

NATIONAL LEAD COMPANY OF OHIO

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A SUBSIDIARY OF N.L. INDUSTRIES, INC.

CINCINNATI, OHIO 45239

June 1, 1979

SUBJECT TRIP REPORT - VISIT TO THORIUM STORAGE FACILITY OF GENERAL ATOMIC,
YOUNGSVILLE, NORTH CAROLINA - MAY 21 and 22, 1979

TO W. W. Wright and R. C. Heatherton

FROM C. E. Block and K. Ross

REFERENCE Letter, H. D. Hickman to S. F. Audia dated May 11, 1979, Subject: General Atomic Thorium Stockpile - Donation to DOE

OBJECTIVE OF TRIP:

The purpose of the visit to the General Atomic, Youngsville, North Carolina site was to secure information on the planned movement of 5600 drums of thorium oxide and hydroxide to the FMPC.

CONCLUSIONS AND RECOMMENDATIONS:

The inspection of the drummed thorium indicates certain precautions will be necessary in the loading and shipping of this material to the FMPC for compliance with health and safety requirements as well as with various shipping regulations.

It is our recommendation that the loading of the thorium be completed with NLO personnel and equipment. In our opinion, with the lack of monitoring records for the unloading operations and the radiation concern of commercial concerns, this would be the safest, efficient, and controlled method to complete the transfer of material.

BACKGROUND FOR TRIP:

Please refer to the above referenced letter. In addition, General Atomic requested that NLO personnel meet with their representatives for an on site inspection.

PERSONS VISITED:

James Siltanen and Paul Bissonnette - General Atomic, San Diego, California.
Cecil Brown, Chief of Radiation Protection Section - State of North Carolina
Gene Canipe, Terminal Manager - Overnite Transportation Co., Raleigh, N.C.

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DESCRIPTION OF TRIP:

Messrs. Siltanen and Bissonnette, who were very cooperative, provided background information and documents pertaining to the unloading and storage of the thorium when received in 1974 and 1975.

Sixty-five (65) truckloads were transferred from Mound Laboratory, Miamisburg, Ohio to the Youngsville, North Carolina site.

Wrenn Detective Agency secured local personnel, equipment and miscellaneous materials to unload, store and erect a radiation barrier around the storage facility.

No radiation monitoring records or information were available relative to personnel, equipment, or any decontamination processes during or at the conclusion of the unloading and storage operation.

Two types of drums were used to package the thorium material. One is a standard 55-gallon drum containing the hydroxides and appears to be in good condition. The oxalates, however, are in an odd sized drum, 19" diameter x 36" high. These drums have rust areas, pinholes and evidence of some leakage. General Atomic utilized these drums as inner packaging of fuel elements. They will check their inventory and if the over pack drums are available, they will provide them for use in the transfer to NLO.

The drummed material is stacked four tiers high in the building. Radiation barrier of sandbags are stacked two tiers high around the material and 55-gallon drums of sand around the third tier of drums.

The work area requires a thorough cleaning prior to commencing any loading operations.

The thorium bearing material is quite radioactive, probably at or near equilibrium. Radiation measurements in what will be the working area while loading the trucks ranged from 15 mr/hr at ten feet from the drums to 80 mr/hr near the drums. People working in this area must be closely supervised to prevent exposure to more than the Maximum Permissible Dose (MPD) of 3 r/3 months. In the case of hiring workers at the site, we could only allow exposure at a rate that would not exceed 1.25 r/3 months since we would not have control of their previous or subsequent radiation exposure.

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A wipe sample of what appeared to be a pinhole leak in a drum showed thorium in the sample indicating probable leaks and contaminated drum exteriors to work with. It is possible respiratory protection will be needed. Any workers requiring respiratory protection must be trained in the use of respirators and fitted with a respirator.

Radiation measurements taken outside the building through the sandbag shielding were from 1 to 1.5 mr/hr. Above the sandbags but not above the drums of sand, the radiation measured 1.5 to 2.5 mr/hr. This indicates that the material will probably require some shielding when loaded in the trucks to prevent radiation levels in the cab from exceeding 2 mr/hr.

The drums are stacked with 1 1/2" x 4" boards between each tier of drums. A supply of these boards is in the area and Mr. Siltanen stated that NLO may use these boards for shoring purposes. The sand radiation barriers may also be used as we consider necessary.

A field type loading dock will be essential. The building has a cement floor, a black top driveway and the access road is gravel.

Messrs. Siltanen, Bissonnette, Ross and Block met with Mr. C. Brown of the State of North Carolina who issued General Atomic's radioactive material license. This meeting was more of a public relation function for General Atomic to apprise Mr. Brown of the planned shipment. Mr. Brown was informed of NLO's prime contract with DOE and of our role in the plans. He appeared quite satisfied with the proposed arrangements.

C. Block visited Gene Canipe, Terminal Manager of Overnite Transportation Company, to discuss the potential move. Mr. Canipe said he could not foresee any problems in furnishing from two to seven trailers per day. Overnite has a truck platform scale at their terminal and gross and axle weights would be checked for compliance of state and federal weight regulations prior to shipment.

MISCELLANEOUS COMMENTS:

General Atomic will have their Health Physicists at Youngsville, North Carolina at the beginning and conclusion of the transfer operations. They do not plan on having a representative on site at all times.

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Wrenn Detective Agency was not contacted relative to the possibility
of obtaining a local contractor.

Mr. Siltanen will re-check and advise regarding the availability of
monitoring records of personnel and equipment during the unloading
operation in 1974 and 1975.

COMMITMENTS:

No firm commitments were made during this inspection.

WW

CEB/KR/jh

cc: S. F. Audia
J. W. DeDapper

C. E. Block

C. E. Block

K. Ross

K. Ross

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