

UNITED STATES GOVERNMENT

Memorandum

A-56

TO : Files

DATE: October 4, 1961

FROM : *D. Harmon*
D. F. Harmon, Source and Special Nuclear Materials
Branch, Division of Licensing and Regulation

SUBJECT: RADIOLOGICAL SAFETY EVALUATION, W. R. GRACE & COMPANY,
DAVISON CHEMICAL DIVISION, POMPTON PLAINS, NEW JERSEY,
DOCKET NO. 40-86

ANALYSIS, FINDINGS AND CONCLUSIONS

An analysis of the information submitted by the W. R. Grace & Company, Davison Chemical Division, has resulted in the following observations, conclusions and findings.

Conclusions:

It appears that the licensee's radiation safety program is designed to provide sufficient information for determining compliance with 10 CFR 20 and that the licensee has instituted the necessary steps in his processing facility to comply with the Commission's regulations.

Plant Location and Rated Ore Capacity:

The plant is located approximately 3/4 of a mile east of Pompton Plains, New Jersey, in a rather heavily populated area. The licensee has submitted topographical maps of this area which shows inhabited areas, locations of rivers and other pertinent data.

Approximately one ton of monazite ore (containing rare earth materials and thorium) is processed daily. Thorium is a by-product of monazite ore but is recovered and purified for resale. Fifteen hourly employees complete the three shift working force.

Plant flow diagram, dusty areas and ventilation equipment:

In support of his application, the licensee has submitted a flow diagram of his operations. In conjunction with the flow diagram, locations of dusty operations involving thorium have been specified and ventilation equipment at each operation has been described. This equipment appears to adequately control the airborne concentrations of radioactivity within the limits of 10 CFR 20.

Airborne Radioactivity Surveys:

General air, breathing zone and operational samples are conducted throughout the plant at all operations. Samples are collected with a staplex hi-volume air sampler equipped with T.F.A. #41 filter paper. Sample locations, sample techniques and sample frequencies are described by the licensee. In addition, a study has been made of the operations performed by each employee to determine occupancy factor. These procedures appear adequate to determine compliance with Section 20.103.

External Radiation Surveys:

An external radiation survey of the entire rare earth processing plant is conducted at least monthly. In addition, all employees who have reason to enter the plant processing area are required to wear film badges. This program appears adequate to determine external exposures of personnel.

Liquid & Airborne Effluent Survey Program:

Release of airborne radioactivity to unrestricted areas will be through the plant discharge stack system. This system has been adequately described by the licensee. To insure compliance with Section 20.106, the licensee has developed an air sampling program at the plant boundary line. Samples are collected three times per month at each of three different locations.

All liquid waste issuing from plant operations passes through a waste treatment plant. After holdup filtration and treatment to remove solids, the liquid flows to a storm drain and leaves the plant property. This effluent is sampled daily to determine compliance with Section 20.106. These programs appear adequate.

Waste:

Thorium is refined and purified for resale in this operation. However, a small amount of thorium will appear as waste. This material is either transferred, buried in accordance with Part 20, discharged in the liquid effluent in accordance with Part 20, or appears in the sludge from the waste treatment plant and is disposed of on plant property. This appears adequate from a radiological safety standpoint.

Instructions to Personnel:

Written radiological safety instructions are provided employees. All necessary items appear to be covered.

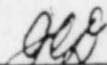
Respirators:

M.S.A. Dustfoe respirators are worn by employees during various plant operations. While the licensee appears to have a good program established for the wearing of respirators, he has not requested that allowance be granted in determining exposures to airborne radioactivity. The licensee is being informed that special approval must be granted by the Commission before allowance can be made for his respirator program.

Incineration of Source Material:

The licensee has requested permission to incinerate burlap bags which contained monazite sand. The licensee states that the bags will be as thoroughly emptied as possible and burned under favorable meteorological conditions. Airborne surveys will be conducted during incineration. It is recommended that authorization be granted under the conditions outlined by the licensee.

APPROVED:



Donald A. Nussbaumer, Chief, Source and Special Nuclear Materials
Branch, Division of Licensing and Regulation