction with, and accepted by, the State of Utah Department of Environmental Quality ("UDEQ") (Letter of December 7, 1999). The evaluation and recommendations in this Attachment were developed in accordance with this Protocol.

1.0 Source Investigation/Basis of This Evaluation

Sufficient site history and background information was available to perform the Source Investigation required in Step 1 of the Protocol Decision Logic Diagram ("the Protocol Diagram"). To perform my independent evaluation, I have reviewed the following documents:

1. IUSA/UDEQ Protocol for Determining Whether Alternate Feeds Are Listed Hazardous Wastes (IUSA, November, 1999).

2. Process history and pond information from the Molycorp Lead Sulfide Ponds Closure Plan (February, 1997)

3. Molycorp letter of November 1, 1999 in response to IUSA request for additional process information.

4. Molycorp package of site and operational history information (April 14, 2000)

5. Affidavit Regarding No RCRA Listed Hazardous Waste, Provided by Molycorp to IUSA

6. Radioactive Material Profile Record ("RMPR") prepared by Molycorp for IUSA

The information is sufficient to conclude that the Uranium Material was generated from a known process under the control of the generator.

2.0 Determination That Material is Known Not to Contain RCRA Listed Hazardous Waste

The Protocol Diagram states in Decision Diamond 2, that if a material "is known not to be or contain any listed hazardous waste", then IUSA and UDEQ will consider the material not to be listed hazardous waste. Item 2 of the Protocol text states that to make the determination in Decision Diamond 2, IUSA may,

> "Determine whether specific information from the Source Investigation exists about the generation and management of the material to support a conclusion that the Material is not (and does not contain) any listed hazardous waste. For example, if specific information exists that the Material was not generated by a listed source and that the Material has not been mixed with any listed wastes, the Material would not be a listed hazardous waste."

Sufficient information does exist to support such a conclusion. Molycorp, based on site history, analytical data, and generator's knowledge of their process, has indicated that the Uranium Material contains no RCRA listed hazardous wastes. I have reviewed a copy of The description of the ponds and the Process Diagram depicting how the pond contents were generated, which state that the ponds contain thickened sludge from the clarifier thickener step in the preparation of leach liquor from bastnasite ores for SX/ion exchange.

I have also reviewed a copy of the Molycorp letter of November 1, 1999, which states that:

> "None of the materials placed in the lead sulfide ponds are a listed hazardous waste. . . The materials shipped to the White Mesa Mill, IUC, from the lead ponds will not contain any compound, either inorganic or organic, whose origin is a RCRA-listed process."

This information meets the requirement for specific Source Investigation information in the Protocol Decision Diamond 2 and Step 2, and demonstrates that the Material neither was generated by a listed waste source nor has been mixed with a listed waste.

Molycorp's statement is supported by the analytical data, which indicate that the combination and levels of inorganic components are consistent with tailings from metal extraction processing. That is, all the inorganics appear to come from extraction of rare earth elements from natural ores.

3.0 Documentation to Support Determination of No RCRA Listed Hazardous Waste

IUSA has obtained the following documentation to support the determination in Box 2 that the material is "known not to contain any listed hazardous waste".

- An affidavit from Molycorp confirming that the pond material is not and does not contain RCRA listed hazardous waste associated with any of the four lists: F, P, U, or K.

- A copy of the IUSA RMPR which contains a declaration that the pond material is not and contains no RCRA listed hazardous waste.

I have reviewed both of these documents. These documents are consistent with the document requirements in Protocol Diagram Box 3, for a determination based on site history.

4.0 Conclusions

It is my professional judgement that:

1. The Molycorp Uranium material was generated by a known process under the control of the generator.

2. The Molycorp Uranium material is not and does not contain RCRA listed hazardous waste.

3. The information made available to me is consistent with the information requirements set forth in the Protocol.

4. This determination of no RCRA listed hazardous waste is consistent with the decision logic of the Protocol.

Jo Ann Tischler
Chemical Engineer

ATTACHMENT 7

International Uranium (USA) Corporation
White Mesa Mill
Equipment Release/Radiological Survey Procedure

2.6 Equipment Release Surveys

2.6.1 Policy

Materials leaving a restricted area going to unrestricted areas for usage must meet requirements of Annex C Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use (dated September, 1984).

All material originating within the restricted area will be considered contaminated until checked by the radiation protection department. All managers who desire to ship or release material from the facility will inform the Radiation Protection Officer of their desires. The Radiation Protection Officer has the authority to deny release of materials exceeding Annex C Guidelines. No equipment or materials will be released without documented release by the Radiation Protection Officer.

2.6.2 Limits

The release limits are:

Alpha emissions:

Average	5,000 dpm/100 cm^2
Maximum	15,000 dpm/100 cm^2
Removable	1,000 dpm/100 cm^2

Beta-gamma emissions (measured at a distance of one centimeter):

Average	0.2 mr/hr or 5,000 dpm/100 cm^2
Maximum	1.0 mr/hr or 15,000 dpm/100 cm^2

2.6.3 Equipment

Equipment used for equipment surveys includes as examples (or equivalent):

1. Eberline PRM-7 gamma scintillator, or equivalent
2. Ludlum Model 3 with 44-5 detector, or equivalent
3. Ludlum Model 3 with 43-5 detector, or equivalent
4. Ludlum Model 2200 with 43-17 detector, or equivalent
5. Glass fiber wipe filters

2.6.4 Procedures

Upon notification that materials are requested for release, the radiation protection department shall inspect and survey the material. Surveys include fixed and removable alpha surveys and beta-gamma surveys. A document inspection and release form is to be prepared and signed by the Radiation Protection Officer or his designee. Any material released from the mill will be accompanied with the appropriate release form. If contamination exceeds Annex C levels, then decontamination may proceed at the direction of the Radiation Protection Officer. If the material cannot be decontaminated, then it will not be released.

2.6.5 Records

Documented records for each released item are filed in the radiation protection department files.

2.6.6 Quality Assurance

The policy and documented release forms are periodically reviewed by the Radiation Protection Officer and the audit committee to ensure policy and regulatory compliance.