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U.S. Environmental Protection Agency

Region III

Hazardous Site Cleanup Division

Five-Year Review (Type Ia)

L.A. Clarke and Son (Fredericksburg, Virginia)

I. Introduction

Authority Statement. Purpose. EPA Region III conducted this review pursuant to CERCLA Section 121(c), NCP Section 300.400(f)(4)(ii), and OSWER Directives 9355.7-02 (May 23, 1992), and 9355.7-02A (signed and dated July 26, 1994). It is a statutory review. The purpose of a five-year review is to ensure that a remedial action remains protective of public health and the environment and is functioning as designed. This document will become a part of the Site File. This Type Ia review is applicable to a site at which response is ongoing.

Site Characteristics. The L.A. Clarke and Son Site is a former wood treating facility located in Spotsylvania County, Virginia, approximately 2.5 miles south of Fredericksburg.

Wood preserving operations began at the Site in June 1937 and continued until 1988, except for one inactive period between April 1979 and June 1980. L.A. Clarke leased the land from the Richmond, Fredericksburg & Potomac Railroad (RF&P Railroad) until 1976, when the Clarke family bought the property. In 1980, the Clarke family sold the facility to the Curtas family who then operated the facility until it closed in 1988. Railroad ties, telephone poles, and fence posts were preserved at the Site by injecting them with a mixture of creosote and coal tar in a sealed compartment under high temperature and pressure.

The Remedial Investigation Feasibility Study (RI/FS) Report dated 1988 determined that the Site contained contaminated soils and sediments which may present an imminent and substantial endangerment to public health, welfare, or the environment. Based on the RI/FS, EPA issued a Record of Decision on March 31, 1988 for Operable Unit 1 to address the contaminated soils and sediments and deferred Operable Unit 2 for additional RI/FS work for ground water. Although information was obtained during the RI indicating that the aquifers underlying the Site were contaminated, additional information was required to determine the extent of the contamination and to develop remedial alternatives. The OU-1 ROD addressed the surface conditions and contamination at the Site requiring remedial action. To address these hazards, the remedy selected in the OU-1 ROD contained the following major components:

- Biological treatment of contaminated soil under the then existing process buildings via in situ soil flushing with a surfactant solution followed by in situ bioreclamation.

- Biological treatment of all other contaminated soil and sediment via onsite landfarming. All contaminated surface soil which cannot be treated in situ, sediments (ditches 1, 2, and 3 and wetlands), buried pit materials, and subsurface wetland soil would be excavated/dredged and consolidated for treatment in the landfarming unit. The total amount of soil and sediments to be treated is approximately 119,000 cubic yards.

- Backfill excavated areas with treated soil and sediment. Cover backfilled areas with topsoil and revegetate.

- Biological treatment of the Resource Conservation and Recovery Act ("RCRA") regulated soil pile via land treatment in place.

- Biological treatment of the lagoon sludge in a tank. The bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol is a listed waste under RCRA, with the designation K001.

- Ground water monitoring during and post treatment.

In situ soil flushing was selected to remediate the soil under the then existing process buildings because the wood treating facility was still in operation at the time of the March 31, 1988 ROD. On December 29, 1989, EPA issued an Explanation of Significant Differences to revise the selected remedy for the soil in the former process area. Because the wood treating facility had then stopped operations and RF&P Railroad agreed to dismantle the process buildings, EPA selected land farming as the selected remedy.

On March 31, 1994, EPA issued another Explanation of Significant Differences to revise the selected remedy for the lagoon sludge from biological treatment in a tank to offsite incineration. The estimated amount of lagoon sludge was approximately 700 cubic yards.

As a result of a Consent Decree executed with EPA, RF&P Railroad is currently conducting a Remedial Design/Remedial Action for OU-1. In addition, RF&P Railroad is conducting the RI/FS for OU-2 under an Administrative Order on Consent. Both the RD/RA and RI/FS are being conducted under the direction of EPA as the lead agency and the Virginia Department of Environmental Quality as the support agency.

II. Discussion of Remedial Objectives; Areas of Noncompliance

OU-1, as defined above, was further broken down into four operable units to ease EPA management of the site remediation. The operable units are as follows:

- OU-1 is site security, including installation of a site fence.

- OU-2 is demolition of the process buildings and disposal of the building debris and other site debris, poles, and the remaining railroad ties. Removal, treatment and disposal of the sludge in the lagoon and the removal and disposal of the lagoon structure is included in OU-2.

