

June 27, 1997

MEMORANDUM TO: John T. Greeves, Director  
Division of Waste Management  
Office of Nuclear Material Safety and Safeguards

FROM: Douglas M. Collins. Acting Director (original signed by  
Division of Nuclear Materials Safety D. M.  
Collins)

SUBJECT: STATUS REPORT OF REGION 11 REVIEW OF OAK RIDGE NATIONAL  
LABORATORY (ORNL) LIST OF POTENTIALLY CONTAMINATED SITES

The quarterly status reports for those Region 11 sites contained on the ORNL list of formerly licensed sites identified as potentially contaminated are contained in Attachments 1 through 4. The status reports for those sites with an ORNL final score greater than 300 which remain open are in Attachment 1 and those with a score from 5 to 300 which Region 11 has reviewed and remain open are listed in Attachment 2. The information required for the Monthly Information Status Report is in Attachment 3. A tabular summary of all files assigned to Region 11 is in Attachment 4. Please note that the most current information in Attachments 1 and 2 is in **bold**.

If you have any questions regarding these reports or our evaluations." please contact Mr. Bryan A. Parker of my staff at (404) 562-4728.

- Attachments: (1) Reports for sites >300 (remain open)  
(2) Reports for sites <300 (remain open)  
(3) Monthly Information Status Report  
(4) Tabular summary for all Region 11 sites

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The quarterly status reports for those Region II sites contained on the ORNL list of formerly licensed sites identified as potentially contaminated are contained in Attachments 1 through 4. The status reports for those sites with an ORNL final score greater than 300 which remain open are in Attachment 1 and those with a score from 5 to 300 which Region II has reviewed and remain open are listed in Attachment 2. The information required for the Monthly Information Status Report is in Attachment 3. A tabular summary of all files assigned to Region II is in Attachment 4. Please note that the most current information in Attachments 1 and 2 is in bold.

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET, SW, SUITE 23T85  
ATLANTA, GEORGIA 30303

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Division of Nuclear Materials Safety

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STATUS REPORTS FOR SITES REVIEWED WITH SCORES  
<300

(REMAIN IN OPEN STATUS)

1. SUB-00081 Homer Laughlin China Co.
2. STB-00058 Du Pont
3. C-04327 Fostoria Glass Company

SUC-00628

REGIONII TERMINATED SITES LIST  
SITE STATUS REPORT

JUNE 24, 1997

Docket No. 040-06213

License No. STB-00058

Licensee Name: E.I. DuPont de Nemours and Co., Inc.

Site Name: Belle Works

Site Address: 901 West Dupont Avenue

City: Belle State: WV Zip: 25015

Regional Contact: Bryan A. Parker Phone: (404) 562-4728

Status Summary:

ORNL Final Score: 37

Background

License No. STB-00058 was issued on January 30, 1961 for the possession of 1.000 pounds of thorium for use in dispersions of thorium oxides in metal. The license was amended in January, 1962. and the possession limit was changed to 500 pounds.

In its December, 1960 application, the licensee described the source material as a thorium salt, probably thorium nitrate, in a crystal form containing 33 to 48 percent thorium by weight. The facility where the source material would be used was described as a restricted area of dimensions 40 feet by 100 feet with a steel frame and sheet metal building approximately 15 feet by 50 feet. Processing equipment contained in the building included tanks for dissolving, mixing and reacting the thorium salts with metal salts, a plate and frame filter press, a combination drying and calcining oven, and a controlled atmosphere furnace. A sink and other laboratory type of equipment was also employed. A hood was also used when source material was handled manually and for exhausting the calcining furnace. The exhaust from the hood was 15 feet above ground and the licensee projected that 18 grams of thorium would be exhausted each day of operations. After handling of the dry source material in the hood, it was mixed with water to limit airborne contamination. The licensee stated he would use air samplers to monitor airborne material and conduct radiation surveys with a portable survey instrument and obtain wipes in work areas to monitor removable contamination. To illustrate its experience with handling hazardous materials, the **licensee stated** that it had many years of experience in producing catalysts containing chromium compounds which are strongly toxic.

