



REGION II, ATLANTA, GEORGIA

FACSIMILE TRANSMISSION

FROM: Bryan A. Parker
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TO: Charlotte Estep
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6 PAGES (INCLUDING THIS COVER SHEET)

MESSAGE: Charlotte, here is the DuPont TAR we discussed. I appreciate your help with this. If you have questions, please call. Thanks!

Bryan P.

REGIONAL TECHNICAL ASSISTANCE REQUEST FORM

01/26/01

Date: 3/15/00

Mail or E-Mail to: Donald A. Cool (DAC), Director If E-mail, cc: CLE
Division of Industrial and Medical Nuclear Safety, NMSS

From: Douglas M. Collins, Director (DMC) Douglas M. Collins
Division of Nuclear Materials Safety, Region II

Licensee: E.J. DuPont de Nemours and Co., Inc. (Terminated site)
License No.: STB-00058 Docket No.: 040-06213

Control No. (if applicable) Letter dated: (if applicable)

Enforcement Action being held in abeyance: () Yes (X) No

Suggested change in licensing procedure (enclosed):

Problem/Issue: This former licensee buried thorium contaminated waste at its facility. Three drums of waste (two 55 gallon drums and one 30 gallon drum) were buried at the site on 9/29/61. According to licensee documents from that time, the drums were buried under six feet of soil and that radiation levels on the outside of the drums prior to burial ranged from 0.5 to 0.7 millirem per hour. The ambient background level was reported to be 0.02 millirem per hour. The drums primarily contained filter media contaminated with thorium residue from what was termed the expanded metals venture. The area where the drums are buried has subsequently been covered over by up to 16 feet of earth. RII initially reviewed this terminated site at the time when the BTP on Screening Methodology for Assessing Prior Land Burials of Radioactive Waste Authorized Under Former 10 CFR 20.304 and 20.302 was expected to be published. Since this BTP will not be published, and there are no release criteria for contaminated soil at this depth, the former licensee does not know how to proceed to demonstrate that this site may be released for unrestricted use.

Action Required: Review the information regarding the buried waste and determine if the site is suitable for release or if surveys/remediation required the site prior to release.

Recommended Action (with revisions): Approve or Reject
Based upon the limited information from the docket file and conservative assumptions, attempt to use one of the existing models to determine if this material may remain undisturbed or if the site must be remediated prior to release for unrestricted use.

TARs addressing similar issues (subject and date):

Background documents (identify those not sent electronically): Site Status Report attached

Remarks:

Headquarter Reviewer:

Regional Reviewer: J. Henson B.A. PARKER

Reviewer Code: HO 28

Reviewer Phone No.: (404) 562-4738 FAX No.: (404) 562-4955

Request Needed by: 03/01/00 (date)

05/01/01

03 NRC REGION 2 404 202 4728 01/20 01 14:13 NO.078 05/00

**REGION II TERMINATED SITES LIST
SITE STATUS REPORT**

May 15, 2000

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 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.

DuPont

Background (cont'd)

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

Rll 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.

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.

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Assessment (cont'd)

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 that 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 1 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.

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.

Region II received the results and, upon review, noted no concerns. As of October 8, 1997, the licensee had not applied the BTP to their burial situation. Region II informed the licensee that the BTP had not yet been finalized, but that a submittal could be made under the draft BTP for review and evaluation.

As of April 23, 1998, the draft BTP had not been finalized, and the licensee had not made any other submittals. Region II is awaiting word from DWM regarding the status of the draft BTP.

As of September 24, 1998, the draft BTP was no longer scheduled to be finalized, and the licensee had not made any submittals. Region II is awaiting word from DWM regarding other guidance pertaining to prior burials in light of the new decommissioning rule.

As of February 4, 1999, the draft BTP was no longer scheduled to be finalized, and the licensee had not made any submittals. Region II is awaiting word from DWM regarding other guidance pertaining to prior burials in light of the new decommissioning rule.

On June 22, 1999, Region II contacted DuPont and noted that the status remained unchanged. Region II informed DuPont that the BTP would not be finalized and that Region II would check with DWM on how best to proceed. DuPont indicated that they would be interested in a plan of action in order to proceed.

DuPont

Assessment (cont'd)

In September 1999, DWM indicated that Region II should wait until soil contamination limits were finalized before proceeding with DuPont's burial issue. In December 1999, Region II contacted DWM, which recommended that the issue be sent to DWM as a TAR because additional guidance for subsurface contamination was not coming in the foreseeable future. Region II will review the issue and prepare a TAR by January 31, 2000.

The TAR was forwarded to DWM on May 15, 2000.

As of January 17, 2001, Region II had not received a response to the TAR.