

## TRIP REPORT

**To:** File

**From:** Yolande Norman (U.S. NRC- Project Manager)

**Site Visit:** April 11, 2012

**Re:** Site Tour of the Stepan Maywood Site (Stepan)

**Location:** 100 W. Hunter Avenue, Maywood, New Jersey

**License No:** Source Material License No. STC-1333,

**Docket No:** 040-8610

**Purpose:** To discuss the status of the Stepan Maywood Site

**Participants:** U.S. Nuclear Regulatory Commission (NRC)  
Yolande Norman – project manager, Kimberly Conway, Varughese Kurian,  
Mark Roberts – Region 1  
U.S. Army Corp of Engineers (USACE)  
James Moore, David Hays, Helen Edge  
Shaw Environmental and Infrastructure (Shaw)  
William Kollar

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### Background

The Stepan Maywood site is licensed by the NRC and is also a part of the Maywood Chemical Company Superfund Site administered by the U.S. Environmental Protection Agency's (EPA) that is on the National Priority List (NPL). The Maywood Chemical Company Superfund Site includes other parcels of land in the Boroughs of Maywood, Lodi, and the Township of Rochelle Park, Bergen County, New Jersey. A portion of the Maywood Chemical Company Superfund Site is also designated as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP) that is delegated to the USACE to conduct cleanup under Comprehensive Environmental Response Liability Act (CERCLA).

The licensed Stepan Maywood site is designated a FUSRAP site under USACE's CERCLA authority. In July 2001, a Memorandum of Understanding [66 FR 36606] was executed between the NRC and USACE to minimize dual regulation.

The FUSRAP Maywood Superfund Site that is under the responsibility of USACE, comprises 88 designated industrial, residential, commercial, and government properties contaminated by former thorium processing activities. These areas include the following.

- *The Stepan Company* [former location of the Maywood Chemical Works (MCW)] and the three (3) burial pit licensed by the NRC "Stepan Maywood Site";
- *Maywood Interim Storage Site* (MISS) – property owned by the Federal government; and,
- *Vicinity Properties* which include other government, commercial and residential properties in Maywood, Lodi and Rochelle Park.

The licensed Stepan Maywood Site encompasses three burial pits where thorium processing disposal occurred at the Maywood Chemical Works facility. This site is currently owned by the Stepan Company and comprises approximately 18.2 acres. The three (3) licensed burial pits contained approximately 19,000 cubic yards of thorium (Th) waste. Burial Pit No. 1 was created in 1966 and comprised approximately 6095 cubic meters (m<sup>3</sup>) [8360 cubic yards (yd<sup>3</sup>)], located under what is currently a lawn on the east side of the property.

Burial Pit No. 2 was created in 1967 and comprised approximately 1495 m<sup>3</sup> (2050 yd<sup>3</sup>), located beneath a parking lot located on the east side of the property. Total Th in both burial pits was approximately 8000 kilograms (kg) (17600 lb). Burial Pit No. 3 was created in 1986 and comprised approximately 6269 m<sup>3</sup> (8600 yd<sup>3</sup>), 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 was approximately 3700 kg (8140 lb).

The selected remedial strategy at the Stepan site was to excavate and dispose of FUSRAP material from the burial pits as outlined in the *Record of Decision* dated September 22, 2003. The cleanup criteria were based on residual concentrations for Ra-226, Th-232, and total uranium and were intended to be sufficiently low as to meet the NRC's radiological criteria for unrestricted release in 10 CFR Part 20.1402 (25 millirem/year). On October 21, 2008, the NRC executed a Confirmatory Order to suspend Stepan's License, contingent upon USACE notifying the NRC that they have taken physical possession of all, or part, of the licensed site. In December 2008, August 2009 and January 2010, USACE notified the NRC that it had taken physical possession of Burial Pits No. 3, 2 and 1, respectively. Accordingly, License STC-1333 was suspended in its entirety.

On May 20, 2009, Stepan Company requested a license amendment, and on October 21, 2009, the NRC issued License Amendment No. 4 to Stepan to continue submitting quarterly groundwater monitoring reports for on-site wells, quarterly sampling for dissolved gross alpha activity and, or for dissolved specific radionuclides and to exclude one of the monitoring well (i.e. MW No. 6) from future monitoring requirements because it was no longer accessible for sampling.

On April 14 and June 11, 2010, Stepan requested approval from the NRC for the disposal of 1500 yd<sup>3</sup> stockpiled soil as an "unimportant quantity of source material" to a RCRA Subtitle C landfill under the criteria discussed in Title 10 CFR 40.13(a). On October 6, 2010, NRC responded to Stepan's disposal request indicating that although the soils exhibited low concentrations of radiologic constituents, the NRC cannot approve the 10 CFR 40.13(a) request because all licensed material at the Maywood site including material located outside the burial pit is considered 11e.2 byproduct material under the Atomic Energy Act of 1954 as amended.

On February 14, 2012, USACE provided a 90-day notification letter to the NRC indicating their intent to relinquish physical control of the three (3) licensed burial pits on May 7, 2012. According to USACE, its response action under CERCLA for the licensed FUSRAP portion of the Stepan site has been completed. Final copies of the Post-Remedial Action Reports (PAR) were submitted to the NRC by USACE for all three (3) burial pits. These reports are currently under review by the NRC staff. Copies of the PARs were also sent to the USEPA and to New Jersey for review.

