



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 15, 1995

Mr. John Quinn
Salesco Systems U.S.A.
Eastern Regional Office and
Transfer Terminal
40 Messina Drive
Braintree, MA 02184

Dear Mr. Quinn:

I am responding to your letter, dated July 13, 1995, requesting information on whether Salesco Systems U.S.A (Salesco) will be required to obtain a radioactive materials license from the Nuclear Regulatory Commission in order to recycle metal halide lamps that contain thorium and thorium/tungsten alloy components and whether there are any health and safety concerns associated with the recycling of these lamps.

Under the Atomic Energy Act of 1954 (AEA), NRC regulates the civilian uses of certain nuclear materials (called source, special nuclear and byproduct material) in the United States. Thorium, such as that found in the lamps Salesco is considering for recycling, is source material under the AEA. Some States have entered into an agreement with the NRC to regulate source, special nuclear, and byproduct material at non-Federal facilities within their States, in lieu of NRC. These States are referred to as Agreement States. You indicated during our phone conversation concerning your proposed process, that the actual recycling of the lamps would take place at your facility in Phoenix, Arizona. Arizona is an Agreement State and, as such, would be responsible for regulating the thorium at your Phoenix facility. You also indicated that you have facilities in Texas, Illinois, California, and Massachusetts. With the exception of Massachusetts, all of these States are also Agreement States and, therefore, retain regulatory authority for source material, such as thorium, in those States. In order to determine whether Salesco will be required to obtain a radioactive materials license in Arizona, Texas, Illinois, or California you should contact the appropriate State regulatory authority for radioactive material in each of these States. I have enclosed a list of radioactive material regulatory authorities in each State for your use.

If Salesco were to use, possess, distribute, dispose or otherwise manage thorium in Massachusetts, which is not an Agreement State, it would be subject to the regulatory authority of NRC. NRC's regulations concerning the licensing of source material, such as thorium, are contained in 10 CFR Part 40. 10 CFR 40.13 summarizes those instances where NRC has established exemptions from the requirements to obtain a radioactive materials license. Persons eligible for these exemptions would not be required to obtain a radioactive materials license for the use, possession, etc. of source

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material. Based on the information provided in your July 13, 1995, letter, as well as the additional information provided in your letters dated August 2 and August 22, 1995, NRC staff has determined that Salesco is not eligible for an exemption from the requirement to obtain a radioactive materials license at 10 CFR Part 40.13 because the amount of thorium in the lamps (90 milligrams to 360 milligrams of thorium per lamp) exceeds "unimportant quantity" limit of 50 milligrams of thorium per lamp outlined in NRC's regulations.

10 CFR 40.22 describes the licensing requirements for small quantities of source material. 10 CFR 40.22(a) states that a general license is issued to commercial and industrial firms, and others, to use and transfer not more than 15 pounds of source material at any one time nor receive more than 150 pounds of source material in any one calendar year. Individuals possessing material pursuant to a general license are not required to comply with the provisions of NRC's regulations pertaining to notices, instructions, and reports to workers (10 CFR Part 19), standards for protection against radiation (10 CFR Part 20), or the reporting of defects or non-compliance (10 CFR Part 21) as long as the possession, use, transfer, etc. of the source material are within the terms of the license. Therefore, as long as Salesco does not possess more than 15 pounds of source material at any one time, and does not transfer more than 150 pounds, in the aggregate, of source material in any calendar year, it could possess, use, transfer etc., the thorium under the general license. In addition, as long as Salesco possesses radioactive material pursuant to, and within the terms of, a general license, NRC would not require Salesco to develop or maintain a program to protect workers or the public from the source material.

Your letter also requested information on any health and safety issues Salesco should be concerned about with regards to your recycling process workers. Working with any radioactive material, including thorium, almost always carries the potential for radiation exposures to workers or the public. Depending on its chemical or physical form, working with thorium may result in workers being exposed to the radiation emanating from the thorium or inhaling or ingesting the radioactive material. The resulting doses from these different types of exposures would vary greatly, depending on the amount and concentration of the thorium in the material, as well as the length of time the workers are exposed to the radioactive material. In addition, the processing of thorium can result in the release of radioactive effluents as well as contamination of structures and equipment. Sanitary and industrial waste landfills may reject waste generated in the recovery operations as a result of this contamination. In order for Salesco to fully evaluate the potential exposures to workers and the public, I suggest that you contact a qualified health physics consultant and arrange for an evaluation of the potential radiation protection aspects of your process.

J. Quinn

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If you have any questions concerning the above, please feel free to contact me at (301) 415-6749.

Sincerely,
[ORIGINAL Signed By]

Dominick A. Orlando, Project Manager
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated
cc: Attached list

TICKET#: D-307

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Attached list:

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