



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

April 10, 2007

Docket No. 03034258
Control No. 140103

License No. 41-25370-01

Robert Alsup
Senior Project Manager
Tennessee Valley Authority
Energy Research & Technology Applications
P.O. Box 1010
Muscle Shoals, AL 35662-1010

**SUBJECT: TENNESSEE VALLEY AUTHORITY, REQUEST FOR ADDITIONAL
INFORMATION CONCERNING APPLICATION FOR AMENDMENT TO
LICENSE, CONTROL NO. 140103**

Dear Mr. Alsup:

This is in reference to your letter dated February 8, 2007 requesting to terminate Nuclear Regulatory Commission License No. 41-25370-01. This license had eventually superceded the following Nuclear Regulatory Commission Licence No. 41-08165-01, 41-08165-02, 41-08165-07, 41-06832-08, 41-06831-09, 01-16821-02, 01-06113-01, 01-06113-02, and 01-06113-03. In order to continue our review, we need the following additional information:

1. Please state that you had no leaking sealed sources for any of the above licenses or provide information about the leaking sources and areas surveyed after removal of the sources.
2. Prior to termination of a license, 10 CFR 30.35(g), 30.36(k)(4) and 30.51 require that you submit to the NRC certain records. Please submit the following records, or explain why such records are not applicable.
 - a. for unsealed materials with half-lives greater than 120 days, records for disposal made pursuant to 10 CFR 20.2002 (alternate disposal procedures, including burial authorized prior to January 28, 1981), 20.2003 (disposals to the sanitary sewerage system), 20.2004 (incineration of wastes), 20.2005 (disposal of specific wastes including liquid scintillation cocktail and animal tissue), and 20.2103(b)(4), evaluations of effluent releases.

- b. records important for decommissioning as described in 30.35(g). Examples of such records include but are not limited to: records of contamination, identifying the radionuclides, quantities and concentrations; as-built drawings and modifications of structures and equipment in restricted areas and locations of inaccessible contamination such as buried pipes; a single list, updated at least every 2 years, of areas to which access is limited for the purpose of radiation protection (restricted areas); and records related to the provision of financial assurance.
3. NRC Form 314 dated February 8, 2007, did not include a mailing address for all future correspondence regarding this license. Please supply an address for future correspondence.
4. The submitted survey for Room F250 only contained smear data for carbon 14. Although calcium 45 was removed from the license on May 10, 2001 no survey was submitted to show that there was no residual value of calcium 45. Additionally, NUREG-1757, Volume 1, Revision 3, "Consolidated Decommissioning Guidance Decommissioning Process for Materials Licensees", states the minimum simplified survey shall include: One hundred percent scanning of all surfaces in the area of the facility where licensed material was used or stored, using an appropriate radiation detection instrument (including scan sensitivity). Please submit the additional surveys.
5. The last record that I could locate on your onsite Burial Site was dated August 29, 1996. It was a letter from the NRC to you granting an extension for a decommissioning plan for the burial site to September 5, 1997. Please send a copy of the dose projection from the site, the approval for removal from the license, the environmental assessment, and the date announcing the release in the federal register, if applicable.
6. Appropriate closeout surveys for the following locations did not appear to be submitted to the NRC.
 - A. 415 East 10th Street, Chattanooga, Tennessee: License 41-8165-02 using up to 20 mCi of carbon 14 from April 4, 1967 to March 23, 1976
 - B. Wrinkle Building, 6411 East Brainerd Road, Chattanooga, Tennessee: License 01-16821-02, 41-06831-09, 01-06113-03 using up to 20 mCi of carbon 14 from March 24, 1988 to March 28, 1994.
 - C. Biothermal Research Facility at Brownsferry Nuclear Plant: License 41-08165-02 and 01-16821-02 using up to 20 mCi carbon 14 from March 23, 1976 to January 21, 1986
 - D. E&D Building 1801 17th Steet, Sheffield, Alabama: Licence 01-16821-02 and 41-06831-09 using up to 20 mCi carbon 14 from October 6, 1987 to April 19, 1989
 - E. River Oaks Building, Muscle Shoals, Alabama: Licence 41-08165-02 and 01-16821-02 using up to 20 mCi carbon 14 from May 26, 1970 to November 2, 1982
 - F. E&D Building, Muscle Shoals, Alabama: Licence 41-08165-02 and 01-16821-02 using up to 20 mCi carbon 14 from May 26, 1970 to October 6, 1987 A survey

