FIVE-YEAR REVIEW REPORT

DIAMOND ALKALI SITE

NEWARK, NEW JERSEY

United States Environmental Protection Agency
Region II
New York, New York

U.S. Environmental Protection Agency
Region II
Emergency and Remedial Response Division
Five-Year Review (Type Ia)

Diamond Alkali Site
Newark, New Jersey

I. Introduction

Authority Statement

The U.S. Environmental Protection Agency (EPA) Region 2 conducted this Five-Year Review of the Diamond Alkali Site pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, (CERCLA) 42 U.S.C. Section 9601 *et seq*, as amended, Section 300.430(f)(4)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Office of Solid Waste and Emergency Response (OSWER) Directives 9355.7-02 (1991), 9355.7-02A(1994) and 9355.7-03A (1995). This Five-Year Review will become a part of the Site File.

CERCLA Section 121(c) provides that where EPA selects a remedy that involves leaving hazardous substances at the site, EPA must review the remedial action at least every five years after initiation of such remedial action to ensure that it is protective of human health and the environment. EPA guidance characterizes sites as either "Policy Sites" or "Statutory Sites" which have different trigger dates for determining the appropriate time to conduct the review. (Structure and Components of Five-Year Reviews, OSWER Directive 9355.7-02, May 23, 1991 (1991 Guidance)).

A statutory site is a site where waste will be left on-site following implementation of the remedial action. At statutory sites, EPA should complete the review within five years of initiation of the first remedial action (or operable unit) at the site. (Supplemental Five-Year Review Guidance, OSWER Directive 9355.7-02A, July 26, 1994, p.2 (1994 Guidance)). The date of "initiation of remedial action" is the date the Potentially Responsible Party (PRP) or contractor mobilizes to start construction of the remedy. The selected remedy was initiated five years ago.

At the completion of the interim remedial action, contaminated materials will remain at this site within a containment cell. This requires a statutory Five-Year-review.

EPA has established four types of Five-Year Reviews (1994 Guidance, pp.4-5). The least intensive review, Type Ia, is intended for active sites where a remedial action is ongoing. Sites generally qualify for a Type Ia review until construction is completed. (1994 Guidance, p.5).

The site has two operable units, described below. The initial remedial action for operable unit one (OU-1), which included removal of drums, stockpiled steel, stockpiled tanks and tank farms, commenced in October 1995. The second phase of the remedial action for OU-1 commenced in May 2000 and is currently being done pursuant to a Consent Decree with Occidental Chemical Corporation (OCC) and Chemical Landing Holdings Inc. (CLH) under EPA oversight. Since the remedial action is ongoing, a Type Ia review is appropriate.

Site Characteristics and History

The Diamond Alkali site consists of two properties, 80 Lister Avenue and 120 Lister Avenue located in the Ironbound Section of Newark, New Jersey and impacted areas of the Passaic River. These two properties total approximately 5.8 acres, adjacent to the Passaic River, and have been designated as Operable Unit 1 (OU-1).

From 1951 to 1969, the Diamond Alkali Company (subsequently known as the Diamond Shamrock Chemicals Company) owned and operated a pesticide manufacturing plant at 80 Lister Avenue. The mid-1940's marked the beginning of the manufacturing operations related to the current site conditions, including the production of DDT and phenoxy herbicides. Subsequent owners used the property until 1983, when sampling at the site revealed high levels of dioxin. Dioxin, especially the dioxin congener known as 2,3,7,8-tetrachlorodibenzo-p-dioxin or TCDD, is an extremely toxic chemical and an unwanted byproduct of the manufacture of certain chemicals which were produced at the site. Since Occidental Chemical Corporation is a successor to the Diamond Shamrock Chemical Company, OCC is liable for the cleanup activities at the site.

