

SITE HISTORY AND CHRONOLOGY

1. RECENT SITE HISTORY

The Maywood site is located at 100 W. Hunter Avenue, Maywood, New Jersey. The site includes commercial and residential properties in the Borough of Maywood and Lodi and the Township of Rochelle Park, New Jersey.

The Maywood site is a U.S. Nuclear Regulatory Commission (NRC) complex decommissioning site, listed on the U.S. Environmental Protection Agency's (EPA's) National Priority List (NPL), and is on U.S. Army Corps of Engineers's (USACE's) Formerly Utilized Sites Remedial Action Program (FUSRAP) site list. Stepan Company (hereinafter referred to as 'Stepan') owns most of the Maywood site and the U.S. Government owns a portion. In 1983, EPA listed the site on the NPL and has since issued an Administrative and a Unilateral Consent Order to Stepan for site cleanup. In 1984, pursuant to the Energy and Water Development Appropriation Act for Fiscal Year 1984, Pub. L. 98-50, Congress provided appropriations to the U.S. Department of Energy (DOE) for a decontamination research and development project at the site. DOE added the site to its FUSRAP program because contaminants on the Maywood site were similar to the contaminants found on FUSRAP sites. In 1985, Stepan and DOE entered into a Cooperative Agreement, through which DOE accepted a portion of the Stepan site in Maywood, New Jersey. Part I, Article IA of the Agreement states, in part: "This Cooperative Agreement is entered into by and between the United States of America (hereinafter referred to as the 'Government'), represented by the United States Department of Energy (hereinafter referred to as 'DOE' or the 'Department') and Stepan Company...." The Cooperative Agreement set forth the terms and conditions for the decontamination of property owned by the participant and the vicinity property owners. The property conveyed to the Government was for the purpose of creating an interim storage site to facilitate permanent disposal of radioactive waste generated as a result of decommissioning activities. The Stepan Company views this Cooperative Agreement as an obligation of the Government. The three licensed burial pits were not part of this transfer.

In 1997, Congress transferred the FUSRAP program from DOE to USACE. Currently, USACE plans to remediate the site under the Comprehensive Environmental Response, Compensation, and Liability Act with EPA oversight and NRC consent. In that regard, USACE recently submitted a letter of jurisdictional and procedural inquiry to NRC, asking four questions (Attachment 3). USACE submitted these questions after discussions and meetings it conducted with EPA, NRC, and its own project managers for the Maywood site, because of the multi-agency involvement.

There are three licensed burial pits containing thorium (Th) on the Maywood site. Burial Pit No.1 was created in 1966. It has about 6095 cubic meters (m^3) [8360 cubic yards (yd^3)], under what is currently a lawn on the east side of the property. Burial Pit No. 2 was created in 1967. It has about 1495 m^3 (2050 yd^3), at a location where a parking lot is currently located on the east side of the property. Total Th in both burial pits is about 8000 kilograms (kg) (17600 lb). Burial Pit No. 3 was created in 1986. It has about 6269 m^3 (8600 yd^3), at the southeast corner of the property. A large warehouse was later built on Burial Pit No. 3. Total Th in Burial Pit No.

3 is about 3700 kg (8140 lb). The locations of the burial pits are shown in Attachment 2, "Figure 1. Location of Burial Sites and Monitoring Wells."

The buried Th-contaminated material has remained in place; Stepan has monitored the burial pits, and will continue to monitor it in accordance with the terms and conditions of the license, until such time as the remediation is initiated. Stepan continues to monitor and report groundwater sampling results. In addition to the groundwater monitoring program, Stepan has committed to conduct direct gamma radiation surveillance at each burial pit. On January 18, 2000, NRC Region I staff conducted a safety inspection of the site and the licensed activities relating to radiation safety. The Region I inspection did not identify any violations.

