

Union
5.4
#27137

**DECLARATION FOR THE
EXPLANATION OF SIGNIFICANT DIFFERENCES**

SITE NAME AND LOCATION

Union Chemical Company Inc. Superfund Site
South Hope, Maine

STATEMENT OF PURPOSE

This decision document sets forth the basis for the determination to issue the attached Explanation of Significant Differences (ESD) for the Union Chemical Inc. Superfund Site in South Hope, Maine.

STATUTORY BASIS FOR ISSUANCE OF THE ESD

Under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), if EPA determines that the remedial action at a Site differs significantly from the Record of Decision (ROD) for that Site, EPA shall publish an explanation of the significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made. Section 300.435(c) of the National Contingency Plan (NCP), and EPA guidance (OSWER Directive 9355.3-02), indicate that an ESD, rather than a Record of Decision (ROD) amendment, is appropriate where the changes in issue do not fundamentally alter the overall remedy with respect to scope, performance, or cost. Because the adjustments to the remedial action do not fundamentally alter the overall remedy for the Site with respect to scope, performance or cost, this ESD is properly being issued.

In accordance with Section 300.435(c) of the NCP, this ESD will become part of the Administrative Record which is available for public review at both the EPA Region I Record Center in Boston, Massachusetts and the Hope Town Hall in Hope, Maine. In addition, a notice that briefly summarizes this ESD will be published in a major local newspaper of general circulation.

OVERVIEW OF THE ESD

The 1990 ROD for the Union Chemical Company, Inc. Superfund Site (Site) required that the selected remedy include offsite soil sampling based on meteorological data collected at the Union Chemical Company Site. The limited action for offsite soils was set in two stages: first, air modeling of one year of onsite data and subsequent sampling and analysis of offsite soils; and second, air modeling of four more years of meteorological data and then evaluation of the need for additional offsite soil sampling.

By this ESD, EPA is decreasing the length of time for meteorological data collection from five years to three,



replacing the two air modeling simulations with one modeling simulation and a comparison of the three years of data, and accelerating the time table for sampling and analysis of the off-site soils. Although the duration for meteorological data collection has been shortened, the expanded sampling effort met the purpose of the ROD and allowed the agencies to more quickly address the concerns of the community.

These adjustments to the remedial action do not fundamentally alter the overall remedy for the Site with respect to scope, performance or cost.

PUBLIC COMMENT

The changes in the approach to the limited action for offsite soils were developed in a series of meetings with the Hope Committee for a Clean Environment (HCCE), Maine Department of Environmental Protection (MEDEP), and the Potentially Responsible Parties' (PRPs) coordinator. As a result of the community input, sampling was expanded from the areas identified by the air modeling to incorporate the personal observations of community members present during the operation of the Union Chemical Company.

DECLARATION

For the foregoing reasons, by my signature below, I approve the issuance of an Explanation of Significant Differences for the Union Chemical Company, Inc. Superfund Site in South Hope, Maine and the changes stated therein.

9/25/97
Date

Harley F. Laing
Harley F. Laing, Director
OSRR
U.S. EPA, Region I

**EXPLANATION OF SIGNIFICANT DIFFERENCES
UNION CHEMICAL COMPANY, INC. SUPERFUND SITE
SOUTH HOPE, MAINE**

I. INTRODUCTION

A. Site Name and Location

Site Name: Union Chemical Company, Inc. Superfund Site

Site Location: South Hope, Knox County, Maine

B. Lead and Support Agencies

Lead Agency: United States Environmental Protection Agency
(EPA)

Support Agency: Maine Department of Environmental Protection
(MEDEP)

C. Legal Authority

Under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section 300.435(c) of the National Contingency Plan (NCP) and EPA guidance (OSWER Directive 9355.3-02), if EPA determines that differences in the remedial action significantly change but do not fundamentally alter the remedy selected in the Record of Decision (ROD) with respect to scope, performance, or cost, EPA shall publish an explanation of the significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made.

D. Summary of this Explanation of Significant Differences (ESD)

The 1990 ROD for the Union Chemical Company, Inc. Superfund Site (Site) required that the selected remedy include offsite soil sampling based on five years of on-site meteorological data. By this ESD, EPA is changing the length of time for meteorological data collection and the time table for sampling and analysis of the off-site soils. Although the duration for meteorological data collection has been shortened by this ESD, the expanded sampling effort met the purpose of the ROD and allowed the agencies to more quickly address the concerns of the community.

