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Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

for Maywood, New Jersey



U.S. Department of Energy



USEPA - Region 2

Maywood Chemical Company Site
Maywood, New Jersey

Superfund Update

November, 1993

EPA RELEASES RISK ASSESSMENT FOR THE MAYWOOD CHEMICAL COMPANY SITE

Under the direction of the U.S. Environmental Protection Agency (EPA), Stepan Company is nearing completion of an investigation to characterize the nature and extent of chemical contamination at the Maywood Chemical Company Superfund site. In conjunction with this effort, EPA recently completed a Risk Assessment for the site. This fact sheet highlights the findings of the Risk Assessment and provides an overall status report of the investigation. The fact sheet is part of an ongoing effort to fully inform the public of current and future investigation/remediation activities at the site.

SITE DESCRIPTION

The Maywood Chemical Company site consists of three connected areas: the Stepan property, the Sears and adjacent properties, and the Maywood Interim Storage Site (MISS), owned by the U.S. Department of Energy (DOE). The site also includes certain vicinity residential and commercial properties (see the site map on the next page). The northern portion of the site is the Stepan Company property. The MISS forms the western boundary to the Stepan Company property. The Sears and adjacent properties (which include the Gulf, Federal Express, Sunoco, and Desaussure properties) are to the south and are bounded by Route 17 and Maywood Avenue to the west and east, respectively. The site is located in Bergen County, New Jersey.

SITE BACKGROUND

Maywood Chemical Company was involved in the extraction of thorium from 1916 through 1955. The residues or tailings from the process operation, clay-like dirt, contained significant quantities of low-level radioactive materials. In addition, other processing operations generated various other types of waste products (such as lanthanum, lithium compounds, and tea and cocoa leaves). Some of these tailings were removed over a period of time from the

company's property and used as fill nearby. In 1959, the Stepan Chemical Company (later the Stepan Company) purchased the Maywood Chemical Company.

In October 1980, the New Jersey Department of Environmental Protection (NJDEP), now the New Jersey Department of Environmental Protection and Energy (NJDEPE), investigated a citizen complaint about radioactive contamination at an area near Route 17 in Maywood and Rochelle Park, New Jersey. From 1980 through 1983 radiological surveys/sampling was performed in the area by NJDEP, EPA, and the DOE. Testing revealed extensive low-level radionuclide contamination at several locations. These studies were the basis for the site being included on the National Priorities List (NPL) in 1983.

From 1984 through 1986, DOE, acting under its authority through the 1984 Energy and Water Appropriations Act (PL 98-50) which specifically addressed the Maywood site, investigated and removed over 35,000 cubic yards of soil and debris from nearby residential properties. This material was stockpiled and secured at the MISS which is owned by DOE and located on 11.7 acres of land that was previously owned by Stepan Company.

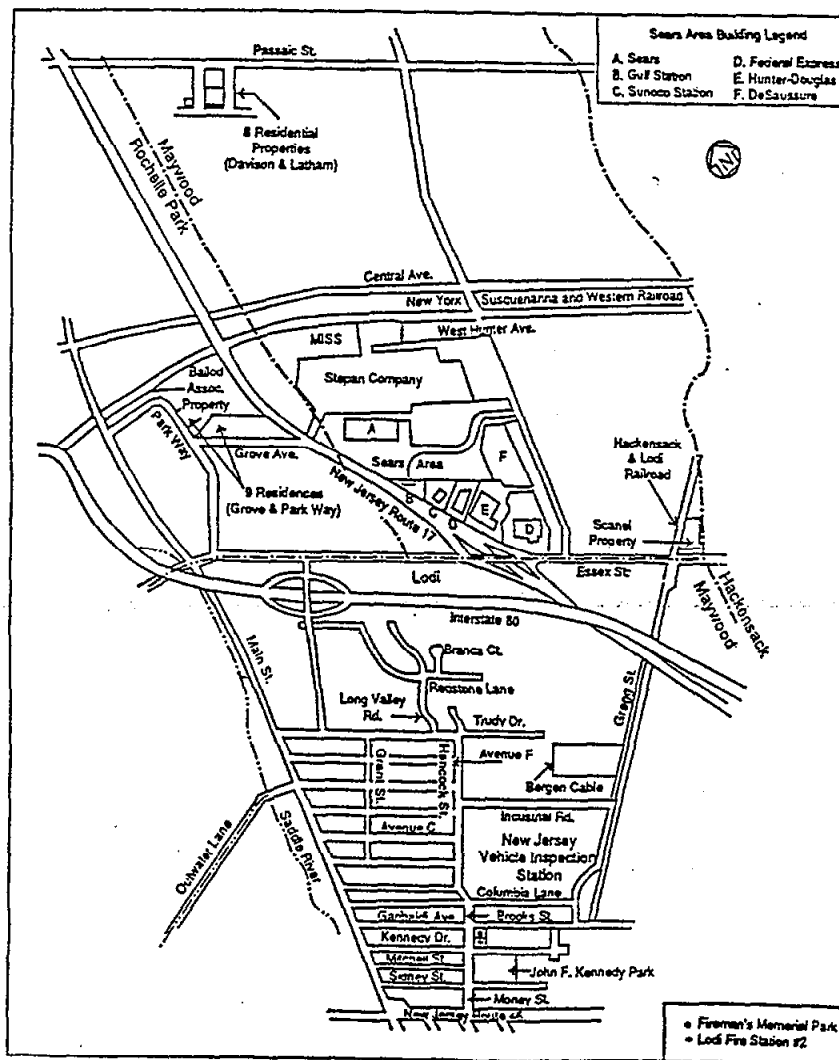
In 1986, in conjunction with DOE's radiological characterization of the Sears and adjacent properties, EPA performed a preliminary study of chemical, non-radioactive pollutants. EPA's study indicated the presence of elevated concentrations of volatile organics, base/neutral acid extractables, metals, pesticides, and other hazardous substances.