### **On-Site Meeting**

#### ***Stepan Maywood Site –NRC Licensed Facility***

Upon our arrival at the Stepan site, NRC's staff met briefly with a representative of Stepan Company (Mark Stanek) at their on-site office to discuss the current status of the project and a path forward for license termination.

- Stepan expressed an interest in moving forward with license termination. Originally, a 1 month timeline was Stepan's target to submit a license termination package to the NRC (i.e. circa mid-June 2012). However, Stepan acknowledged that this timeline would have to be delayed because they have yet to engage in further discussion with their consultant – Henry Morton.
- The NRC staff stated that at a future date a teleconference discussion with Stepan and their consultants will be held to identify potential data gaps prior to the submittal of their license termination package.
- Given that Stepan is relying on USACE's documentation, the NRC cautioned that these reports typically placed emphasis on the CERCLA process, thus the onus would be on Stepan in presenting the information in a manner that fulfills the NRC's criteria. For example, the PARs alluded to restricted and unrestricted release with respect to land use designation and New Jersey's cleanup criteria. However, for purposes of

license termination, the NRC's evaluation will consider if the site meets the 25 millirem/year (mrem/yr) criteria for unrestricted release, irrespective of whether the land use is residential, commercial or industrial.

- Of interest to Stepan is the cost-effective disposal of the soil stockpile previously identified as "unimportant quantity of source material" after License No. STC-1333 is terminated.
- Stepan will continue to conduct groundwater sampling in accordance with License No. STC-1333 until the license is terminated.

After the conclusion of the Stepan meeting, NRC staff met with representatives of USACE at their on-site office to discuss the path forward for the Corps to relinquish physical control of the site and for Stepan's license to be reinstated in anticipation of future license termination.

- USACE raised the issue as to whether Stepan would have to await the cleanup of the entire Maywood Superfund Site prior to requesting license termination from the NRC. Apparently language in the Settlement Agreement – 2004 between the Government and Stepan Company stated in Section IV(8) *"Stepan shall not request termination of the most recently issued NRC storage license for radioactive waste until after the Corps has completed its remedial activities on Stepan Maywood's property."*
  - NRC's response was that there seems to be a disconnect between the Settlement Agreement - 2004 and the Memorandum of Understanding (MOU) – 2001 between USACE and the NRC. Moreover the Confirmatory Order – 2008 executed between the NRC and Stepan was predicated on language in the MOU.
  - Given the legalities of the issue raised, the matter would be deferred to the Office of General Counsel for further clarification.
- USACE stated that the final copies of the PARS incorporated minor comments from New Jersey and the EPA. NRC staff requested a copy of USACE's responses to the aforementioned regulatory entities.
- NRC enquired about the working relationship with the State of New Jersey and the EPA. According to USACE the working relationships with the aforementioned entities have been productive and cooperative.
- Approximately 25,000 yd<sup>3</sup> of soil was excavated from all 3 burial pits. The original estimated volume for soil removal from the burial pits was 19000 yd<sup>3</sup>.
- Remediation activities have been completed for all three burial pits.
  - Pit No.1 located on the fringes the Stepan's office complex was re-landscaped. Although elevated measurements were identified at the base of the excavation, at approximately 20ft depth, this residual contamination is bound in the cracks of the bedrock.
  - Pit No. 2 was regraded with asphalt and is the elevated portion of the visitors/employee parking lot
  - Pit No. 3 was regraded and has newly paved asphalt.
- Several technical aspects of the PARs were discussed:
  - Applicability of the Unity Rule. USACE response was that the Unity Rule was not applied because Uranium (U) was not an issue at the site (see Feasibility Study -2004 for further discussion).
  - Clarification was also requested about the conversion of the walkover survey results (i.e. cpm) into cleanup goals. According to USACE, the MARSIMM approach was utilized to derive the statistical analysis for the number of samples to be collected (+16/18 samples). In addition, the walkover surveys were utilized to derive the investigation levels.
  - USACE explained that in the Feasibility Study – Appendix C, there was a discussion on the use of the RESRAD model for the entire Maywood site.
  - NRC staff acknowledged that although no trend analysis have been conducted for groundwater samples collected to date, qualitatively the data demonstrates minimal to no impact during excavation activities in the burial pits.

#### *Other Portions of the FUSRAP Maywood Superfund Site*

- To date approximately 350,000 yd<sup>3</sup> of soil have been excavated from the Maywood Superfund site, including the material excavated from the 3 burial pits.
- Original estimates for the volume of soil to be excavated from the remainder of the Maywood FUSRAP project is 150,000 yd<sup>3</sup>. However, USACE have revised this estimate to approximately 450,000 yd<sup>3</sup> for the remainder of the project. .
- The remainder of remediation activities by USACE is expected to be completed in 10+ years. This timeline will accommodate excavation of material beneath the SEARS building which will be demolished in 2016. In addition, the relocation and expansion of State Route 17, which is certain to uncover more contaminated soils for removal.
- NRC's project manager outlined the sequence for license reinstatement and termination.
- In 2013, Shaw's contract will be expiring.
  - By November/December 2012 a new contractor will be onboard to complete remediation activities.

#### *Action Items*

- NRC to provide a copy of the Confirmatory Order to USACE.
- USACE to provide copies of their response to New Jersey and EPA comments on the PARS to the NRC.
- USACE to provide electronic copies of the Department of Energy, Cooperative Agreement -1985 and the Settlement Agreement -2004.
- USACE to provide a copy of the Final Status Survey- Appendix C.