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EPA Superfund
Explanation of Significant Difference for the Record of Decision:

NL Industries Site
Pedricktown, NJ
6/21/99

EXPLANATION OF SIGNIFICANT DIFFERENCE

NL Industries Superfund Site
Pedricktown, Salem County, New Jersey

INTRODUCTION

The purpose of this document, called an Explanation of Significant Difference (ESD), is to provide an explanation of a change the United States Environmental Protection Agency (EPA) has made to a portion of the remedy selected in the July 8, 1994 Record of Decision (ROD) for the NL Industries, Inc. Superfund Site (Site). This ESD is issued pursuant to Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) 42 U.S.C. §9617(c) and by Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 C.F.R. §300.435(c)(2)(i).

The Site is located on Pennsgrove-Pedricktown Road in Pedricktown, Salem County, New Jersey. EPA is the lead agency for the remediation of the Site, with the New Jersey Department of Environmental Protection (NJDEP) supporting EPA in the remediation.

The ROD, which was issued by EPA, addresses the cleanup of contaminated soil, stream sediment and groundwater at the Site. This ESD pertains only to that portion of the remedy contained in the ROD that addresses contaminated soil and sediment.

The ROD-specified remedy calls for the excavation of soil and sediment containing lead at levels exceeding 500 parts per million (ppm), on-site solidification/stabilization of those soils determined to be hazardous, and disposal of all excavated soil in a landfill to be constructed at the Site. However, as a result of newly obtained information, EPA believes an alternative involving the disposal of the excavated soil and sediment in a landfill located off-site to be cost-effective, equally protective, and more quickly implemented than disposal on-site. Therefore, this ESD revises the ROD to provide for the off-site disposal of all excavated soil and sediment.

Summary of Site History, Contamination Problems, and Selected Remedy

The NL Industries, Inc. (NL) Superfund Site is an abandoned, secondary lead smelting facility, situated on 44 acres of land on Pennsgrove-Pedricktown Road, in Pedricktown, Oldmans Township, New Jersey. The Delaware River, abandoned and active industrial facilities, woodlands and residential areas are located in the vicinity of the Site.

In 1972, the facility began the operation of recycling lead from spent automotive batteries and other lead-bearing materials. The batteries were drained of sulfuric acid, crushed and then processed for lead recovery at the smelting facility. The plastic and rubber waste materials resulting from the battery crushing operation and waste from the smelting process were disposed of in an on-site landfill.

NL ceased smelting operations at the Site in 1982. In October 1982, NL entered into an Administrative Consent Order (ACO) with NJDEP to conduct a remedial program to address the Site soil, paved areas, surface water runoff, the landfill and groundwater. In December 1982, the Site was proposed for inclusion on the National Priorities List.

In February 1983, the facility was sold to National Smelting of New Jersey (NSNJ) and lead smelting operations recommenced. NJDEP entered into an amended ACO with NSNJ, National Smelting and Refining Company, Inc. (NSR), which was NSNJ's parent company, and NL. The amended ACO clarified the environmental responsibilities of NSNJ and NL. NSNJ ceased operations at the site in January 1984, and filed for bankruptcy along with NSR in March 1984.

In April 1986, NL entered into an Administrative Order on Consent (AOC) with EPA, whereby NL assumed responsibility for conducting a Remedial Investigation and Feasibility Study (RI/FS) for the Site, which EPA designated as Operable Unit One (OU1), with EPA oversight. Recognizing the size and complexity of the Site, EPA is addressing its remediation in phases, or operable units. OU1 addresses site-related contamination in various media such as soil, stream sediment, surface water and groundwater. The OU1 RI/FS was completed in July 1993. Operable Unit Two (OU2) addresses the on-site slag and lead oxide piles as well as contaminated debris and surfaces. The OU2 Focused Feasibility Study was completed in July 1991.

In September 1991, EPA issued the Operable Unit Two Record of Decision (OU2 ROD), which selected a remedy for cleanup of on-site slag and lead oxide piles as well as contaminated debris and surfaces. In March 1992, EPA issued an ESD to permit additional alternatives for remediation of the slag. These alternatives included; off-site treatment with off-site disposal; and on-site treatment with off-site disposal. At the same time, EPA ordered a group of 31 Potentially Responsible Parties (PRPs) to perform the remedy selected in the OU2 ROD. The OU2 remedy was completed in September 1995 and included: on-site stabilization and off-site disposal of slag piles; off-site recycling of lead oxide piles and other lead-bearing waste; decontamination of buildings, paved surfaces, equipment and debris; dismantling of buildings with recycling of scrap metal; and off-site treatment and disposal of standing water and wash water.

