UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

May 31, 2000

Docket No. 040-08868 License No. STA-1455
Control No. 127520

Lawrence D. Nitoski
General Manager, Manufacturing Support
II-VI Incorporated
375 Saxonburg Boulevard
Saxonburg, PA 16056

Dear Mr. Nitoski:

This refers to your license amendment request. Enclosed with this letter is the amended license.

Please review the enclosed document carefully and be sure that you understand and fully implement all the conditions incorporated into the amended license. In particular, note that License Condition No. 17 authorizes the disposal of filtercake pursuant to 10 CFR 20.2002. An Environmental Assessment was performed prior to approval of this license condition, and is enclosed for your information.

If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5093 or 5239, so that we can provide appropriate corrections and answers.

Thank you for your cooperation.

Sincerely,

Original signed by Elizabeth Ullrich

Elizabeth Ullrich
Senior Health Physicist
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety

Enclosures:
1. Amendment No. 8
2. Environmental Assessment

cc w/enclosures:
John A. Labrecque, Radiation Safety Officer

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Amendment No. 08

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. II-VI Incorporated	In accordance with the letter dated November 16, 1999,
	3. License number STA-1455 is amended in its entirety to read as follows:
2. 375 Saxonburg Boulevard Saxonburg, Pennsylvania 16056	4. Expiration date February 28, 2002
	5. Docket No. 040-08868 Reference No.

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Thorium	A. Any	A. 2000 kilograms
B. Manganese 54	B. Sealed sources	B. Not to exceed 500 microcuries per source and 1 millicurie total
C. Cobalt 60	C. Sealed sources	C. Not to exceed 600 microcuries per source and 600 microcuries total
D. Krypton 85	D. Sealed sources	D. Not to exceed 500 microcuries per source and 500 microcuries total
E. Strontium 90	E. Sealed sources	E. Not to exceed 500 microcuries per source and 500 microcuries total
F. Technetium 99	F. Sealed Sources	F. Not to exceed 600 microcuries per source and 600 microcuries total
G. Cadmium 109	G. Sealed Sources	G. Not to exceed 500 microcuries per source and 1 millicurie total
H. Iodine 129	H. Sealed sources	H. Not to exceed 500 microcuries per source and 1 millicurie total

MATERIALS LICENSE
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6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
I. Barium 133	I. Sealed sources	I. Not to exceed 500 microcuries per source and 5 millicuries total
J. Cesium 137	J. Sealed sources	J. Not to exceed 500 microcuries per source and 5 millicuries total
K. Americium 241	K. Sealed sources	K. Not to exceed 500 microcuries per source and 5 millicuries total

9. Authorized use:

A. Plating of optical equipment other than eye pieces; manufacture of products containing thorium for distribution to persons exempt from licensing under the provision of 10 CFR 40.13(c)(1) and 10 CFR 40.13(c)(4).

B. through K. For quality control testing of radiation detectors.

CONDITIONS

10. Licensed material may be used only at the licensee's facilities at 375 Saxonburg Boulevard, Saxonburg, Pennsylvania.

11. A. Licensed material shall be used by, or under the supervision of individuals designated in writing by the Radiation Safety Officer.

B. The Radiation Safety Officer for this license is John Labrecque.

12. Licensed material shall not be used in or on human beings.

13. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.

14. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.

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15. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.

B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.

C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.

E. Sealed sources and detector cells need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the appropriate U. S. Nuclear Regulatory Commission, Regional Office referenced in Appendix D of 10 CFR Part 20. The report shall specify the source or detector cell involved, the test results, and corrective action taken.

G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

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16. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license.

17. Pursuant to 10 CFR 20.2002, the licensee may dispose of solid materials (filtercake and soils) containing thorium-232 as ordinary waste in an industrial landfill provided that the concentration of thorium-232, in picocuries per gram of solid material, at the time of disposal are not greater than 25 picocuries per gram. In addition, not more than two (2) effective packages (where an effective package contains a volume of approximately 24 cubic meters) may be disposed of to the industrial landfill in any 30-day period.

18. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

19. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

    A. Letter dated February 2, 1998
    B. Letter dated May 27, 1998
    C. Letter dated May 29, 1998
    D. Letter dated July 27, 1998
    E. Letter dated November 2, 1998
    F. Letter dated November 16, 1999
    G. Letter dated April 7, 2000

For the U.S. Nuclear Regulatory Commission

Date May 31, 2000

By ***Original signed by Elizabeth Ullrich***

Elizabeth Ullrich
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

Docket No.: 040-08868
License No.: STA-1455

APPLICANT: II-VI, Incorporated

FACILITY: II-VI, Incorporated
Saxonburg, PA

SUBJECT: ENVIRONMENTAL ASSESSMENT FOR A LICENSE AMENDMENT PURSUANT TO 10 CFR 20.2002 FOR DISPOSAL OF SOLID MATERIALS CONTAINING THORIUM

BACKGROUND

By a letter dated November 16, 1999, and a supplemental letter dated April 7, 2000, II-VI Incorporated (II-VI) submitted an application to the U.S. Nuclear Regulatory Commission (NRC) to amend their License No. STA-1455 to allow disposal of solid materials (soils and filtercake) containing up to 25 picocuries of thorium-232 and progeny per gram of solid material to an industrial landfill. The licensee and the NRC performed dose assessments of the disposal of this material in this manner, and determined that such disposal, with certain restrictions, would result in doses of less than 25 millirem per year.

