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## OFFICIAL RECORD COPY MATERIALS LICENSE

Amendment No. 20

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		In accordance with the letter dated October 28, 1996	
1. Tennessee Valley Authority President, TVA Nuclear and Chief Nuclear Officer		3. License Number	01-06113-04
2. 1101 Market Street 6A Lookout Place Chattanooga, Tennessee 37402-2801		is amended in its entirety to read as follows:	
		4. Expiration Date	September 30, 2003 (Extended)
		5. Docket or Reference No.	030-03572 (01-06113-05)
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. Any byproduct material with Atomic Nos. 1 through 96, inclusive, except:	A. Any	A. Not to exceed 370 MBq (10 mCi) per radionuclide, and 1.85 GBq (50 mCi) total, except;	
(1) Any byproduct material with Atomic Nos. above 83, source and/or special nuclear material;	(1) Any	(1) Not to exceed 3.7 MBq (100 $\mu$ Ci) per radionuclide, except;	
(2) Natural or depleted uranium	(2) Metal slabs (not readily dispersible)	(2) 10 kilograms	
B. Cesium 137	B. Source mounted on Panasonic TLD	B. 185 kBq (5 $\mu$ Ci) per source; 1.85 MBq (50 $\mu$ Ci) total	
C. Any byproduct material with Atomic Nos. 3 through 83, plus americium 241, except;	C. Sealed or plated sources,	C. 37 GBq (1 Ci) each radionuclide; 222 GBq (6 Ci) total, except;	
(1) Cesium 137	(1) Sealed sources (Gamma Industries Model VD-HP)	(1) Not to exceed 1.85 TBq (50 Ci) per source	
(2) Cesium 137	(2) Sealed sources (ORNL Dwg. No. DSK-2345)	(2) 55.5 TBq (1500 Ci)	
(3) Cesium 137	(3) Sealed sources (J.L. Shepherd)	(3) Three sources, not to exceed 16.28 GBq (440 Ci) total	
(4) Americium 241	(4) Sealed sources (Monsanto Research Corporation Model 2725-BT)	(4) Not to exceed 370 GBq (10 Ci) per source	

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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

D. Any byproduct or special nuclear material with atomic numbers 1 through 96, inclusive.

D. Nuclear power plant process, waste or effluent samples, any form.

D. Not to exceed 370 MBq (10 mCi) per radionuclide, and 1.85 GBq (50 mCi) total.

9. Authorized Use:

- A. For possession and use in the calibration and standardization of laboratory instruments, and for analysis of samples for radioactive material
- B. For possession and use in Panasonic thermoluminescent (TLD) badge cleaning system
- C. For possession and use in the repair, maintenance and calibration of radiation detection instrumentation and in the calibration of pocket chambers and TLDs. Neutron emitting sources may also be used in neutron activation studies
- D. Nuclear power plant process, waste or effluent samples submitted to the laboratory for analysis.

**CONDITIONS**

10. Locations of Use:

- A. Materials in Items 6.A may be used at the TVA Western Area Radiological Laboratory, Muscle Shoals, AL, and at temporary job sites of the licensee anywhere in the United States where the Nuclear Regulatory Commission retains jurisdiction.
- B. Material in Item 6.B. shall be used only at the Western Area Radiological Laboratory, Muscle Shoals, AL.
- C. Materials in Item 6.C. shall be used only at the TVA Western Area Radiological Laboratory, Muscle Shoals, AL.

11. Licensed materials shall be used by, or under the supervision of, William L. Raines, R. Michael Clingan, James W. Dillard, Charles R. Frederick, or R. Dee Colvett.

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CONDITIONS

12. A. The Radiation Protection Officer for the activities authorized by this license is **R. Dee Colvert**.
13. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.
- 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 3 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 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 transferred 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.

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**CONDITIONS**

13. F. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. 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 shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region II, ATTN: Chief, Nuclear Materials Licensing/Inspection Branch, 101 Marietta Street N.W., Suite 2900, Atlanta GA 30323-0199. The report shall specify the source involved, the test results, and corrective action taken. Records of leak test results shall be kept in units of microcuries and shall be maintained for inspection by the Commission. Records may be disposed of following Commission inspection.
- G. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to Perform such services.
14. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holder by the licensee.
15. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 years from the date of each inventory, and shall include the quantities and kinds of byproduct material, manufacturer's name and model numbers, location of the sources and/or devices, and the date of the inventory.
16. The licensee shall not acquire licensed material in a sealed source or device that contains a sealed source unless the source or device has been registered with the Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.
17. In addition to the possession limits in condition 8, the licensee shall further restrict the possession of unsealed licensed material to quantities less than  $10^5$  times the applicable limits in Appendix C of 10 CFR Part 20 as specified in 10 CFR 30.35(d).
18. The licensee shall maintain records of information related to decommissioning at the Western Area Radiological Laboratory, Muscle Shoals, AL as specified in 10 CFR 30.35(g) until this license is terminated by the Commission.
19. The licensee is authorized to transport licensed material only in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

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20. 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. Application with letter dated December 28, 1992 [Complete renewal submittal and incorporation of License No. 01-06113-05]

3. Letters dated:

- |                        |   |
|------------------------|---|
| (1) March 30, 1982     | [source receipt, transfer and leak test procedure - Cs-137 1500 Ci (from -05 license folder)]                           |
| (2) April 30, 1982     | [added materials - Cs-137 1500 Ci (from -05 license folder)]  |
| (3) August 19, 1993    | [Additional renewal information]  |
| (4) September 28, 1993 | [New 10 CFR Part 20 information]  |
| (5) August 31, 1994    | [Additional uses, additional users, additional location]  |
| (6) January 18, 1995   | [Additional information]  |
| (7) March 1, 1996      | [extend expiration date in accordance with 10 CFR 3036]   |
| (8) October 28, 1996   | [Change duties of delete supervisors, change status of device, change mailing address, change Radiation Safety Officer] |

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

DAVID J. COLLINS

DATE

JAN 24 1997

BY

Region II, Division of Nuclear Materials Safety  
101 Marietta Street, N.W., Suite 2900  
Atlanta, GA 30323-0199

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