- was submitted of Room 118 of the E&D Building but it did not include Storage room 18
- G. Western Area Radiological Lab, TVA Reservation, Muscle Shoals, Alabama: Licence 01-16821-02 using up to 20 mCi carbon 14 from November 2, 1982 to October 6, 1987
- H. National Fertilizer Development Center, Muscle Shoals, Alabama: Licence 01-16821-02 using up to 20 mCi carbon 14 from March 23, 1976 to November 2, 1982. The old Medical Building at the National Fertilizer and Environmental Research Center used carbon 14 to make 1000, 10 uCi ampules for about a month in March 1993. The National Development Center Building added laboratory L171 and 172 on the first floor in April 15, 1982 to May 10, 1991
- I. Soil and Fertilizer Research Branch, Division of Agriculture Development, Wilson Dam, Alabama: Licence 01-16113-02 using zinc 65, calcium 45, manganese 54, carbon 14, and tritium in laboratories 46 and 47 from July 15, 1964. On April 29, 1966, the address changed to Division of Agricultural Development Muscle Shoals, Alabama. Chlorine 36 added on September 11, 2004. On August 23, 1983, cadmium 109 added. On October 18, 1983, a statement that the lab and greenhouse was released in October 1979, No survey was submitted.
7. A Northern Red Oak Tree Study was performed using carbon 14 in a tree growing facility near Norris, Tennessee. A January 21, 1997 letter requested the area of use be removed and that no contamination was left. No surveys were submitted. Please send all documentation about surveys taken after the study was performed and any updated estimates of radioactivity left.
8. You submitted surveys for room F250, but no other room at the current facility. In a letter dated December 13, 1991, you submitted a generic laboratory and increased the limit for carbon 14 to 50 mCi. Please send in release surveys for other rooms used or state that no other location was used at this facility.
9. The authorization to use unsealed carbon 14 at temporary job sites or all reservoir impoundments maintained by TVA was initiated by an application dated May 5, 1964 until the amendment dated June 6, 2005. Please enclose description of any temporary job sites used and surveys of the area or other methods used to release the area.
10. In support of an environmental assessment related to the release of your facilities:
- a) Provide the name of the facilities to be released
 - b) Provide the size of the (complex in Acres) building in square feet and area to be released in square feet.
 - c) Describe the type of building use such as "general office and laboratory"
 - d) Describe the surrounding area, such as "residential", "industrial", "commercial", "mixed residential/commercial", etc.

e) Describe the general type of activities authorized on the license, such as “laboratory procedures typically performed on bench tops and in hoods.

f) State when you ceased licensed activities.

Current NRC regulations and guidance are included on the NRC’s website at www.nrc.gov; select **Nuclear Materials; Medical, Industrial, and Academic Uses of Nuclear Material**; then **Toolkit Index Page**. Or you may obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-888-293-6498. The GPO is open from 7:00 a.m. to 9:00 p.m. EST, Monday through Friday (except Federal holidays).

We will continue our review upon receipt of this information. Please reply to my attention at the Region I Office and refer to Mail Control No. 140103. If you have any technical questions regarding this deficiency letter, please call me at (610) 337-5366.

If we do not receive a reply from you within 30 calendar days from the date of this letter, we will assume that you do not wish to pursue your application.

Sincerely,

Original signed by Dennis R. Lawyer

Dennis R. Lawyer
Health Physicist
Commercial and R&D Branch
Division of Nuclear Materials Safety

cc:
James P. Colagross, Radiation Safety Officer

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SUNSI Review Complete: DLawyer

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