E. Availability of Documents

This ESD shall become part of the administrative record for the Site. Documents which support the issuance of this ESD may be found in the Supplement to the Administrative Record. Both the

ESD and the administrative record are available to the public at the following locations and may be reviewed at the times listed:

U.S. Environmental Protection Agency
Records Center
90 Canal Street
Boston, MA 02114
Weekdays: 10:00 a.m. - 1:00 p.m., 2:00 - 5:00 p.m.

Hope Town Hall
Hope, Maine 04072
Tues, Wed, Fri: 10:00 a.m. - 5:00 p.m.
Thurs: 10:00 a.m. - 8:00 p.m., Sat: 9:00 a.m. - noon

II. SUMMARY OF SITE HISTORY, ENFORCEMENT HISTORY AND SELECTED REMEDY

A. Site History

The Union Chemical Company was incorporated as a paint stripping and solvent manufacturing business, and began operations in South Hope, Maine in 1967. Initially, patented solvents were manufactured and utilized on the premises, as well as distributed nationally. The company expanded operations to include recycling of used stripping compounds and solvents from other businesses. Operations were further expanded in 1982 to include a full-scale, fluidized-bed incinerator.

Groundwater contamination beneath the site and contamination of Quiggle Brook was first discovered by MEDEP in late 1979. A study conducted for the Union Chemical Company in 1981 found that two contaminated groundwater plumes were present in the area between the facilities and Quiggle Brook. Volatile organic compounds (VOCs), similar to those processed by Union Chemical Company, were the principal contaminants observed in the plumes and Quiggle Brook.

MEDEP closed the hazardous waste treatment operations at the Site in June 1984, at which time approximately 2,000 - 2,500 55-gallon drums and 30 liquid storage tanks were found on the Site. All of these drums, all but two of the tanks, and their contents were removed by EPA and MEDEP by the end of November 1984.

A Remedial Investigation/Feasibility Study (RI/FS) and Human Health Risk Assessment was performed by the responsible parties under an EPA order. The risk assessment indicated that there would be an unacceptable carcinogenic and non-carcinogenic risks from future ingestion of the groundwater at the Site. The results of the RI and risk assessment were used to evaluate potential cleanup alternatives in the FS. The EPA preferred

cleanup approach was proposed to the public in the summer of 1990 and a Record of Decision (ROD) was signed in December 1990.

B. Enforcement History

Between 1979 and 1984, MEDEP cited the plant for deficiencies in and/or violations of several operating licenses. A state court ordered that the Union Chemical Company be evicted from the Site in 1986, and appointed MEDEP as the receiver of the property. All site operations ceased at that time.

The Site was first proposed in April 1985 for inclusion on EPA's Superfund National Priorities List (NPL), the roster of sites eligible for long-term cleanup funds. The Site was later re-proposed in June 1988 and formally included on the NPL in October 1989.

In the fall of 1987, EPA and MEDEP reached agreements with approximately 290 PRPs in the form of two Administrative Orders by Consent which required the PRPs to begin investigations aimed at identifying remedial alternatives for the Site and reimburse EPA and MEDEP for past costs. In August 1989, several additional PRPs signed a Consent Decree by which EPA was reimbursed for all remaining past response costs incurred at the Site through May 1987, plus interest and enforcement costs.

Following the signing of the ROD, EPA negotiated with 375 PRPs for the performance of the selected remedy. EPA reached two settlements as a result of these negotiations. The first was a De Minimis settlement with 267 parties who had contributed less than 10% of the waste at the Site. The second settlement was with 67 De Maximis parties. This settlement required the Settling Defendants to perform the selected remedy and to reimburse EPA for \$2.8 million in past and future costs.

C. Remedy Selected in the 1990 ROD

The remedial action selected in the 1990 ROD is a comprehensive approach for overall remediation of the site which addresses four areas: facilities, on-site source soils, groundwater, and an evaluation of off-site soils surrounding the Site. The approach for each area is briefly described below.

