

Umetco Minerals Corporation



WHITE MESA MILL • P. O. BOX 669 • BLANDING, UTAH 84511  
☐ (801) 678-2221

40-8681  
RETURN ORIGINAL TO PDR, HQ.

December 21, 1992

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USNRC  
MAIL SECTION  
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Mr. Ramon E. Hall, Director  
United States Nuclear Regulatory Commission  
Region IV  
Uranium Recovery Field Office  
Box 25325  
Denver, Colorado 80225

Dear Mr. Hall:

Re: Transfer of 3,000 gallons of Organic Solvent from  
Energy Fuels Nuclear, Bingham Canyon Uranium Facility,  
Radioactive Materials License Ut1800226 to Umetco's  
White Mesa Mill, NRC License SUA-1358, Docket  
#40-8681.

This letter is to inform you of Umetco Minerals Corporation,  
White Mesa Mill, intent to receive approximately 3,000 gallons of  
kerosene organic solvent for use in our solvent extraction  
circuit.

As discussed with Dana Ward of your staff Energy Fuels Nuclear,  
Inc., desires to transfer kerosene organic solvent used in the  
extraction of uranium at the Bingham Canyon facility to Umetco  
Minerals Corporation, White Mesa Mill. This reagent is a  
kerosene solvent which will be utilized in the solvent extraction  
circuit for the purpose of recovering uranium. The solvent  
contains a sufficient amount of uranium to be considered a source  
material (see enclosed letter dated 4/13/92). This transfer of  
source material will be done pursuant to the State of Utah,  
Bureau of Radiation Control Regulations R313-19-41, U.S.  
Department of Transportation requirements and applicable U.S.  
Nuclear Regulatory Commission Regulations. All applicable  
documentation required for this transfer of source material from  
licensee to licensee will be maintained for your review.

Also enclosed is all written correspondence between Energy Fuels  
Nuclear and the State of Utah Division of Radiation Control in  
regards to this matter (see letters dated 12/7/92 and 12/14/92).

The anticipated transfer of the source material is scheduled  
during the last week of December 1992 or shortly thereafter.

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Certified By *Mary C. Ford*

93-0149

As always, should you have any questions concerning this matter, do not hesitate to contact Butch Brice or myself at 801-678-2221.

Sincerely,

*S. L. Schierman*  
S. L. Schierman  
Radiation Safety Officer

Attachments

cc: Messrs. W. W. Brice  
J. S. Hamrick  
G. G. Ray  
R. A. Van Horn  
S. L. Schierman  
R. E. Berg  
M. D. Vincelette  
G. F. Richards  
R. B. Smith

Ray D. Lloyd, Ph. D.  
Certified Health Physicist  
798 Deerfield Road  
Murray, Utah 84107  
(801) 266-7989 (H)  
(801) 581-6810 (W)  
13 April 1992

Ronald Berg  
Energy Fuels Nuclear, Inc.  
9090 West Bingham Highway  
Bingham Canyon, Utah 84006

Dear Mr. Berg:

In late February, 1992, you delivered to me a sample of solvent for evaluation of its radioactive content. Upon first counting on 25 Feb 1992, it was found to contain easily detectable amounts of uranium. This information was conveyed to you, and so in March of 1992 you brought a sample of the same solvent that had been treated to remove uranium.

In both cases, 440 ml of the sample had been sealed in each of 4 cans to prevent the escape of the Rn-222 daughter of Ra-226, a possible contaminant of the solvent. Each sample was counted for photon-emitting radioactivity (just after sealing) with a pair of 8 X 4 inch NaI(Tl) crystals inside of a 6 inch thick low background enclosure. Data were recorded using a 8192 channel pulse-height analyzer. This was done for the purpose of determining the uranium content of the samples with minimum interference from the anticipated buildup within the cans over time of gamma-rays from the photon-emitting progeny of Rn-222.

Subsequently, the samples were aged for at least a month to allow the establishment of Rn-222/Ra-226 secular equilibrium. Then on 13 April 1992, all of the canned samples were recounted to establish their Ra-226 content via the counting rates of its radioactive progeny, especially Bi-214.

Uranium was identified in all of the samples, but more especially the untreated solvent. The presence of Ra-226 could not be established in either of the solvent samples, treated or untreated.

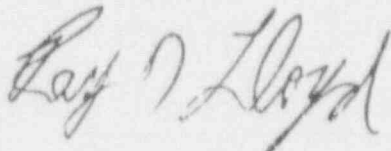
The uranium content of the untreated solvent samples was estimated to be about  $338 \pm 1.0$  pCi/ml, while the uranium content of the treated

(X)

solvent samples was about  $3.8 \pm 0.2$  pCi/ml, nearly two orders of magnitude lower (uncertainties quoted above are standard deviations and are based only on counting statistics). I could not identify Ra-226 in either sample. Our limit of detection for this counting was about 0.06 pCi Ra-226/ml.