REGION II TERMINATED SITES  
LIST  
SITE STATUS REPORT

JUNE 24, 1997

E. I. DuPont de Nemours and Co., Inc.  
00058  
Belle Works  
Belle. WV  
Background (cont'd)

License No. STB-  
Docket No. 040-06213

The methods of disposal of source material included burial and discharge to plant sewage and water effluent stream. As described in the license application, all solid or semisolid thorium-containing materials would be accumulated, stored and periodically buried. The burial would be in the plant dump which was located remotely from the plant and was separated from inhabited areas by a nest of mountains. All solutions containing thorium would be treated chemically to precipitate as much of the thorium as possible before discarding them. The restricted area was located adjacent to one of the plant's water outfalls which had a minimum flow rate of 20,000 gallons per minute. The resulting concentration of thorium was stated to be below detectable limits and several orders of magnitude below those specified in AEC regulations (Part 20).

An AEC inspector found no items of noncompliance during an inspection conducted on April 23, 1963. No other details of the inspection were in the retired docket file.

The license expired on January 31, 1965. In a memo dated June 6, 1965, an AEC employee stated that he had contacted the licensee on May 27, 1965, and was informed that the licensee had not procured or used thorium since the last inspection (date of inspection not identified). The licensee had 0.43 pounds of thorium which it possessed under a general license since the specific license expired. The retired docket file does not contain any information on the final disposition of the material or surveys performed by either the licensee or the AEC after the license expired and was terminated.

Assessment

RII personnel performed an inspection at the Du Pont facility on August 12, 1996 (Inspection Report No. STB-00058/96-01). The inspector found that Building 202, identified in the former license as the facility where licensed activities were conducted, no longer existed. The building had been demolished several years prior to this inspection, and a much larger facility, Building 291, had been erected at the site. Based upon his observations of the site and discussions with licensee personnel, the inspector determined that no original structure remained from Building 202, and that the construction of Building 291 had apparently included the entire removal of Building 202, and **excavation** of the area where Building 202 had existed to allow construction of the foundation for Building 291.

**REGIONII TERMINATED SITES LIST  
SITE STATUS REPORT**

**JUNE 24, 1997**

E. I. DuPont de Nemours and Co., Inc.  
Belle Works  
Belle. WV  
Assessment (cont'd)

License No. STB-00058  
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The inspector also determined that, as stated in documents contained in the terminated license docket file, the licensee had buried thorium contaminated waste at a site across from the main facility. A licensee document dated October 4, 1961, indicated only three drums of contaminated waste (two 55 gallon and one 30 gallon) were buried at the site on September 29, 1961. This document also stated that the material was buried under six feet of earth and that the radiation levels measured on the surface of the drums prior to burial ranged from 0.5 to 0.7 millirem per hour. The licensee's current radiation safety staff were aware of the site. The inspector visited the burial site and observed that the licensee controlled access to this area and that the area was posted with a sign indicating that radioactive material was buried at the site. The licensee's staff stated that as much as sixteen more feet of earth cover had been added to the area since the material was first buried. The licensee periodically inspected the site, but did not perform any radiological surveys in the area or analyze the groundwater obtained from monitoring wells in the area for radioactive material.

It appears that no further investigation is required regarding the facility where licensed material was used under this former license since that facility has been demolished. However, the site will remain in an "open" status until the Draft Branch Technical Position on Screening Methodology for Assessing Prior Land Burials of Radioactive Waste Authorized Under Former 10 CFR 20.304 and 20.302 is published in final form. At that time the licensee will be required to apply the screening methodology to the burial site and take action as warranted by this document.

The final copy of the BTP is not expected to be published until April or May, 1997. RII will forward a copy of **the draft BTP and request the** licensee try to apply the screening methodology to their burial site. The licensee's records of material buried at the site do not specify the amount (mass or activity) of thorium buried. Therefore, the licensee would have to estimate the amount of thorium contained in the contaminated materials buried in the three drums as described in Step I of the screening methodology. It is doubtful the licensee will pass Step 1 or 2 of the screening methodology. If the licensee does not pass these two steps, RII will request that the licensee perform **a site** specific dose assessment based on a modeling protocol such as RESRAD and submit the results of this assessment for review by RII and DWM.

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On June 24. 1997, the licensee indicated that after the Region II onsite visit in September 1996. sampling in and around the burial site was done in October 1996 by Dupont Environmental Remediation Services (DERS). The licensee received the results in November 1996 (all were negative). and will now forward the results to Region II for review. The licensee was informed that the BTP will soon be published and, once received, will need to be applied to their situation for screening purposes.