FIVE-YEAR REVIEW REPORT

SINCLAIR REFINERY SITE

WELLSVILLE, NEW YORK

Prepared By:

United States Enviromnental Protection Agency

Region II

New York, New York

I. PURPOSE

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, and Section 300.430(f)(4)(ii) of the National Contingency Plan (NCP) require that periodic (no less often than every five years) reviews be conducted for sites where hazardous substances, pollutants or contaminants will remain at the site above levels that allow for unlimited use or unrestricted exposure. This site is being reviewed in accordance with Office of Solid Waste and Emergency Response (OSWER) Directives 9355.7-02, 9355.7-02A and 9355.7-03A. The purpose of this review is to assess whether the remedial actions being implemented continue to be protective of human health and the environment.

CERCLA and the NCP require that a Five-Year Review be conducted no less often than five years after the initiation of the selected remedial action. The Sinclair Refinery Site remedial action commenced on February 21, 1990. Accordingly, EPA has prepared this Five-Year Review report. Three remedial actions for the first operable unit, addressing the landfill section of the Site, have been completed and are documented in two Remedial Action Reports dated March 27, 1992 and January 28, 1994. Additionally, one of two remedial actions for the second operable unit, addressing the refinery section of the Site, has been completed and is documented in a Remedial Action Report dated November 25, 1994. The final remedial action at this site is currently in progress. This review will only focus on the protectiveness of the work conducted to date.

EPA has established four types of Five-Year Reviews. The least intensive review, Type Ia, is intended for active sites where response is ongoing. This report summarizes a Type Ia statutory review of this site which was conducted in July 1997.

Remedial actions are not complete at the site. The first operable unit, landfill remediation and river rechannelization, has been completed. However, the remedy for the second operable unit is not yet complete and is not expected to be completed for several years.

II. SITE HISTORY AND CONDITIONS

The refinery was built in 1901 for the processing of Pennsylvania grade crude oil. The Sinclair Refining Company purchased the refinery in 1919 and operated it through 1958, when a fire halted operations. The Sinclair Refining Company then transferred the majority of the property to the Village of Wellsville, which, in turn, conveyed some of the parcels to various companies and other entities, most of whom currently occupy the refinery portion of the site. In 1969, the Sinclair Refining Company merged with the Atlantic Richfield Company (ARCO).

In 1981, debris from the Sinclair landfill was reported to have washed into the Genesee River due to erosion. The Genesee River is the primary drinking water source for the Village of Wellsville.

Reports from the community and site inspections conducted by the New York State Department of Environmental Conservation (NYSDEC) indicated that the site warranted proposal for the National Priorities List (NPL). In September, 1983, the Sinclair Refinery site was placed on the NPL.

For purposes of investigation and remediation, the Sinclair Refinery site is being addressed in two distinct operable units. Operable Unit 1 (OUl) is concerned with the 10-acre landfill portion of the site, formerly consisting of the Central Elevated Landfill Area (CELA), the South Landfill Area (SLA), and the area between the two landfills. Operable Unit 2 (OU2) is concerned with the 90-acre refinery and the 14-acre off-site tank farm portions of the site.

In 1983, the United States Environmental Protection Agency (EPA) and NYSDEC signed a cooperative agreement that identified NYSDEC as the lead agency responsible for overseeing the remedial cleanup activities at the site. In 1984, NYSDEC initiated a Remedial Investigation/Feasibility Study (RI/FS) to determine the extent and nature of contamination at the site and evaluate alternatives for the long-term remediation of the landfill portion of the site. In 1985, EPA authorized an initial remedial measure at the site, consisting of the relocation of the surface water intake for the Village of Wellsville's public water supply. The intake was moved to a location one-quarter of a mile upstream from the site in order to eliminate the possibility of landfill wastes contaminating the Village's drinking water supply. The relocation of the drinking water intake was completed in the Spring of 1988. In 1987, EPA took over lead agency status from NYSDEC.

As a result of the OU1 RI/FS, EPA selected a cleanup plan for the landfill portion of the site. This cleanup plan was embodied in a September 26, 1985 Record of Decision (ROD) for OU1. The remedial actions identified in the 1985 ROD included the partial channelization of the Genesee River to protect the landfill from erosion and flooding, removal and disposal of drums from the surface of the CELA, the excavation of the SLA and its consolidation onto the CELA, backfilling of the excavated area with clean fill, the construction of a cap over the consolidated CELA, and the construction of a fence around the consolidated landfill. ARCO agreed to implement the remedial actions listed above, with modifications to the original plan for partial channelization of the Genesee River. This agreement was memorialized in a judicial Consent Decree which was signed by the United States and ARCO and entered with the U.S. District Court for the Western District of New York on May 19, 1989.