Facilities Decontamination and Demolition, and Off-Site Disposal of Debris

The ROD called for the facilities to be decontaminated, concrete structures crushed, asbestos in the still building containerized, and then all material to be disposed off-site in appropriate facilities. The facilities decontamination and demolition activities were completed in May 1994, and the debris was sent offsite.

Soil Excavation and On-Site Low-Temperature Soil Aeration Treatment

The ROD provided that the contaminated soils were to be excavated and treated on-site using a low-temperature soil aeration or equivalent process. Treated soils were to be backfilled on the Site, and the Site regraded and seeded.

In 1994, EPA, after receiving comment from MEDEP and the citizen's group, Hope Committee for a Clean Environment (HCCE), changed the soil clean-up technology from low-temperature aeration to soil vapor extraction. This technology was installed in 1995 and began operation in February 1996 (see June 1994 ESD detailing this change).

Vacuum-Enhanced Groundwater Extraction, On-Site Groundwater Treatment, and On-Site Discharge of Treated Groundwater into Quiggle Brook

The ROD required that the contaminated groundwater would be extracted and treated using ultraviolet (UV)/oxidation and other appropriate technology and the treated groundwater would be discharged to Quiggle Brook. The vacuum-extracted contaminated soil gasses would be collected and treated prior to discharge to the atmosphere. This technology was also installed in 1995 and began operation in February 1996.

Monitoring for Off-Site Soils

The ROD included offsite soil sampling based on meteorological data collected onsite. The limited action for offsite soils was set in two stages: first, air modeling of one year of onsite data and subsequent sampling and analysis of offsite soils; and second, air modeling of four more years of meteorological data and then evaluation of the need for additional offsite soil sampling. Throughout all phases of this data collection and analysis effort, EPA would determine if additional remedial actions were required for off-site soils.

FIVE-YEAR REVIEW

As required by law, EPA will review the Site at least once every five years after the initiation of remedial action if any hazardous substances, pollutants or contaminants remain at the Site to assure that the remedial action continues to protect human health and the environment. EPA will also evaluate the risks posed by the Site at the completion of the remedial action (i.e., before the Site is proposed for deletion from the NPL).

III. DESCRIPTION OF SIGNIFICANT DIFFERENCES

This ESD changes the duration and time table for the limited action for offsite soils. This change is based upon a substantial amount of information that was collected since the ROD. The information includes:

- Air Modeling Protocol Report, Foster Wheeler Environmental, July 1995;
- Air Emission Modeling Study, Foster Wheeler Environmental, February 1996;
- US EPA field and laboratory soil data, September 1996;
- Off-Site Soils Supplemental Sampling and Analysis Report, Rizzo Associates, Inc., April 1997;
- Quarterly Audit Reports, Foster Wheeler Environmental, 1993 - 1997;
- Comparison Report, Foster Wheeler Environmental, May, 1997; and
- Independent evaluation by Maine DEP.

These documents, and correspondence relating to these reports and process, have been added to the Supplement of the Administrative Record.

Rationale

Using air modeling results to specify sampling locations, soil samples were collected during the RI to the north and east of the site. The sampling results showed no pattern or concentration of contamination which could be associated with the Union Chemical Company incinerator. Sample results did indicate elevated lead concentrations in two locations on a residential property east of the site, but the concentrations were below the Maine Action Level. However, since these modeling results were based on meteorological data from Augusta, Maine, 26 miles to the west, the public was concerned that the air patterns local to the Site were different than those recorded in Augusta. As a result, the ROD required that five years of onsite meteorological data were to be collected and modeled.

The five year period for data collection was chosen to allow for a more accurate estimate of local weather patterns and avoid using abnormal weather conditions to model dispersion and deposition of airborne materials from the incinerator. However, when the modeling simulations of the first year of data indicated patterns quite similar to those depicted with the Augusta data, EPA, Maine DEP, HCCE, and the PRPs' coordinator decided to reexamine the scope of the meteorological data collection effort.