It appears that your solvent originally contained only uranium (not radium) and that the treatment process removed all but a few percent of the concentration that was present before treatment. I sincerely hope that these data will prove to be of value to you in your project.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Ray D. Lloyd".

Ray D. Lloyd, Ph. D.  
Certified Health Physicist

P. S. The samples are now ready for you to collect for disposal. They are stored in my laboratory exactly where you saw them last. The cans of untreated solvent are marked with a "U", while the cans of treated solvent are marked with a "T." Either call me before you come, or make certain if I am not here that someone is available to unlock my lab for you.



energy fuels nuclear, inc.

2555 N. Hwy 89A  
HC 64, Box 152  
Fredonia, Arizona 86022  
Telephone - (602) 643-7321  
Fax Number - (602) 643-7328

December 7, 1992


Mr. Craig Jones  
Section Manager  
State of Utah  
Department of Health  
Bureau of Radiation Control  
P.O. Box 144850  
Salt Lake City, Utah 84114-4850

Dear Mr. Jones:

Re: Transfer of 3,000 gallons of organic solvent to UMETCO Minerals Corporation, Blanding, Utah, NRC License #SUA-1358 from Energy Fuels Nuclear, Inc., Bingham Canyon Uranium Extraction Facility, Copperton, Utah, Radioactive Materials License #1800226

Energy Fuels Nuclear, Inc., desires to transfer the organic solvent which was used in the extraction of uranium at the Bingham Canyon facility to UMETCO Minerals Corporation, located in Blanding, Utah. This reagent is a kerosene solvent which will be utilized in UMETCO's solvent extraction circuit for the purpose of recovering uranium at the White Mesa Mill facility. There is a sufficient amount of uranium content contained in the solvent for it to be considered source material. The transfer of this material will be made pursuant to the State of Utah, Bureau of Radiation Control Regulations R313-19-41 from licensee Energy Fuels Nuclear, Inc., Radioactive Materials License #UT1800226 to UMETCO Minerals Corporation, U.S. Nuclear Regulatory Commission Source Material License #SUA-1358. Energy Fuels Nuclear, Inc., has verified that UMETCO Minerals Corporation is authorized to receive the type, form and quantity of transferred radioactive material under respective license conditions #6, #7 and #8 of license #SUA-1358 for the White Mesa Mill operation. Energy Fuels Nuclear, Inc., has additionally verified the solvent extraction circuit from Section 2.1, facility description contained in Docket No. 40-8681 dated September 26, 1985 of the subject license, where the organic solvent will be used. All relevant documents, records and nuclear





Mr. Craig Jones  
December 7, 1992  
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material transaction report information will be maintained for your review during the course of formal decommissioning activities.

The anticipated transfer of the source material contained organic solvent is scheduled during the last week of December 1992 or shortly thereafter.

If you have any questions regarding this information, please do not hesitate to contact me at the Bingham Canyon Plant, telephone number: (801) 561-8879.

Sincerely,

*Ronald E. Berg /xs.*  
Ronald E. Berg  
Radiation Safety Officer

REB/ksc

cc: Mr. Roger B. Smith  
Mr. William J. Almas  
Mr. Muril D. Vincelette  
Mr. Gerald Richards  
Mr. Scott Schierman ✓



State of Utah  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF RADIATION CONTROL

Norman H. Bangert  
Coverman  
Kenneth L. Alberson  
Executive Director  
Larry P. Anderson, M.P.A.  
Director

160 North 1950 West  
P.O. Box 144450  
Salt Lake City, Utah 84114-4450  
(801) 536-4250  
(801) 531-8128 Fax  
(801) 536-4414 T.D.D.

December 14, 1992

Ronald E. Berg  
Energy Fuels Nuclear, Inc.  
P. O. Box 152  
Copperton, Utah 84006

RE: Transfer of Licensed Material from Utah License #UT 1800226 to NRC license  
#SUA-1358

Dear Mr. Berg:

Thank you for your letter, dated December 7, 1992, informing us of the scheduled transfer of 3,000 gallons of organic solvent (a kerosene solvent) containing source material (uranium) from the Bingham Canyon facility to UMETCO Minerals Corporation, located in Blanding, Utah. The Utah Radiation Control rules allow transfers of this type pursuant to R313-19-41(2)(d).

We note that the volume to be transferred is one-half that volume referred to in Section 3.1.2 of Appendix B, of the Energy Fuels Nuclear, Inc. Decommissioning Study (revised September 15, 1986). The Decommissioning Study was referred to in Section II.1 of the Draft Revised Decommissioning Plan, dated May 1, 1992. Since there is an apparent discrepancy in the volume of residual process chemicals involved at the Bingham Canyon facility, the Division takes this opportunity to request that Energy Fuels Nuclear, Inc. submit a final decommissioning plan to the Division by the end of February 1993.

We have no further questions at this time and we will review the relevant documents, records and nuclear material transaction reports during a future inspection.

Your cooperation is appreciated.

Sincerely,

Craig W. Jones, Section Manager  
Division of Radiation Control

cc: Roger B. Smith (Via FAX: 602-643-7328)