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LINDSAY CHEMICAL COMPANY

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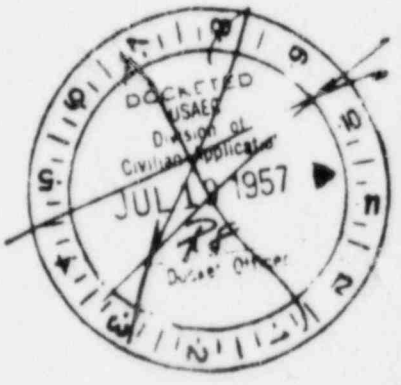
CABLE ADDRESS "LINDSAY"

July 12, 1957



U. S. Atomic Energy Commission
Division of Civilian Application
Washington 25, D. C.

Attention: Mr. H. L. Price

Re: Your letter May 7, 1957, CAL-JGD

Dear Mr. Price:

This is in reference to our letter of March 1, 1957 and your reply of May 7, 1957 concerning an extension of time for our compliance with 10 CFR 20.

We hereby apply for exemption until September 1, 1957 from sections 20.101 (b) relating to airborne radioactivity in restricted areas, and 20.403 (c) relating to 30-day notification of overexposures as they pertain to section 20.101 (b), these exemptions being in reference to the two areas described in the 3rd, 4th, and 5th, paragraphs of this letter.

Since writing our letter of March 1, 1957, corrections in operation and equipment have been made so that two of the four airborne activity areas mentioned in the 5th paragraph of the letter are now operating within the tolerance levels in 20.101 (b). The two remaining areas are in the process of being corrected, and we expect that this work will be done by the end of August, 1957. Our original estimates for completing the necessary equipment changes were based on finishing this by August, 1957, but delays in equipment deliveries and scheduling of necessary shut-down time have extended this date to the end of August, 1957. The monitoring of thorium airborne radioactivity is somewhat time-consuming in that filter samples must be allowed to stand for one week before they can be counted.

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The two areas here under consideration, and on which we wish exemption are described below:

(1) In the processing of monazite ore from one of our sources, we must roast the ore to oxidize sulfides. This is done in rotary furnaces fitted with automatic feeders and dischargers. The feeders are loaded manually, and in this loading operation, monazite dusting is created. Although this dust is partially prevented from entering the working area, the feeder design and ventilation system is such that there is monazite dust in the working area. The dust concentration is such that the airborne natural Th activity varies from 0.4 to 5 times the maximum permissible

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limits on the basis of 48-hour week exposure. Actual occupancy time by workers in this area is about 50%, so the average air-borne activity is about 0.2 to 2.5 times the maximum permissible limit.

Correction of this situation involves redesigning the feeder mechanism and its associated ventilation system. This has been done, the new equipment is on order (and partially delivered), and the change-over requiring extensive equipment changes is planned to be done August 3rd to 19, 1957. An enclosed screw-conveyer will be used instead of a bucket elevator, the hood system around the manual loading operation will be changed and the dust collector for the ventilating system will be changed from a cyclone collector to a bag-type collector.

(2) In the preparation of thorium oxide, salts such as thorium oxalate are calcined in either rotary or tray-type gas-fired furnaces. These thorium materials are dry, dusty powders, and all operations must be done in hoods or in ventilated cabinets to avoid dust in the working area. The design of such hoods, and the elimination of unnecessary dusting has required the evolution of efficient handling methods and the design of proper ventilation facilities. Although several changes in design and handling have been made in this area, we are still not satisfied with the results obtained. As data is accumulated on airborne Th concentrations, changes are made as necessary. We do not believe that all necessary changes can be made and satisfactorily tested until the end of August, 1957. Present airborne Th concentrations vary from 0.1 to 4 times maximum permissible levels for general working air conditions, and up to 10 times maximum permissible levels for breathing zone samples taken during actual thoria handling operations. These Th-activity levels are based on occupancy for 40 hours per week, but actual occupancy times are approximately 50% at this time, so the average Th concentrations are about one-half the levels reported.

Workers in both areas covered in paragraphs (1) and (2) above are issued dust masks and are required to wear them when handling these dusty materials.

We trust that you will favorably consider this request.

Very truly yours,

LINDSAY CHEMICAL COMPANY

Robert S. Landauer PhD

Robert S. Landauer/en

Consultant to the Company on
Radiation Protection