40-2370
Delaney.

nuclear corporation of america
research chemicals division
p. o. box 431 · 170 west providencia · burbank, california
victoria 9-6276

November 14, 1960

Mr. J. C. Delaney
Chief, Nuclear Materials Branch
Division of Licensing & Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Mr. Delaney:

We would like to renew our source material license number C-4013 (or obtain a new license) for 5,000 pounds of thorium-source material, in the form of residues. This material would be processed by us.

Thank you for your prompt action on this request.

Very truly yours,

RESEARCH CHEMICALS

Eugene V. Kleber

EVK:lrn

H/10/

RESEARCH CHEMICALS
P. O. BOX 431
170 W. Providencia Ave. • Burbank, Calif.

NUCOR

BURBANK
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VIA AIRMAIL

Mr. J. C. Delaney
Chief, Nuclear Materials Br.
Division of Licensing & Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

Rough Draft
Cool:dg
10/18/60

Isotopes Specialties Company
Division of Nuclear Corporation
of America, Inc.
170 West Providencia
Burbank, California

Attention: Mr. Alfred J. Moses, Chairman
Isotope Committee

Gentlemen:

Receipt is acknowledged of your application dated July 25, 1960. Pursuant to Section 30.35(b) of 10 CFR 30, since your application for renewal was received more than thirty (30) days prior to expiration, the license shall not expire until the application has been finally determined by the Commission.

In reviewing this application we find that there are several items which require clarification or further information, before licensing action can be taken.

Item 4 of the Form AEC-313 indicates that the program is to be conducted under the direct supervision of the Isotope Committee. However, Section I, Supplement B indicates that other similarly qualified personnel in the company may be authorized on occasion by the Isotope Committee to engage in radioactive waste disposal operations. If their participation will be under the supervision of a committee member, you should so specify. If it is your intent to request license authority to designate the personnel under whose direct supervision the program is to be conducted, it will be necessary for you to submit detailed supporting information regarding the minimum criteria of training and experience with radioactive material which would be required by the Isotope Committee in the designation of such personnel.

A/102

Supplement B, III, "Storage of Radioactive Waste" should be expanded to indicate how waste material will be stored prior to encasement in concrete or impervious containers, to protect it from damage or dispersion due to weather.

Supplement A of the application states that waste material received under License No. 4-580-6 may be reclaimed and used under License No. 4-580-7. You are requested to provide a detailed description of the anticipated operations indicating the nature of the isotopes and/or equipment to be reclaimed and the maximum levels of contamination which will be accepted on reclaimed items. You should also indicate whether this authorization is desired to provide a decontamination service to customers. Such use may be considered for coverage under a separate license.

Supplement B, II.A.4 indicates the information to be logged on radioactive waste received from ISC customers. Upon amendment of License No. 4-580-6 we propose to add a condition specifying the records which shall be kept regarding each incoming container and each container as finally prepared for disposal, substantially in the following form:

> The licensee shall maintain:
> A. Records of the following items of information regarding each container of waste received from customers:
> (1) Name and address of customer.
> (2) Principal radioactive isotopes.
> (3) Amount of radioactivity.
> (4) Radiation level at the surface of the container and at 1 meter.
> (5) Level of removable contamination on the container surface.
> (6) Date received.
> B. Records of the following items of information regarding each container of waste packaged for disposal:
> (1) Amount of radioactivity.
> (2) Radiation level at the surface of the container and at 1 meter.
> (3) Level of removable contamination on the container surface.
> (4) Most hazardous radioisotope.
> (5) Date of packaging.
> (6) Weight of final container.
> (7) Disposal location and date.

Therefore, any record system which will include this information may be used.

Supplement B, VI.B.1.d. states that solid waste will be put into the drum in increments of 4" to 6" and a slurry of cement will be carefully added to each incremental layer of waste to produce a solid mass. We are concerned that this technique may result in laminations of waste in which significant voids may exist, which may be compressible so that voids may be produced when the drum is subjected to pressure, or which may separate and allow ~~unpleasant~~ items to rise to the surface of the ocean. If the technique proposed is such as to result in an integral mixing of the waste and concrete please so verify. If laminations may result you are requested to describe the provision to be made for pressure relief, including the size and type of tube to be used and the method of installation; reinforcement to be provided to assure adherance of the multiple layers of waste and the securing of the 3"to 5" concrete cap to the drum or drum contents to provide assurance that it will not come off during handling, transp rtation and disposal operations.

Indication of the acceptability of this condition would be appreciated.

Supplement B,IV indicates that wastes may be processed by chemical dissolution, filtration, extraction, ion exchange, chemical polymerization and physical absorption. You are requested to provide detailed information regarding the types of waste material to be treated by each technique, the facilities available for such processing and the procedures to be followed.

Supplement B, VI.B.1.b. indicates the information to be provided on all radioactive waste containers. You are requested to indicate how this information will be semipermanently attached to the final sea disposal containers.

Supplement B,VI.B.1.d. states that solid waste will be put into the drum in increments of 4" to 6". A slurry of cement will be carefully added to each incremental layer of waste to produce a solid mass. If this technique involves mixing the waste with concrete such that a multiple layer "sandwich" is not formed, ~~so indicate.~~ If such "sandwiching" ~~can occur~~ is intended you are requested to describe the provision to be made for pressure ~~relief~~ equalization to prevent ruptures. This should include information as to the size and type of tube to be used and the method of installation. You are further requested to describe how the 3" to 5" concrete cap will be secured to the drum or drum contents to provide assurance that it will not come off during handling, transportation and disposal operations.

Supplement B, VI.B.1.e. states that other special containers may be used dependent upon the shape, toxicity, and intensity of radiation of the waste. Drawings D-0047 and D-0048 showing an I beam and a nose cone encased in reinforced concrete have previously been approved. If it is proposed to construct forms and encase irregularly shaped items in concrete blocks, ~~you should establish criteria for~~ it is necessary to submit a complete description of each type of container to be used including such information as the minimum wall thickness ~~to be used~~, the reinforcement to be provided and the provision to be made for pressure relief

if/voids may exist in the package.

Review of your application will be continued upon receipt of the requested information.

Sincerely yours,

James R. Mason, Chief
Isotopes Branch

L&R:IB	L&R:RSB	L&R:IB
Cool	Rogers	Mason
11/18/60	11/22/60	11/ /60