The purpose of the limited action for offsite soils, as outlined in the 1990 ROD, was to address concerns that airborne material from the incinerator had impacted residential property, identify any areas negatively impacted and take corrective action. The parties noted above decided to expand the sampling effort based on the first year's air modeling data and forego the requirement for four additional years of meteorological data collection and modeling. This decision was based on four conditions:

- Areas beyond the deposition areas identified by the model but identified by community members based on personal observations would be included in the sampling effort;
- The sampling effort would be more comprehensive (i.e., more locations which would be sufficient to provide statistical confidence);
- Follow-up sampling would be performed if the first sampling effort found elevated lead concentrations; and
- Meteorological data collected during 1995 and 1996 while the modeling reports and sampling were being performed would be compared to the 1994 meteorological data.

Modeling and Sampling Results

At the completion of the first full calendar year of on-site meteorological data collection (1994), two comparisons were made: the Augusta data was rerun using the current air model used by MEDEP and EPA and compared to the results reported in the RI; and second, the model results using the 1994 meteorological data were compared to the RI results. There were no significant differences between the outputs of the Augusta data from the RI model and the 1994 model. The second comparison also indicated only minor variations between the Augusta model output and the South Hope output. All of the model simulations, including those completed for the RI, indicated dispersion to the north and east. The South Hope simulations suggested a slightly smaller area of dispersion to the north and a slightly larger area to the east. In addition to the dispersion modeling, depositional modeling was also performed with the South Hope data.

With this information, the agencies met with HCCE and the PRPs coordinator and consultant. Together a sampling approach was developed and the PRPs conducted out in July 1996. The selected twenty-five sampling locations included areas indicated by the air modeling as well as areas identified by community members. Concentrations of lead were found to be elevated in two sampling locations, both to the east of the site with one between a residence and a garage and the other in a wooded area. These concentrations were below the Maine Action Level, but were

similar to the elevated concentrations detected in the RI, and in the same general area.

In September 1996, EPA and the PRPs consultant expanded the sampling effort around these two locations and the two locations identified in the RI sampling, collecting over 110 samples from locations set out on a 25-foot by 25-foot grid. Analysis using field equipment suggested random distribution of lead, with the exception of soils in close proximity (within twenty feet) to buildings. Elevated lead concentrations were found in four general areas on Harts Mill Road: within twenty feet of two residences; an area between one of the residences and their garden; and in a wooded area along the rock wall on the southern boundary of one of the residences.

The detection of background lead concentrations in the yard between the two residences suggests the lead detected close to the houses is more likely the result of past use practices such as lead paint and garage debris from a previous business. The lead concentrations measured near the garden, 165 to 240 ppm, while elevated, are beneath both federal and state action levels. Much household debris, including metal containers, was observed in the area along the rock wall.

Laboratory analysis of a sub-set of the samples was performed by EPA to provide additional quality control. These results showed similar lead concentrations as the field instrument, thus increasing the comfort with the field results.

This information was presented to Maine DEP, HCCE, and the PRPs coordinator by EPA in October 1996. These parties concurred that the data did not suggest any deposition from the Union Chemical Company incinerator. Consequently, the parties agreed to deactivate the meteorological data collector once the comparison of 1995-1996 data to 1994 data was completed.

Comparison of Meteorological Data

The PRPs meteorological consultant submitted a report in February 1997 comparing the 1995-1996 meteorological data with the data from 1994 which were used in the air modeling effort. A revised report was submitted in May 1997. The comparison showed that the meteorological conditions (wind direction, speed, and their frequency distribution) in the vicinity of the Union Chemical Company Site were similar for each of the three years. Therefore it was concluded that the 1994 data used for modeling were representative of site meteorological conditions.

IV. SUPPORT AGENCY COMMENTS

The State of Maine has participated with EPA in developing the changes to the 1990 ROD which are described in this ESD, and concurs with the ESD. These changes have allowed EPA and the State to address potential offsite contamination from the Site in a more efficient manner, yet still be protective of human health and the environment.

V. STATUTORY DETERMINATIONS

Considering the above-described adjustments to the selected remedy set forth in the 1990 ROD, EPA believes that the remedy remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

VI. PUBLIC PARTICIPATION

This ESD, along with a Fact Sheet summarizing activities at the Site, are available for public review at the locations and times listed in Section I above. The local citizen group HCCE participated in several meetings with EPA during the resolution of this component of the remedy and were actively involved in the selection of sampling locations and setting of conditions for this ESD.