PDR-return 396-55 70-1359

IRT Corporation

Instrumentation / Research / Technology

00496 #110/1J
Amendment
8/11/82
Brown

August 9, 1982

Mr. R. G. Page, Chief
Uranium Fuel Licensing Branch
Division of Fuel Cycle and Material Safety, NMSS
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Page:

Subject: Amendment to "Materials License No. SNM-1405"; IRT 4171-002

Reference:

1. Docket 70-1359; SNM-1405
2. Telephone Conversation between Mrs. B. Kosla of your office and Mr. P. R. Maschka of IRT on July 19, 1982.

The following amendment to SNM License 1405 involves the addition of another form, "nondispersable solid", for ^{235}U (≤4% enriched) with a possession and use limit of not more than 300 grams at the 7650 Convoy Court Facility. This amendment is to authorize the possession and use of unsealed material in solid form only and it is not to authorize the possession and use of ^{235}U in powdered or liquid form. This amendment affects three items in "Application for Renewal of Special Nuclear Material License SNM-1405" IRT 4171.002. Replacement pages with vertical bars annoting the changes are provided for Items 1 and 2. Item 3 is a complete addition to the appendix. These items are described below.

Item 1. Add on Page v in Table of Contents:

APPENDIX VI: SUPPLEMENTAL INFORMATION FOR THE USE OF UNSEALED SOLID MATERIAL IN NONDISPERSABLE FORM AT THE 7650 CONVOY COURT FACILITY.

Item 2. Add on Page 7, Section 3.3.1 "Specific Limitations for 7650 and 7070 Convoy Court Facilities", under ^{235}U (≤4% enriched):

7650 Convoy Court • P.O. Box 80817 • San Diego, California 92138
714 / 565-7171 • Telex: 69-5412

21113

IRT Corporation

FORM	LIMIT
Nondispersable Solid	300*

*The 300 grams of nondispersable solid material is included as a part of the 1400 gram limit for ^{235}U (≤4% Enriched).

Item 3. Add starting with Page 165:

APPENDIX V1: "SUPPLEMENTAL INFORMATION FOR THE USE OF UNSEALED SOLID MATERIALS IN NONDISPERSABLE FORM AT THE 7650 CONVOY COURT FACILITY".

Enclosed is a check for $110.00 which is the amendment fee as listed in 10CRF170.31 for license 1J.

If you have any questions or need additional information, please call me at (714) 565-7171, extension 378.

Thank you for your prompt attention.

Yours truly,

Paul R. Maschka
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K. L. Crosbie, P.E.
Radiation Safety Officer

Enclosure:

1. 6 copies each: Page v, Page 7, and Appendix V1
2. A copy of this amendment was sent to B. Kosla of your office under separate cover.

3.3 LIMITATIONS AND EXEMPTIONS

3.3.1 Specific Limitations for 7650 and 7070 Convoy Court Facilities

Material	Form - Chemical and/or Physical	Limit (grams)
^{233}U	Sealed Sources	25
^{235}U (>4% Enriched)	Sealed Sources	500
	Any	1
^{235}U (≤4% Enriched)	Sealed Sources	1,400
	Nondispersible Solid	300*
^{236}Pu	Any	10×10^{-9}
^{238}Pu (PuBe)	Neutron Source	2
Pu (>75% ^{239}Pu)	Sealed Sources	30
	Any	2×10^{-5}
^{242}Pu	Any	5×10^{-4}

*The 300 grams of nondispersible solid material is included as a part of the 1400 gram limit for ^{235}U (≤4% Enriched).

The quantity of ^{235}U is restricted to an amount not to exceed that defined by the following formula:

$$\frac{\text{Mass U-235 (} 4\%)}{500} + \frac{\text{Mass U-235 (}\leq 4\%)}{1400} \leq 1$$

3.3.2 Exemption from Requirements Set Forth in 10 CFR 70.24

The mass limitation given in Section 3.3.1 for ^{235}U when coupled to the maximum weighted mass of Pu and ^{233}U (weighting factor of 2.5) is below critical mass for homogenized systems of various enrichments with optimum moderation and full reflection as given in Figure 13 of TID-7028.

The materials are not in a form to be homogenized and there are no massive moderators or reflectors of beryllium, heavy water or graphite present in the storage or work areas.

IRT, therefore, requests exemption from the requirements set forth in 10 CFR 70.24 for all areas not exceeding these mass limitations.

