ENCLOSURE

NRC FORM 313
(7-87)
10 CFR 30, 32, 33, 34, 35 and 40

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED BY OMB
3150-0120
Expires 6-30-90

APPLICATION FOR MATERIAL LICENSE

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATIONS FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF FUEL CYCLE AND MATERIAL SAFETY, NMSS
WASHINGTON, DC 20555

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS, IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA, RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION I
NUCLEAR MATERIALS SAFETY SECTION B
631 PARK AVENUE
KING OF PRUSSIA, PA 19406

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION II
NUCEAR MATERIALS SAFETY SECTION
101 MARIETTA STREET, SUITE 2900
ATLANTA, GA 30323

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION III
MATERIALS LICENSING SECTION
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ARKANSAS, COLORADO, IDAHO, KANSAS, LOUISIANA, MONTANA, NEBRASKA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, SOUTH DAKOTA, TEXAS, UTAH, OR WYOMING, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
MATERIAL RADIATION PROTECTION SECTION
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TX 76011

ALASKA, ARIZONA, CALIFORNIA, HAWAII, NEVADA, OREGON, WASHINGTON AND U.S. TERRITORIES AND POSSESSIONS IN THE PACIFIC, SEND APPLICATIONS TO:

U.S. NUCLEAR REGULATORY COMMISSION, REGION V
NUCLEAR MATERIALS SAFETY SECTION
1450 MARIA LANE, SUITE 210
WALNUT CREEK, CA 94596

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTION.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- [ ] A. NEW LICENSE
- [X] B. AMENDMENT TO LICENSE NUMBER 01-06113-05
- [ ] C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include Zip Code)*

Tennessee Valley Authority
Manager, Office of Nuclear Power
6N 38A Lookout Place
Chattanooga, Tennessee 37402-2801

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Western Area Radiological Laboratory
Muscle Shoals, Alabama 35661

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

W. M. Belvin, Supervisor, Technical Services (DNLRA)

TELEPHONE NUMBER: 615/751-2693

SUBMIT ITEMS 5 THROUGH 11 ON 8½ x 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSEE FEES *(See 10 CFR 170 and Section 170.31)*

FEE CATEGORY: N/A

AMOUNT ENCLOSED $: N/A

13. CERTIFICATION. *(Must be completed by applicant)* THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT NAMED IN ITEM 2 CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, AND 40 AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948, 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

SIGNATURE OF CERTIFYING OFFICER	TYPED/PRINTED NAME	TITLE	DATE
A Gridley 2/25/88	Gridley	Director, Nuclear Licensing & Regulatory Affairs	

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	COMMENTS	APPROVED BY
				DATE

8803300223 880310
REG2 LIC30
01-06113-05 PDR

Item 5

Radioactive Material

Revise to read:

a. Element and Mass Number	b. Chemical and/or Physical Form	c. Maximum Amount Possessed At Any One Time
(1) Any by-product or source material with Atomic Nos. 3 through 96, inclusive, except as specified below.	(1) Sealed or plated	(1) Alpha sources not to exceed 10 microcuries each, and beta and gamma sources not to exceed 100 microcuries each. Total not to exceed 2 millicuries.
(2) Cesium-137	(2) Sealed sources (3M Co. Model 476S and Technical Operations Model 72602)	(2) Not to exceed 100 millicuries per source.
(3) Cesium-137	(3) Sealed sources (Gamma Industries Model VD-HP)	(3) Not to exceed 50 curies per source.
(4) Cesium-137	(4) Sealed source (ORNL DWG No. DSK-2345)	(4) Not to exceed 1500 curies.
(5) Cesium-137	(5) Sealed sources (J. L. Shepherd and Associates)	(5) Two sources not to exceed 440 curies.

Item 5 (Continued)

Radioactive Material

a. Element and Mass Number	b. Chemical and/or Physical Form	c. Maximum Amount Possessed At Any One Time
(6) Cobalt-60	(6) Sealed sources (New England Nuclear Model NER-580)	(6) Not to exceed 50 millicuries per source.
(7) Strontium-90	(7) Sealed sources (3M Co. Model 301E and, Isotope Products Model BDS-90).	(7) Not to exceed 0.2 millicuries per source.
(8) Americium-241	(8) Sealed sources (Monsanto Research Corp. Model 2725-BT)	(8) Not to exceed 10 curies per source.
(9) Thallium-204	(9) Sealed sources (Isotope Products Model BDS-204)	(9) Not to exceed 0.8 millicuries per source
(10)Uranium	(10)Any natural or depleted uranium	(10)Not to exceed 10 kilograms.
(11)Any approved or evaluated by-product material with Atomic Nos. 3-83, inclusive, and Americium-241	(11)Sealed or plated	(11)Not to exceed 1 curie per nuclide and 6 curies total.