In 1987, Stepan Company entered into an Administrative Order on Consent with EPA to perform a remedial investigation/feasibility study (RI/FS) on the Sears and adjacent properties, focussing on chemical, non-radiological contamination.

In late 1987 through spring 1988, still in conjunction with DOE's studies and investigations, EPA collected split samples of soil and groundwater on the Stepan Company property. The data indicated the presence of radiological and non-radiological contaminants in the soil and groundwater. In January 1989 EPA informed Stepan Company of these findings. EPA requested Stepan Company to expand the scope of the investigation provided in the consent order to include an investigation on its property as well. Stepan Company agreed; however, EPA and Stepan Company could not agree upon the technical details of the project. In June 1991, Stepan Company was ordered to perform the expanded RI/FS as presented by EPA. Field activities began in late 1991.

RESPONSIBILITIES

The Maywood Chemical Company site is contaminated with both radionuclides and non-radioactive chemicals. In 1984 the Energy and Water Appropriations Act (PL 98-50), directed the DOE to conduct a radiological decontamination research and development project at four sites, one of which is the Maywood Chemical Company site. DOE's responsibilities include remediation of that portion of the site which is contaminated with radiological material above DOE/EPA action levels. DOE is also responsible for all contamination (radiological and non-radiological) at the MISS. Through an Interagency Agreement entered into by EPA and DOE, EPA is overseeing the DOE investigation.



Stepan Company, acting as Responsible Party (RP), is performing the remedial investigation of non-radiological, chemical contamination at the Maywood Chemical Company site under EPA oversight.

PAST ACTIONS

Stepan Company began its field investigation on a portion of the Maywood Chemical Company site (the Stepan Company property and the Sears and adjacent properties) in November, 1991. The field investigation included: taking shallow and deep soil samples to determine the extent of chemical contamination and the ability of contaminants to leach into groundwater (many non-radiological chemicals have a greater ability to leach and travel further into the subsurface than do radiological contaminants); drilling and sampling shallow and deep monitoring wells to determine the extent of contamination in groundwater; and sampling sediment and surface water to check contaminant migration pathways. The investigation also included an intensive geophysical and test-pit survey to determine whether buried objects such as drums containing chemical waste are present at the site.

Sampling parameters throughout the investigation included volatile organic and non-volatile organic compounds, metals, and radionuclides. EPA oversaw the field investigation and took "split" samples (i.e., samples that literally get split; Stepan Company gets a portion and has it analyzed at a laboratory and EPA gets another portion and has it analyzed at a different laboratory. This is often done at Superfund sites where the investigation is being performed by a RP - it serves as a data quality assurance check). The first phase of the two phase field investigation ended in late summer, 1992. A draft Remedial Investigation Report was submitted to EPA in early March, 1993.