APPENDIX VI

SUPPLEMENTAL INFORMATION FOR THE USE OF UNSEALED SOLID MATERIAL IN NONDISPERSIBLE FORM AT THE 7650 CONVOY COURT FACILITY

165

APPENDIX VI

SUPPLEMENTAL INFORMATION FOR THE USE OF UNSEALED SOLID MATERIAL IN NONDISPERSIBLE FORM AT THE 7650 CONVOY COURT FACILITY

1. PROGRAMS INVOLVING SOLID MATERIALS IN NONDISPERSIBLE FORM

This supplement describes a specific program that involves loading sintered fuel pellets into rods that will be used to test an automatic fuel rod scanner. The general safeguards, radiation safety, receipt and shipping procedures described herein will be followed for all other programs involving not more than 300 grams of solid materials in nondispersible form.

2. ASSEMBLY OF TEST RODS FOR THE FUEL ROD SCANNER

This program involves the use of up to 700 grams of ^{235}U fuel pellets with enrichments of 2% to 4%, with no more than 300 grams of material being opened and unsealed at any one time.

2.1 RECEIPT OF MATERIAL

The material will be received in Type 6M shipping containers with less than 300 grams ^{235}U per container. The pellets themselves will be sealed in plastic tubes with 20 to 30 pellets per tube. Wipes will be taken on the shipping container upon receipt, to test for contamination. The unopened drums will be locked in the SNM Storage Vault awaiting arrival of the customers' representative. The drums will be opened and wipes will be taken on the inner container and the outside of the plastic tubes.

One or more of the tubes will be opened inside a chemistry hood equipped with a HEPA filtered exhaust. Wipes will be taken on the pellets to determine the amount of contamination to establish the appropriate handling procedures. The pellets will be put back in their tubes and returned to storage.

2.2 RADIATION SAFETY

As a standard procedure, the safety rules contained in Appendix 1, Page 95, Section 1.1 "SAFETY" will be followed.

166

For this program the radiation safety procedure listed below will be followed.

1. All personnel will wear film badges and dosimeters.
2. A contamination control area will be established and the work area will be covered with protective paper. Catch trays and handling tools will be used to confine the pellets to the controlled area.
3. Rubber or plastic gloves and protective clothing will be worn as necessary.
4. Contamination surveys will be taken daily to ensure that there is no spread of contamination.
5. A portable air sampler will be operated in the work area during test rod loading and unloading operations. Air samples will be changed and analyzed each day.

2.3 TEST ROD LOADING AND UNLOADING PROCEDURES

1. Establish temporary controlled area with ropes and signs around the work area.
2. Cover work area with protective paper.
3. Remove the plastic tubes containing the pellets for one rod from the storage area.
4. Open one plastic tube at a time and transfer the pellets to the test rod. Seal empty plastic tube.
5. Continue loading the test rod with pellets until it is filled, then seal the end cap onto the rod.
6. Return plastic tubes to shipping drum.
7. Take wipes of work area and test rod.
8. Put test rod in storage area.
9. Set up to load the next rod. Repeat Steps 3 through 8 until all the test rods are loaded.
10. At completion of Rod Scanner Test Program, set up work area to unload the rods.
11. Remove plastic tubes from drum.

167

12. Break seal on test rod and return the pellets to the plastic tubes, sealing each tube as it is filled.

13. When all pellets are removed from the test rod and inserted in plastic tubes, take wipes of the plastic tubes, test rod, and work area.

14. Seal plastic tubes and place in the shipping container.

15. Repeat Steps 11 through 14 for all test rods.

2.4 SAFEGUARDS

The quantity of material specified in this amendment is less than a "low strategic significant quantity" as defined in 10 CFR 73.2(y) (3); therefore, it will not be necessary to establish a Temporary Controlled Access Area with motion detector and/or surveillance.

As a general rule of good safeguards practice, the fuel rods will be locked in the storage vault when not in use; however, they may be left on the rod scanner over night and during lunch hours for convenience. If the rods are not locked up, the test personnel who leave them out will be required to verify that the rods are still present when they return.

2.5 RADIOACTIVE MATERIAL SHIPPING PROCEDURES

1. Confirm that the recipient is authorized to receive the material.

2. Monitor and wipe the source or the radioactive material.

3. Determine the DOT quantity of the material.

4. Package in the appropriate inner container, if needed.

5. Survey, wipe, and mark the inner container.

6. Package in the appropriate shipping container.

7. Survey, wipe, and apply the appropriate seal.

8. Apply the proper hazardous materials label(s) with the necessary information entered in the blanks on the label.

9. Fill out the Radioactive Materials Shipping Record.

10. For SNM, fill out the proper DOE/NRC forms and send to the appropriate recipients.

168