Item 6

Purpose(s) For Which Licensed Materials Will Be Used

(1) - (11). These materials will be possessed, stored and used in the calibration, standardization, and testing of radiation detection equipment. In addition, they may be used in performing energy response calibrations and calibrations involving special circumstances and geometries. Neutron emitting sources may also be used in neutron activation studies.

Item 7

Individual(s) Responsible For the Radiation Safety Program and Their Training and Experience:

A. Licensed material shall be used by, or under the supervision of, Billy B. Hobbs, John L. Lobdell, William L. Raines, Ralph G. Wallace, R. Michael Clingan, R. Dee Colvett, William J. Rogers, Rex A. Phillips, W. David Phillips, or C. Henry Copeland. The qualifications of the individuals not previously identified are given in attachment 1.

B. The Radiation Protection Officer is Ralph G. Wallace.

The radiation protection officer is a professional health physicist within TVA and is available to the radiation control supervisor for consultation and advice. He also has the responsibility to periodically monitor or audit licensed activities and to provide radiological services when they are needed. He may institute requirements as necessary.

C. The Radiation Control Supervisor is John L. Lobdell.

The radiation control supervisor has the direct responsibility to ensure that all licensed activities under his authority are conducted safely and in accordance with license conditions and the ALARA philosophy. He also has the responsibility to call upon the advice or services of the radiation protection officer when his advice or services are needed.

Item 9

Facilities and Equipment

The sources listed in subitem (1) may be used in the instrument calibration laboratory (see attachment 2). All other sources will be used in the source calibration/storage rooms or under the direct surveillance of health physics personnel.

Item 10

Radiation Safety Program

Personnel Monitoring Equipment

All personnel using licensed material shall wear a thermoluminescent dosimeter (TLD). The TLDs used are part of TVA's personnel dosimetry system and are exchanged at least quarterly.

Radiation Detection Instrumentation

A wide variety of radiation detection instrumentation is available for use in support of the laboratory operations. The following radiation detection instruments, or similar, are examples of the instruments which may by used.

1. Ludlum Model 14C with an external GM detector.
2. Ludlum Model 3-99 with an external alpha detector.
3. Bicron Model RSO-5 with an ion chamber detector.
4. Eberline Model RM-14 scaler with a frisker probe.
5. Ludlum Model 12-4 neutron survey meter.
6. Teletector Model 6112B GM detector.

Survey instruments shall be calibrated at intervals not to exceed 6 months and after each instrument servicing. Records of each instrument calibration shall be maintained for a period of 2 years after the date of calibration. Each radiation survey instrument shall bear a current calibration tag stating the date of calibration and calibration due date.

Instrument calibration will be performed by the Environmental Radiological Monitoring and Instrumentation Branch of TVA's Division of Nuclear Services. Each instrument,except as specified below, will be calibrated so that a plus or minus 10-percent accuracy can be demonstrated at two or more widely separated points, other than zero, on each scale.

Exception: The Teletectors (Item 6 above) are incapable of being calibrated to an accuracy of plus or minus 10-percent at two or more points on some scales. For these scales, calibration shall be plus or minus 10-percent at one point on the scale.

Attachment 1

Qualifications of Supervisory Personnel

W. David Phillips

Health Physicist, Instrumentation Calibration, Repair, and Control Section

Mr. Phillips has a B.S. degree in chemistry from the University of North Alabama, Florence, Alabama, and a degree in medical technology from the Huntsville Cooperative School of Medical Technology, Huntsville, Alabama. He has worked for TVA since June of 1979. During this period he has worked as a gamma spectroscopist for 4 years and as an engineering aide performing repair, maintenance, and calibration of portable health physics instrumentats for 4 years. Currently he is responsible for overseeing the day-to-day operations of the Western Area Radiologcial Laboratory health physics instrumentation program.

Rex A. Phillips

Instrument Engineer, Instrumentation Calibration, Repair, and Control Section

Mr. Phillips has a B.S. degree in electrical engineering from Memphis State University, Memphis, Tennessee. He has worked with TVA for 2 years at Bellefonte Nuclear Plant in instrumentation, including the in-plant radiation monitoring system. He has worked at the Western Area Radiological Laboratory for 2 years as an instrument engineer providing technical and administrative support to the health physics instrumentation program.

R. D. Colvett

Health Physicist, Instrumentation Calibration, Repair, and Control Section

Mr. Colvett has a B.S. degree in math from Harding University, Searcy, Arkansas, and an M.S. degree in radiological physics from Columbia University, New York. He worked on a Special Fellowship in Health Physics at Vanderbilt University, Nashville, Tennessee, for 8 months, at Oak Ridge National Laboratory for 2 months, and on a Public Health Service Fellowship in Radiological Physics at Columbia University (College of Physicians and Surgeons) for 8 months.