- OU-3 is the site water controls.

- OU-4 is the treatment and disposal of the surface soil and sediment.

- OU-5 is the RI/FS for ground water, what was originally OU-2.

This five-year review was triggered by the installation of a fence at the site to deter trespassing onto the site as it pertains to OU-1, site security. Since there is an active railroad line transversing the site, the fence cannot encircle the site as a whole. Rather, the fence was placed along most of the perimeter of the site, especially where trespassers would likely enter the site. Signs have been placed around the perimeter of the site to warn against trespassing.

A local security firm has been hired as guards in addition to the site fence. When activity is being conducted at the site, the guards are present at the site five days a week. When no activities are taking place at the site, the Responsible Party (RP) checks the interior of the site weekly. Prior to the removal of the lagoon, the guards would check the site daily.

The majority of the work under OU-2 consisted of demolishing the process buildings. That work was satisfactorily completed by January 13, 1993. All of the railroad ties and poles which were in good condition were taken offsite to be put to use. The remaining ties and poles and other debris was disposed of offsite by April 6, 1995. Removal and offsite disposal of the wastewater in the lagoon took place from January 26, 1995 to February 17, 1995. Removal and offsite disposal of the lagoon sludge and emulsions took place from April 1995 to June 1995. Removal and offsite disposal of the lagoon liner occurred in June 1995. Excavation and offsite disposal of the underlying contaminated soil from the lagoon and backfilling the area was completed on February 28, 1997. EPA conducted the final inspection of the lagoon remedial action on May 22, 1997.

OU-3, site water controls, consists of installing berms to minimize the amount of runon at the site and treating the surface water in the ditches on the site. In the fall of 1993, the RP constructed dams in the ditches to replace the bales of straw which had been placed there previously. However, the dams were excessively retarding the flow of water in the ditches and flooding the site. As such, the RP reconstructed the dams to retard the flow in the ditches by lowering the level of the rock in the ditches. Although a surface water treatment facility was designed, construction of the facility was put on hold due to the changes in OU-4 and OU-5.

The Consent Decree for implementing the March 1988 ROD includes a clause to allow the RP to petition EPA to revise the cleanup level for surface soil (based on human health exposure). EPA approved the revised cleanup level in the summer of 1994. Because the new cleanup level for surface soil is less stringent than that in the ROD, the amount of soil requiring remediation is reduced. Additional surface soil sampling events were held to determine which portions of the site exceeded the new cleanup level. Based on the results of these sampling events, it was determined that all of the surface soil already meets the cleanup level and, therefore, none of the surface soil requires treatment. The RP sampled the drainage ditches in June 1999 to determine which, if any, of the sediments in the drainage ditches exceed the cleanup level (based on environmental exposure) which was not revised. Results of this sampling event are pending. Upon receipt of the sampling results, those areas of the drainage ditches which exceed the environmental cleanup level will be remediated at the same time as the sediments in the floodplain which were previously delineated as exceeding the cleanup level.

EPA and the RP executed an Administrative Order on Consent to perform the RI/FS for

ground water (OU-5). However, in the hope of expediting ground water remediation, EPA suggested to the RP that we enter into an Administrative Order by Consent for Removal Action. The purpose of the order, which was executed in September 1995, was to perform the remaining investigation and cleanup work for ground water as a non-time-critical removal action. The site plan was to combine ground water treatment with surface water treatment in the same facility. Based on EPA policies in effect at the time the order was negotiated, it was thought that the remedy for ground water would be limited to containment and treatment of the ground water. Since then, the RP has proposed another site conceptual model for the flow of ground water. To test the new model, additional wells were constructed and quarterly ground water samples will be collected for one year. The first quarterly sample was collected in June 1999.

III. Recommendations

The EPA Remedial Project Manager has visited the site often and most recently on September 28, 1999. Those areas of the drainage ditches which exceed the environmental cleanup level will be need to be remediated at the same time as the sediments in the floodplain which were previously delineated as exceeding the cleanup level. The results of the ground water monitoring will be used to determine further groundwater remediation that may be necessary.

IV. Statement on Protectiveness

The remedies selected for this site are not at this time protective of human health and the environment. EPA is taking steps as listed above to make the remedies protective.

V. Next Five-Year Review

The next five-year review will be conducted by September 2004.

Abraham Ferdas, Director
Hazardous Site Cleanup Division, Region III

9/30/99
Date