INTRODUCTION

II-VI, Incorporated (II-VI), is a specialty manufacturer whose products include optical components for the laser industry, some of which contain thorium. They are authorized to perform manufacturing activities with thorium pursuant to License STA-1455. The licensee filters liquid effluents to remove metals prior to release to the sanitary sewerage system. Small amounts of thorium are collected in the solid residual material (filtercake) from the filtering process. The licensee generates 10 or fewer containers of filtercake each year. For the purposes of the evaluation, an “effective container” is defined to hold approximately 23.9 cubic meters of material, which represents a mass of approximately 36,000 kilograms of the filtercake.
The filtercake typically contains less than 25 picocuries of thorium-232 and progeny per gram of filtercake (25 pCi/g Th-232). The licensee requested disposal of this material to an industrial landfill pursuant to 10 CFR 20.2002, and provided a dose analysis to justify their proposed limit of 25 pCi/g. The licensee and the NRC performed dose assessments of the disposal of filtercake in this manner, and determined that such disposal, with the restriction that not more than two effective containers per month would be disposed of in this manner, would result in doses of less than 25 millirem per year to members of the public.

PROPOSED ACTION

Pursuant to 10 CFR 20.2002, The U. S. Nuclear Regulatory Commission will amend License No. STA-1455 to allow disposal each month to an industrial landfill of not more than two effective containers of soil or filtercake (approximately 72,000 kilograms of material) containing up to 25 picocuries of thorium-232 and progeny per gram of material, as described in the licensee’s amendment request dated November 16, 1999.

THE NEED FOR THE PROPOSED ACTION

The licensee needs this amendment to the license in order to have a cost-effective method of disposal of the filtercake containing metals. Prior to filtering of the liquid effluents, thorium in this waste stream was released to a public sanitary sewerage system in accordance with 10 CFR 20.2003 regulatory limits. However, filtration of liquid effluents is required by other regulatory agencies to remove metals from the liquid effluent prior to release to a public sanitary sewerage system, and small amounts of thorium are retained in the filtercake. A restriction is required, that not more than two effective containers be disposed of each month, in order to ensure that such disposals do not exceed the criterion of 25 millirem per year (25 mrem/y) to a member of the public.

ALTERNATIVES TO THE PROPOSED ACTION

The staff considered results of analyses using a generic model for unrestricted release of the material. The staff concluded that disposal pursuant to 10 CFR 20.2002 of this material without restrictions would meet the 25 mrem/y criterion only if the filtercake did not exceed 4.1 pCi/g Th-232.

The staff considered results of analyses to determine if site-specific data, such as regional meteorological and subsurface information, would be likely to change the dose assessment results significantly. The staff concluded that annual doses would be less than those resulting from assessments using the generic model, but the annual doses still would be in excess of the 25 mrem/y criterion if the filtercake contained up to 25 pCi/g Th-232.

The staff considered results of analyses using a model that assumed the landfill would not be used for any future activities, as could occur if deed restrictions were in place that prevented exhumation of the landfill. The staff concluded that doses would meet the 25 mrem/y criterion but that such deed restrictions are unlikely at this time.

ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

The activities that NRC staff will authorize, pursuant to 10 CFR 20.2002, through the issuance of an amendment to License No. STA-1455 is expected to have an insignificant impact on the environment. The disposal of the filtercake containing up to 25 pCi/g Th-232, restricted so that no more than two effective containers of filtercake are disposed of per month to an industrial landfill, would not exceed the criterion of 25 mrem/y to a member of the public.

AGENCIES AND INDIVIDUALS CONSULTED

This environmental assessment (EA) was prepared entirely by the NRC staff. No other sources were used beyond those referenced in this EA.

CONCLUSION

The environmental impacts from the proposed action are insignificant.

FINDING OF NO SIGNIFICANT IMPACT

NRC has prepared this EA related to the proposed license amendment request from II-VI. On the basis of the EA, the NRC has concluded that this licensing action would not significantly affect the environment and does not warrant the preparation of an environmental impact statement. Accordingly, it has determined that a Finding of No Significant Impact is appropriate.

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