EPA PERFORMS RISK ASSESSMENT

In conjunction with the remedial investigation, EPA performed a baseline risk assessment to determine whether the contaminants found at the Stepan Company property and the Sears and adjacent commercial properties pose a threat to human health or the environment under current or future land use scenarios, if no action is taken. The human health risk

assessment consists of four parts:

- (1) *hazard identification* - identifying those contaminants which pose the greatest risk;
- (2) *exposure assessment* - an evaluation of the magnitude of actual or potential exposure to contaminants (i.e., chemical concentrations), the frequency and duration of the exposure, and the pathways by which humans are potentially exposed (e.g., contaminated soil ingestion). For example, one of the exposure assessment scenarios used in this risk assessment includes a future child resident living on the site (no children live on the site currently) who ingests quantities of soil over a period of time;
- (3) *toxicity evaluation* - describes the toxicological effects to humans from exposure to each chemical contaminant of concern; and
- (4) *risk characterization* - summarizes and combines the output of the exposure and toxicity assessments to estimate the carcinogenic and noncarcinogenic risks to human health attributable to site-related chemical contaminants.

The methodology used to determine ecological risk is somewhat similar to that of human health. The habitat and species of the site are described. Contaminants of concern (from an ecological standpoint) are selected and potential exposure pathways are identified. Based on exposure concentrations and an ecological effects assessment, the risk to biota at the site is determined.

FINDINGS OF EPA RISK ASSESSMENT

Human Health Risk

Results of the quantitative risk assessment indicate that, under current site conditions, chemical contaminants in site media (soil, sediment, surface water, and groundwater) do not pose a threat to human health. Under certain future conditions, however, contaminated groundwater and surface soil at the site potentially pose a significant risk.

For example, there is a potential future risk if a home is built on the site and the homeowner installs a drinking water well in an area affected by site groundwater contamination, or if contaminated groundwater migrates to a drinking water well. It is important to note that

currently, citizens living near the Maywood site are hooked up to a public drinking water supply which is not affected by site contamination.

In another example, there is a potential future risk if a home is built on the site and a child resident is exposed to surface soil contaminants on a continuous basis. However, because of different exposure scenarios, a child trespasser - one who periodically plays at the site, is not subject to a significant risk.

It should be noted that certain portions of the site that may not show a threat with respect to chemical contaminants, may show a significant risk with respect to radionuclides. Those areas will be remediated pursuant to the upcoming Department of Energy activities.

Ecological Risk

Due to the extensive development of the site and surrounding areas, receptor species are expected, in general, to be limited. However, species are likely to inhabit the wetlands present at the site (near the entrance to the Sears property). Surface water concentrations of aluminum, cyanide, iron, and lead in the intermittent streams on the Sears property may result in adverse chronic impacts to aquatic receptors which may inhabit the area. Maximum detected concentrations of copper, lead, zinc, and aluminum may also result in acute toxicity to aquatic biota.

Sediment concentrations of cyanide and polycyclic aromatic hydrocarbons (such as pyrene, chrysene, and benzoperylene) provide the greatest risk to ecological receptors. Potential receptors located at higher trophic levels (such as woodchucks and raccoons), however, would not be expected to be adversely affected as polycyclic aromatic hydrocarbons do not biomagnify with food chains due to their more rapid metabolism.

FUTURE ACTIONS

Based on the preliminary findings of the remedial investigation, EPA, in May, 1993, requested that Stepan Company (which is conducting the investigation) perform additional work to further delineate "hot spots" of surface and subsurface soil contamination. These areas may be continuing sources of groundwater contamination at the site. Stepan Company complied with this request. During the summer

of 1993, it conducted a soil gas survey and installed additional soil borings on its property to meet these objectives. It also performed an additional round of groundwater sampling at all existing monitoring wells (this sampling event was performed in conjunction with DOE) and, to determine the technical viability of pumping and treating groundwater, Stepan installed pumping wells and is conducting pump tests at the site.

The results of the "phase II" activities mentioned above will be incorporated into a Remedial Investigation Report and Feasibility Study which will be submitted to EPA at the end of January, 1994. If the additional data have a significant impact on the Risk Assessment Report, an addendum will be developed by EPA and placed in the Administrative Record.

EPA intends to submit, for public review, a proposed remedial action plan for chemical contamination at the Maywood site in summer, 1994.

FURTHER INFORMATION

For additional information concerning EPA activities at the Maywood Chemical Company site, please contact Jeffrey Gratz, EPA Project Manager, at (212) 264-6667 or Pat Seppi, Community Relations Coordinator, at (201) 783-1765.

We encourage the community to visit the information repository where the Risk Assessment and other relevant site documents describing technical work at the site are available for review. The information repository is at the following location:

Maywood Public Library
459 Maywood Avenue
Maywood, New Jersey 07607