



DEPARTMENT OF MECHANICAL ENGINEERING
THE UNIVERSITY OF TEXAS AT AUSTIN

Nuclear Engineering Teaching Laboratory · 10100 Burnet Road · Austin, Texas 78758 · (512) 471-5787

December 11, 1990

Mr. Charles J. Haughney, Chief
Division of Industrial and Medical Safety
Office of Nuclear Material Safety and Safeguards
Washington D.C. 20555

Ref: Docket 70-157, License SNM -180
10CFR 70.25(a), Certification of Funds
for Decommissioning

Dear Mr. Haughney:

The enclosed documents are being provided pursuant to 10CFR.25(a). The letter of November 14, 1990 is a statement of Intent for the financial assurance of funds to be available for decommissioning of the SNM-180 license. The letter of November 14, 1990 addresses items 3, 4 and 5 of the Regulatory Guide 3.66 exhibit 3-9. The appropriate documentation, authorization, and signatures are enclosed. Items 1, 2, 6, 7, 8 and 9 are addressed by the enclosed Affidavit.

Sincerely,

Thomas L. Bauer

Thomas L. Bauer
Assistant Director
Nuclear Engineering
Teaching Laboratory

TLB:mm
Attachments

cc: H. Woodson
K. Diller
B. Wehring

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

The University of Texas
at Austin


Balcones Research Center
Nuclear Engineering Teaching
Laboratory (NETL)

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Docket No. 70-157
SNM-180

AFFIDAVIT

Gerhard J. Fonken being duly sworn, hereby deposes and says that he is Executive Vice President and Provost, The University of Texas at Austin; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the enclosed Statement of Intent for Decommissioning Financial Assurance letter, dated November 14, 1990, and supplement dated December 11, 1990, for docket 70-157; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge and belief.




Gerhard J. Fonken
Executive Vice President and Provost

STATE of TEXAS

§

Subscribed and sworn to before me, a Notary Public in and for the State of Texas, this 18th day of December, 19 90.



NOTARY PUBLIC in and for the State of Texas



EXECUTIVE VICE PRESIDENT AND PROVOST
THE UNIVERSITY OF TEXAS AT AUSTIN

Box 201 Austin, Texas 78712 (512) 471-4363

November 14, 1990

Mr. Charles J. Haughney, Chief
Division of Industrial and Medical Safety
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

REF: Docket 70-157, License SNM-180
10CFR 70.25(a) Certification of Funds
for Decommissioning

Dear Mr. Haughney:

The following information is being provided pursuant to 10CFR 70.25(c)2. The University of Texas at Austin has determined that the estimated cost of decommissioning SNM-180 license activities is \$20,000. This cost represents less than 0.01 percent of the annual operating budget. Certification is hereby provided that the necessary funds will be made available at the time of decommissioning. Furthermore, no provision for adjusting cost estimates during the facility life are considered necessary or practical, considering the total dollar cost and the amount of available operating funds (see 10CFR 70.25(e)).

Sincerely yours,

G. J. Fonken
Executive Vice President
and Provost

GJF/bp

cc: Dean Herbert H. Woodson
Professor Kenneth Diller
Professor Bernard Wehring

Attachment (2 pages)

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3 pp*

SNM License #SNM-180
Decommissioning Requirements

Materials on the license are PuBe neutron sources and a subcritical assembly of 20% uranium 235 enrichment. Three of the license materials are plutonium-beryllium sealed sources that are exempt from the regulation requirements. The disposal requirements for these sources will most likely require a return to the Department of Energy to allow recovery of the materials prior to ultimate disposal.

Only the uranium-235 and any byproduct material of the subcritical assembly's operation require consideration for decommissioning. The following calculation indicates that the material requires a fund of \$750,000! These decommissioning requirements of 10CFR part 70 represent unacceptable conditions for this SNM-180 license materials.

10CFR 70.25(a) decision limit	10^5 factor
10CFR 20 appendix C uranium 235	.01 μ curie

$$10^5 \times .01 \times 10^{-6} = .001 \text{ curie}$$

40CFR 173.434 item 20	10^{-5} curie/gram
10CFR 70 license material	470 grams

$$470 \text{ grams} \times 10^{-5} \text{ curie/gram} = .0047 \text{ curie}$$

$$\frac{.0047 \text{ curie}}{.001 \text{ curie}} = 4.7 \text{ times decision level}$$

The physical form of the subcritical assembly material is uranium dioxide uniformly dispersed in a matrix of polyethylene. License conditions set by NMSS require that the assembly be examined for "leakage" of alpha activity by the same criterion as a sealed PuBe neutron source. Yet the assembly does not meet any other criteria for consideration as a sealed source. The result of this type of testing would also set a limit on the amount of potential byproduct material contamination. Any beta contamination that occurs during use of the assembly materials would be either taken care of subsequent to each use of the assembly or discovered by radiation program surveys. The only contamination will be the assembly, possibly materials that are in contact with the assembly, and experiment materials that are part of the assembly applications. The quantity of byproduct material is not considered a factor in the decommissioning since the cost of disposal will be set by the volume, waste classification and total curies.

The issue of byproduct material within the assembly has no effect on the conclusion. Direct disposal of this assembly would be the minimum charge for one barrel (55 gallon) with no surcharge for activity, and ignores the recovery value of the 470 grams of uranium 235 isotope for which the market is unknown. However, requirements for the recovery of uranium 235 as for plutonium 239 in sealed sources may also prevent direct disposal.

Total decommissioning costs for use of the subcritical assembly depend on the radioactive waste site disposal charges and transportation charges to the

September 14, 1990

disposal site. An additional cost will be the radiation survey for alpha, or beta contamination in the immediate area of the materials use, an area of 84 m². The cost of disposal, transport, and survey is then arbitrarily set at \$10,000. The cost is figured at \$20/m² area cleanup, disposal cost of 6200 \$/m³ of waste, and a 20% allowance for transportation costs.

The estimated amount of a fund for decommissioning the SNM-180 license activities represents 0.002% of the annual operating budget of The University of Texas at Austin.

			<u>total</u>
Cleanup	84m ²	\$20/m ²	\$1680
Disposal charge (1996 \$'s, 1 55 gal. barrel)		\$6200/m ³	\$1280
Transportation (20% of disposal)			\$ 256
Contingency (escalation)			<u>\$6784</u>
			\$10000

License SNM-180 Materials
Decommissioning Requirements

	<u>material</u>	<u>grams</u>	<u>isotope</u>	<u>%</u>	<u>grams</u>	<u>comment</u>
1 curie PuBe source	plutonium	16	239	15	sealed(exempt)	
2 curie PuBe source	plutonium	32	239	30	sealed(exempt)	
5 curie PuBe source	plutonium	80	239	74	sealed(exempt)	
Subcritical assembly	uranium	2275	235	20	470 unsealed	