2. CHRONOLOGY

- 1896 Maywood Chemical Works founded.
- 1916 Th processing begins at Maywood Chemical Works.
- 1954 License R-103 issued to Maywood Chemical Works.
- 1956 Maywood Chemical Works stops Th processing.
- 1959 Stepan Chemical Company buys Maywood Chemical Works.
- 1961 License STC-130 issued, authorized possession for resale only, no processing.
- 1963 Atomic Energy Commission (AEC) inspection identifies residues and tailings behind dikes as "slurry piles." Cleanup begins.
- 1966 Waste moved from area east of Route 17 to Burial Pit No. 1 (lawn), about 6093 m³ (8358 yd³).
- 1967 Waste moved from area east of Route 17 to Burial Pit No. 2 (parking lot), about 1497 m³ (2053 yd³). AEC inspection cites licensee for unauthorized burials in Burial Pits 1 and 2.
- 1968 Licensee requests permission to relocate additional waste. AEC grants permission to relocate waste. Waste moved from South Dike to third burial site, about 6269 m³ (8600 yd³). Licensee requests certain areas be released for unrestricted use. AEC conducts closeout survey and releases two areas for unrestricted use, including the South Dike.
- 1972 License STC-130 expires.
- 1978 License STC-1333 (current license) issued to Stepan Chemical Company.
- 1980 New Jersey Department of Environmental Protection (NJDEP) receives letter from private citizen reporting radioactive contamination found in area near Route 17, west of the site. Area survey confirmed radiological contamination. EPA notifies NRC Region I of contamination in vicinity of Stepan property. NRC presents radiation survey information to mayors of Maywood and Rochelle Park, and local press, and holds public meetings. NRC learns of existence of a third burial site not authorized by License STC-1333.
- 1981 NRC Region 1 begins special announced inspection (No. 40-8610/80-01). Presence of third burial site confirmed, and elevated radiation levels in unrestricted areas identified. Congresswoman Roukema meets with NRC. Aerial radiological survey of Maywood/Rochelle Park area

performed by EG&G Company. Based on the inspection, a Notice of Violation is issued to licensee for two violations:

- License STC-1333 requires that all licensed material be buried at two specific sites (Burial Pits 1 and 2). Contrary to this requirement, a third burial pit was identified.
 - Contrary to 10 CFR 20.105(b), radiation levels in unrestricted areas are found to exceed 20 microsievert/hour (2 millirem/hour) (mrem/hr), and 1 millisievert (100 mrem) in any 7 consecutive days.
 - NRC performs ground-contamination surveys in areas identified by aerial survey. Contamination is found in residential area, empty lot, and industrial area. NRC Region 1 presents survey information to NRC Headquarters staff, with representatives from Congresswomen Roukema's staff and EPA. NRC meets with the DOE, EPA, NJDEP, and Congresswoman Roukema, to discuss jurisdictional responsibility for remedial action. Civil penalty of \$20,000 is imposed on licensee for knowingly withholding information regarding the third burial pit.
- 1982 Amendment No. 1 to License STC-1333, authorizing storage of Th residues in Burial Pit No. 3, is issued. Amendment No. 2 to License STC-1333 is issued to authorize movement of contaminated residues detected on former licensee's property to fourth burial pit on site; however, material is never moved.
 - 1983 Stepan Chemical Company (Maywood site) is added to the EPA's NPL, based solely on the presence of radioactive contamination (1990 NPL ranking is No. 157). DOE is given authority to decontaminate and select disposal option.
 - 1984 DOE is given legal authority for Maywood site and vicinity properties through Energy and Water Development Appropriation Act for Fiscal Year 1984, Pub. L. 98-50. Act appropriates 2 million dollars for a decontamination research and development project at the site. DOE adds the site into the FUSRAP.
 - 1985 DOE and licensee enter into cooperative agreement to decontaminate licensee's property. Under cooperative agreement, licensee maintains existing license for storage of radioactive material in the three burial pits. After waste disposal option is selected, DOE will take title to the material. The license would then be terminated subject to NRC approval.
 - 1987 Amendment No. 3 to License STC-1333 is issued. Amendment No. 3 extends the expiration date of the license to April 30, 1992. License renewal application will be due at this time.
 - 1990 DOE and EPA Region II sign a Federal Facilities Agreement on the cleanup of the Maywood site.
 - 1992 Licensee submits letter to NRC for three changes: 1) rename Stepan Chemical Company to Stepan Company; 2) supersede environmental monitoring program; and 3) replace wells. Licensee requests renewal of license that expires April 30, 1992.

- 1997 Licensee requests postponement of decommissioning activities, based on the fact that DOE has responsibility for cleanup of FUSRAP sites. NRC approves postponement of decommissioning activities, and adds license condition for environmental monitoring. Congress, by the Energy and Water Development Act for Fiscal Year 1998, transfers the administration and management of the FUSRAP from DOE to USACE.
- 1998 Licensee submits letter to NRC confirming that license renewal is not required.
- 2000 NRC Region 1 conducts safety inspection (No. 040-08610/00-001). No violations are identified; however, NRC finds licensee failed to perform isotopic analysis on groundwater sample exceeding 0.55 becquerel/liter (15 picocurie/liter). NRC meets with EPA and USACE project managers and staff, to discuss options to proceed with decommissioning at the Maywood site. As a result, USACE sends letter to NRC, asking questions on jurisdictional and procedural requirements for remediation. NRC acknowledges receipt of USACE letter.