In 1984, the New Jersey State Department of Environmental Protection (NJDEP) and Diamond Shamrock Chemicals Company entered into two Administrative Consent Orders, the first for the investigations and immediate response work at 80 Lister Avenue and the second for investigations and response work at 120 Lister Avenue. EPA selected an interim remedy for the properties in 1987. A Consent Decree was filed in 1989 between OCC, CLH, the NJDEP, and EPA requiring OCC to undertake cleanup activities at the site. The U.S. District Court approved the Consent Decree in November of 1990. In addition, in 1994, an Administrative Order on Consent was issued by EPA to CLH for an investigation of contamination in the Passaic River.

II. Discussion of Remedial Objectives

Operable Unit One - The properties

An interim remedy for OU1 was selected and documented in a September 1987 Record of Decision (ROD) which consisted of the following:

- Construct a slurry wall encircling the properties tying into the silt layer underlying the properties.
- Construct a flood wall to protect the properties from the 100-year flood.

- Disassemble and decontaminate all non-porous permanent structures and materials to the maximum extent practicable for off-site reuse, recycling or disposal.
- Transport off-site, for treatment or disposal, drums containing hazardous substances but containing less than 1 ppb of dioxin.
- Demolish all remaining structures on-site and secure all materials contaminated above 1 ppb of TCDD on-site. Secured materials shall be segregated to the maximum extent practicable to afford access to and facilitate removal of the more highly contaminated materials, should such removal be selected as a remedy at a later date.
- Stabilize and immobilize the contents of the remaining drums of dioxin contaminated materials.
- Locate and plug inactive underground conduits and reroute active systems.
- Haul, empty, spread and compact the contaminated materials presently stored at 120 Lister Avenue, and decontaminate the shipping containers for off-site reuse, recycling or disposal.
- Install, operate, and maintain a groundwater withdrawal system designed to maintain a hydraulic gradient preventing the migration of groundwater within the slurry wall.
- Install, operate, and maintain a treatment system for groundwater and other aqueous liquids.
- Construct a surficial cap consisting of suitable materials designed to meet the requirements of the Resource Conservation and Recovery Act.
- Implement suitable monitoring, contingency, operation and maintenance, and site security plans to ensure the protection of human health and the environment during and after the installation of the selected alternative.
- Place and cap on-site all sludge generated from the wastewater treatment processes until such time that an alternative method of sludge management is approved.
- Perform a Feasibility Study every 24 months following the installation of the selected interim remedy to develop, screen and assess remedial alternatives and to assess the performance of the selected remedy.

As stated in the ROD, EPA and NJDEP consider the selected remedial alternative for OU1 to be an interim remedy.

In 1995, OCC initiated the remedial action at the site by performing certain initial components of the remedy. These actions included removal of the steel pile from 120 Lister Avenue (structural material from the warehouse demolition, steel tanks and miscellaneous steel). This steel pile was sampled and material that met the EPA criteria for off-site disposal was disposed at an off-site facility. Any material that was not deemed acceptable by the receiving facility was placed on-site at 80 Lister Avenue property for final disposal during future construction activities. In addition, of the 635 drums at the site, the contents of 261 drums were not listed dioxin wastes. The contents were processed through the temporary treatment plant and disposed off-site. The empty drums were returned to the warehouse, cut in half and staged. Disposal of these drums was to be addressed during future construction activities. The remaining 374 drums were considered listed dioxin waste. These drums were grouped into water-soluble liquids, non-aqueous liquids and solid/sludges and stored at the warehouse for disposal during future construction activities.

In addition, under the Consent Decree with EPA and the State, OCC submitted design plans for construction of the interim remedy of OU-1. Prior to approving the design plans, EPA, at the request of the Community Advisory Group (CAG), explored the potential for implementing an alternative to the interim remedy selected in 1987. EPA considered innovative technologies as well as on-site and off-site thermal treatment options. EPA met with the CAG extensively during the summer of 1998. Due to the nature of the material to be remediated (listed dioxin waste), new innovative technologies were deemed inappropriate and no off-site option was available. One alternative, on-site incineration, was deemed technically appropriate; however, the community preferred the on-site containment remedy to incineration.