EPA also conducted a multi-phased Removal Action at the Site to address several conditions that presented an imminent risk to public health and the environment. EPA conducted Phase I of the Removal Action in March and April 1989. Phase I consisted of construction of a chain-link fence to enclose the former smelting plant and spraying or encapsulation of the on-site slag piles. Encapsulation of the piles provided temporary protection from wind and rain erosion and contaminant migration. In November 1989, EPA began Phase II of the Removal Action. This phase consisted of additional encapsulation of the slag piles, securing the entrances of the contaminated buildings, and removal of over 40,000 pounds of the most toxic and reactive materials.

During March of 1991, EPA performed Phase III of the Removal Action. Damages to the perimeter fence were repaired, a new entrance gate was installed, and all on-site containers stored in open areas were emptied and staged under existing covered areas. Sand/gravel berms were installed around these materials to deter their release. During July of 1992, Phase IV of the Removal Action reinforced the slag bin retaining walls which were in danger of collapsing.

Phase V of the Removal Action, which began in the Fall of 1993, resulted in the removal of the most highly contaminated stream sediment from the West Stream, which is located adjacent to the Site and is believed to have been contaminated by runoff from the Site. Excavated sediment has been disposed of off-site.

The OU1 RI was a comprehensive study which determined the nature and extent of Site-related contamination. The RI revealed the presence of contaminants, primarily lead and cadmium, in various media at the Site. Lead was detected in Site soil at concentrations as high as 12,700 parts per million (ppm). In addition, lead was detected in sediment from the West Stream at concentrations up to 23,700 ppm.

The OU1 RI also concluded that the Site is underlain by three hydrogeologic units: the unconfined (water table) aquifer; the first confined aquifer; and the second confined aquifer. Groundwater sampling results indicated the presence of a contaminant plume in the unconfined aquifer below the Site. Groundwater from the unconfined aquifer contained lead and cadmium at concentrations as high as 4,400 part per billion (ppb) and 997 ppb, respectively. These concentrations exceed the applicable drinking water standards of 10 ppb and 4 ppb for lead and cadmium, respectively. Furthermore, a localized area of elevated volatile organic compounds (VOCs) was found in the vicinity of two monitoring wells. VOCs detected include 1,1,1-trichloroethane, 1,1-dichloroethane, 1,1- dichloroethylene, tetrachloroethene and vinyl chloride.

Lead, the primary contaminant of concern at the Site, is classified as a probable human carcinogen. Furthermore, exposure to lead can cause noncarcinogenic effects including alterations in red blood cell production and the central nervous system. High concentrations of lead in the blood can cause severe, irreversible brain damage and possible death. The Quantitative Risk Assessment conducted for OU1 indicated that the hypothetical long-term use of contaminated groundwater for potable purposes would result in unacceptable carcinogenic and noncarcinogenic risk to the receptors. Furthermore, a child living on-site would be exposed to unacceptable risks due to ingestion of and dermal contact with contaminated soil.

Potential risks to environmental receptors associated with the Site were identified in an Ecological Risk Assessment. The results of the Ecological Risk Assessment indicated that significant risk at the Site existed for various species including the robin, woodcock nestlings, red fox and mink, due to exposure to sediment and soil containing lead at concentrations greater than 500 ppm. Based upon these findings, EPA concluded that a remedial action objective for lead in soil and stream sediment of 500 ppm is adequately protective of ecological receptors. Furthermore, the 500 ppm remedial action objective is consistent with EPA OSWER Directive #9355.4-02 which recommends a soil cleanup level of 500 to 1000 ppm for protection of human health at residential sites.

On July 8, 1994, EPA issued the Operable Unit One Record of Decision (OU1 ROD). The OU1 ROD called for: excavation of all soil contaminated with lead above the remedial action objective of 500 ppm, on-site treatment via solidification/stabilization of soil classified as hazardous under the Resource Conservation and Recovery Act, and disposal of the treated soil along with non-hazardous soil in a landfill to be constructed on the Site; removal of contaminated stream sediments above 500 ppm of lead from the East Stream and drainage channel north of Route 130 and treatment/disposal of the sediment in a manner similar to that described for soil; and extraction and treatment of contaminated groundwater with direct discharge of the treated groundwater to the Delaware River.

On June 10, 1996, EPA entered into an AOC with five PRPs that provided for the design of the OU1 remedy. On January 13, 1997, the above AOC was modified to provide for the PRPs' maintenance, with repair or replacement if necessary, of silt fencing installed along the West Stream. The silt fencing has been installed to minimize further migration of Site-related contamination until the OU1 remedy is implemented.

Upon entering into the AOC, the PRPs initiated OU1 remedial design activities. These activities have included soil and groundwater sampling to better define the extent of contamination. In addition, groundwater capture zone modeling will be conducted in order to ensure that the remedy will provide for the complete capture of Site-related groundwater contamination.