As a Research Associate, Department of Radiology, Columbia University, College of Physicians and Surgeons, for 9 years, he performed precision dosimetry for radiological research, using accelerators and sealed isotopic sources, including 10 curies cesium-137, kilocuries cobalt-60, and 2 mg californium-252. As a Health Physics Associate, Brookhaven National Laboratory, for 4 years in operational health physics, he conducted an evaluation of special instrumentation development for the synchrotron health physics group. He has 9 years experience as a health physicist at TVA, working in quality assurance and personnel dosimetry.

Attachment 1 (Continued)

William J. Rogers

Analytical Chemist, Quality Control Coordinator, Tennessee Valley Authority, Environmental Radiological Monitoring and Instrumentation Branch

Mr. Rogers has a B.S. Degree in chemistry from Angelo State University, San Angelo, Texas, a Ph.D. in physical chemistry from the University of Tennessee, Knoxville, Tennessee. He has had 2 years experience at Oak Ridge National Laboratory doing research with radioactive tracers, 7 years experience with the Tennessee Valley Authority using radioactive material. Work has included using tracers for distribution coeffecient measurement on soil and clay minerals, production of low-level standard material, production of interlaboratory crosschecks, and development and testing of radioanalytical procedures.

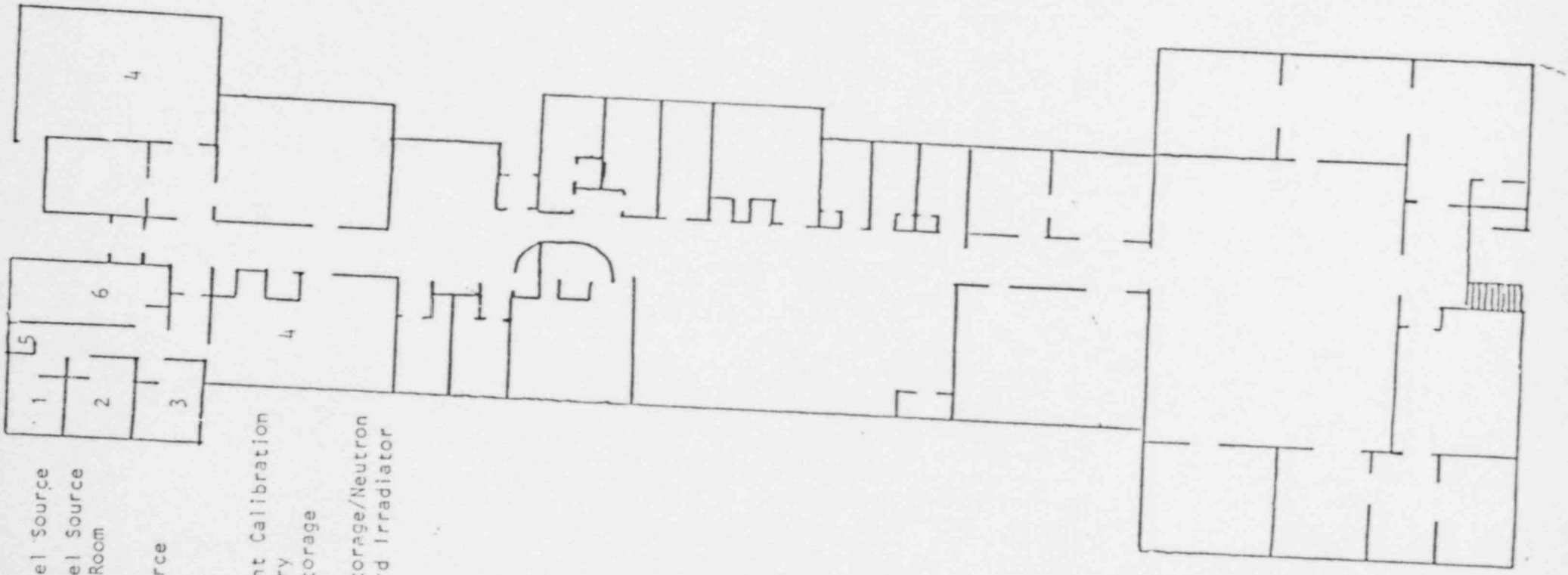
C. Henry Copeland

Project Manager, Environmental Radiological Monitoring and Instrumentation Branch

Mr. Copeland has a B.S. degree in chemistry (major chemistry, physics, math), and a doctor of philosophy in mathematics (major applied mathematics) from the University of Alabama. He is currently enrolled in a masters of science program for health physics at the Georgia Institute of Technology. He has worked for TVA since December 1979. During his employment with the Environmental Radiological Monitoring and Instrumentation Branch (since January 1981) he has designed and implemented an instrument tracking for the branch, designed and installed a high-level calibration facility at the Western Area Radiological Laboratory, and was responsible for development of a quality assurance program for the TVA radiological monitoring program. He has served as associate professor in the University of Alabama Honors Program.

Attachment 2

Western Area Radiological Laboratory



1. High Level Source
2. High Level Source Control Room
3. Ring Source
4. Instrument Calibration Laboratory
5. Source Storage
6. Source Storage/Neutron & Shepherd Irradiator Facility