In August 1998, EPA and NJDEP approved the design plans, and CLH began construction in the spring of 2000. To date, the flood wall and slurry wall have been constructed. The warehouse and other structures at the site were demolished. The contents of the drums and shipping containers were stabilized and immobilized and then disposed in the contaminated area of the site. The empty drums and shipping containers were either recycled or crushed and disposed in the contaminated area of the site. The construction of the cap and the water treatment plant are ongoing. Construction of the interim remedy is expected to be completed at the end of this calendar year.

Under the Interim Remedy, the site will be kept secure and hazardous wastes at the site will be contained and prevented from leaving the properties via engineering controls including the cap, slurry wall and flood wall around the properties, and groundwater pumping and treatment. A monitoring program will be implemented upon completion of construction of the interim remedy. In addition, OCC is required to develop, screen and assess remedial alternatives as well as to evaluate the performance of the containment remedy every two years. These two-year reviews will be incorporated into future "Five-Year" reviews. The interim remedy is designed to provide protection of human health and the environment through on-site containment of wastes. The City of Newark supplies public water throughout the City. There are no drinking water supply wells located in the vicinity of this site. The NJDEP requires approval of drinking water supply wells and will not allow groundwater, which has been contaminated by this site, to be used as a drinking water supply.

Operable Unit Two - The Passaic River

EPA is also evaluating contamination in the Passaic River. A study is being performed by CLH pursuant to an Administrative Order on Consent which EPA executed in April 1994. The objectives of the study are to determine the extent of contamination in river sediments in a six-mile stretch of the Passaic and to evaluate alternatives to remediate the sediments. This remediation could be extremely costly. The United States Army Corps of Engineers has also recently obtained authorization to evaluate the potential for habitat restoration of portions of the Passaic River. EPA is working closely with the Corps of Engineers and the State of New Jersey to coordinate these efforts.

III. Recommendations

- OCC should complete construction of the Interim Remedy and begin the monitoring program and the two-year remedy reviews. OCC must keep the site secure. The first of the two-year reviews should be completed in 2003, two years after the construction of the Interim Remedy is completed.

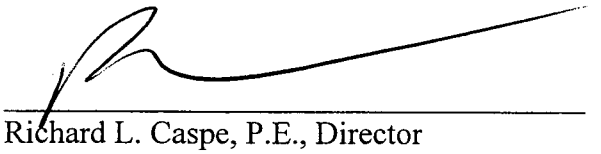
- EPA will evaluate the two-year reviews, conduct future Five-Year reviews and, when appropriate, select the final remedy for the site.

IV. Statement on Protectiveness

Because the interim remedy has not been fully implemented, it is not protective of human health and the environment at this time. During each two-year review, EPA will evaluate whether the interim remedy remains protective or if another remedy is available that would provide greater protection or long-term effectiveness. A final long-term remedy for the site needs to be selected and implemented. In addition, a remedy for the river has not yet been selected or implemented.

V. Next Five-Year Review

The next Five-Year review will be conducted by June 2006.