On January 28, 1998, EPA initiated negotiations with NL and four PRPs who sent lead-bearing material to the Site for implementation of the OU1 remedy and completion of Phase V of the Removal Action initiated by EPA in the West Stream. Ultimately, in June 1998, six PRPs signed a Consent Decree which memorialized their agreement to undertake these actions. The Consent Decree was entered as an order of the United States District Court for the District of New Jersey on April 1, 1999.

Description of the Significant Difference Between the July 1994 ROD and the Modified Remedy

The selected remedy, as presented in the OU1 ROD, addresses contaminated soil, stream sediment and groundwater at the Site. This ESD describes a change in the remedial approach for soil and sediment only. The cleanup of contaminated groundwater will be conducted as described in the July 1994 OU1 ROD.

Based upon the evaluation of alternatives conducted as part of the OU1 FS prior to issuance of the OU1 ROD, EPA determined that disposal of soil and sediment off-site was not as feasible as on-site disposal. At that time, EPA concluded that off-site disposal of the soil and sediment would not be cost-effective. Cost estimates provided in the OU1 ROD for remedial alternatives involving on-site and off-site treatment and disposal of soil and sediment indicated that it would cost $9,359,850 more for off-site treatment and disposal of soil and sediment. However, an evaluation of disposal options conducted by the PRPs during performance of the OU1 remedial design indicated that, due to the elimination of solid waste flow control restrictions in New Jersey, and the resulting increase in competition between Solid Waste Disposal Facilities, the excavated soil and sediment can be disposed of off-site at a cost that is competitive with on-site disposal. On-site treatment with off-site disposal of the site-related soil and sediment is currently estimated to cost $789,800 more than on-site treatment with on-site disposal, which represents only a 4.2% increase in the estimated cost of the OU1 remedy. Furthermore, off-site disposal of the soil and sediment can be implemented more quickly than on-site disposal. The time to effectuate the off-site disposal remedy is estimated to be between six to twelve months, while the on-site remedy may take up to 18 months longer to implement, due to the requirement to obtain all required state approvals for construction of the landfill and the additional time necessary to construct the

landfill. In addition, local ordinances concerning the setback of the landfill from the property line may further complicate the design of the on-site landfill. Finally, removing the soil and sediment from the Site precludes the need for long-term monitoring of an on-site landfill, which would be required for the on-site disposal option.

Although the remedy selected in the OU1 ROD involving the on-site disposal of excavated soil and sediment continues to be a protective, cost-effective and implementable method of addressing this media, EPA is issuing this ESD to notify the public that, based upon information recently obtained by EPA, the excavation of contaminated soil and sediment, on-site treatment through solidification/stabilization of hazardous soil and sediment, and off-site disposal of all excavated material is more appropriate based upon comparable protectiveness and cost, and a shorter implementation time.

SUPPORT AGENCY COMMENTS

NJDEP did not concur with the remedy selected in the OU1 ROD. NJDEP determined that, pursuant to State law, environmental use restrictions would be required for the Site, unless soil was cleaned up to the State of New Jersey's 100 ppm residential soil cleanup criterion for lead. In addition, NJDEP believed that the OU1 remedy did not address off-site soil appropriately, because it did not provide for the cleanup of these soils to the 100 ppm residential soil cleanup criterion.

Subsequent to issuance of the OU1 ROD, the State of New Jersey's residential soil cleanup criterion for lead was revised from 100 ppm to 400 ppm. NJDEP has informed EPA that a Deed Notice is required for the Site pursuant to the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 (formerly the Hazardous Site Discharge Contamination Act), if soil is not remediated to the 400 ppm residential soil cleanup criterion for lead.

PUBLIC PARTICIPATION ACTIVITIES

In accordance with the NCP, a formal public comment period is not required when issuing an ESD. However, as required by CERCLA, EPA published a notice of this ESD in Today's Sunbeam, a local newspaper.

This ESD will be incorporated into the Administrative Record maintained for the Site in accordance with Section 300.825(a)(2) of the NCP. The Administrative Record is available for review during business hours at the Penns Grove Carney's Point Public Library, 222 South Broad Street, Penns Grove, New Jersey 08069 and at EPA Region II, Superfund Record Center, 290 Broadway, 18th Floor, New York, New York 10007-1866.

AFFIRMATION OF STATUTORY DETERMINATIONS

Considering the change that has been made to the selected remedy, EPA believes that the remedy, including the 500 ppm cleanup objective for lead, remains protective of human health and the environment, assuming either residential or industrial future use of the Site, complies with federal and state requirements that were identified in the OU1 ROD as applicable or relevant and appropriate to this remedial action at the time the OU1 ROD was signed, and is cost-effective.

William J. Muszynski

Jeanne M. Fox
Regional Administrator

6/21/99
Date

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