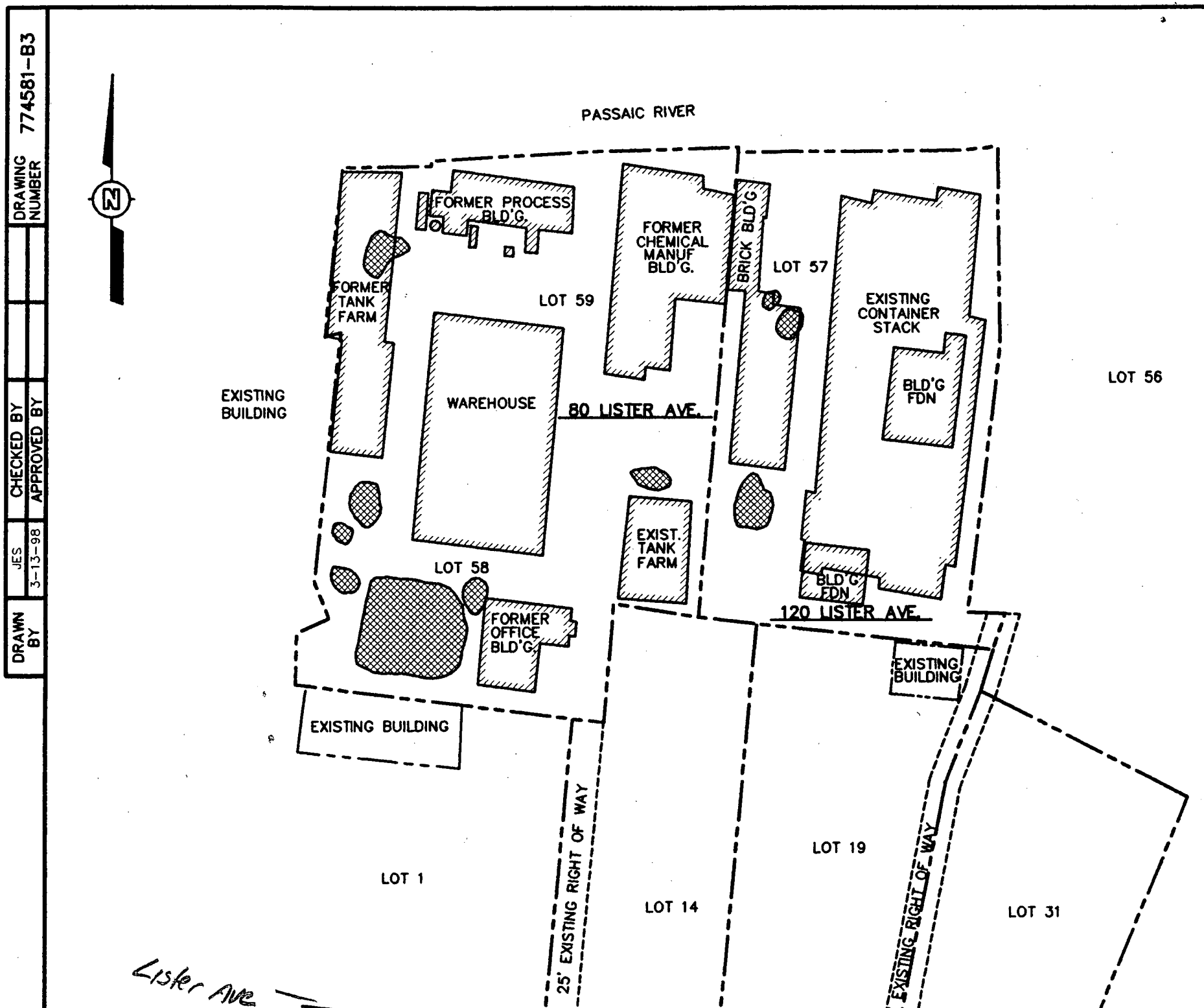


Signed 7/13/01

Richard L. Caspe, P.E., Director
Emergency and Remedial Response Division

DIAMOND ALKALI CO.


10-6 -84
84058
3427
DIAMOND ALKALI CO.
NEWARK, NEW JERSEY
OCTOBER


DRAWING NUMBER 774581-B3
CHECKED BY
APPROVED BY
JES
3-13-98
DRAWN BY
N
PASSAIC RIVER
FORMER PROCESS BLD'G.
FORMER CHEMICAL MANUF BLD'G.
BRICK BLD'G
LOT 57
FORMER TANK FARM
LOT 59
EXISTING CONTAINER STACK
BLD'G FDN
LOT 56
EXISTING BUILDING
WAREHOUSE
80 LISTER AVE.
EXIST. TANK FARM
LOT 58
BLD'G FDN
120 LISTER AVE.
FORMER OFFICE BLD'G.
EXISTING BUILDING
EXISTING BUILDING
LOT 1
25' EXISTING RIGHT OF WAY
LOT 14
LOT 19
EXISTING RIGHT OF WAY
LOT 31
Lister Ave