Subsequently, the required work was organized into three separate remedial actions, namely: the partial channelization of the Genesee River as the first remedial action, completed March 27, 1992; the drum removal, excavation, consolidation, and backfilling of the SLA as the second remedial action, also completed March 27, 1992; and the capping and fencing of the consolidated landfill as the third remedial action, completed January 28, 1994.

The OU1 ROD had also called for remedial alternatives addressing the refinery portion of the site to be evaluated as part of a supplemental RI/FS. ARCO agreed to perform this supplemental

RI/FS as memorialized in an Administrative Consent Order issued by the EPA on July 28, 1988. The EPA accepted ARCO's RI/FS submittal in 1991. The EPA selected a remedy for the second operable unit in a ROD (OU2 ROD) signed on September 30, 1991. Clean-up measures in the OU2 ROD included the excavation of surface soils exceeding the remedial clean-up criteria for arsenic and lead and their consolidation into the landfill prior to closure, monitoring of surface water, groundwater, and soil gas to track potential contaminant migration from subsurface soils, and pumping and treatment of contaminated site groundwater. Two Administrative Orders for Remedial Design and Remedial Action were issued by the Agency to ARCO on May 1, 1992 and September 8, 1992 for the OU2 work, which was organized into two separate remedial actions. These consisted of the surface soils excavation and disposal as the first remedial action, completed November 25, 1994, and the monitoring and groundwater remediation components as the second remedial action, which is currently on-going.

III. SUMMARY OF RESPONSE ACTIONS (SITE CLEANUP)

Genesee River - Partial Channelization

The remedial action for partial channelization of the Genesee River was carried out in accordance with the requirements of the Judicial Consent Decree between ARCO and the USEPA effective May 19, 1989. The objectives of this phase of the remediation included the following:

- Protection of the consolidated landfill from bank erosion and flood inundation during floods up to a 100-year event on the Genesee River;

- Protection of the east bank from an existing sheet pile weir for approximately 2000 feet from the existing riprap upstream of the weir; and

- Improvement of river flow conditions approaching the weir located downstream from the landfill.

The design to accomplish this work was approved by EPA on February 21, 1990 and construction commenced on July 24, 1990. The work was carried out by ARCO's contractor and overseen by the U.S. Army Corps of Engineers through an interagency agreement with EPA. EPA performed a final inspection of the construction on October 3, 1991; the remedial action was completed upon EPA's approval of the Remedial Action Report on March 27, 1992.

South Landfill Area Excavation and Consolidation

The remedial action for the SLA was implemented in accordance with the Judicial Consent Decree between ARCO and the USEPA, effective May 19, 1989, and consisted of the following:

- Excavate and consolidate the wastes from the 2.3 acre SLA onto the 9.2 acre CELA;
- Fill the excavated area with clean fill from an off-site source; and
- Place a temporary cover over the portion of the CELA which received waste from the SLA, pending the final remediation of the CELA.

The design to accomplish this work was approved by EPA on September 26, 1990 and construction commenced on October 15, 1990. The excavation was completed in November 1990, but backfilling of the excavated area was suspended due to the onset of the winter season and completed the following year. The work was carried out by ARCO's contractor and overseen by the U.S. Army Corps of Engineers through an interagency agreement. EPA performed a final inspection of the construction on October 3, 1991; the remedial action was completed upon EPA's approval of the Remedial Action Report on March 27, 1992.

Landfill Capping

The remedial action for the capping of the consolidated landfill was also carried out in accordance with the requirements of the Judicial Consent Decree between ARCO and the USEPA effective May 19, 1989. The objectives of this phase of the remediation included the following:

- Removal of drums from the landfill, with empty drums shredded and placed over the surface of the waste and drums with contents being disposed of off-site;
- Construction of a soil-bentonite cutoff wall around the landfill perimeter;
- Stabilization of soft sludge wastes within the landfill;
- Regrading of the landfill;
- Construction of a geosynthetic and soil cap over the landfill surface to be tied in to the soil-bentonite cutoff wall;
- Construction of a passive gas vent system within the cap;
- Installation of monitoring wells around the landfill, piezometers within the landfill, and pipe sleeves within the landfill cap for possible future access; and
- Installation of a permanent security fence around the capped landfill.

The design to accomplish this work was approved by EPA on December 6, 1991 and construction commenced in June 1992. The work was carried out by ARCO's contractor and overseen by the

U.S. Army Corps of Engineers through an interagency agreement. EPA performed a final inspection of the construction on July 8, 1993; the remedial action was completed upon EPA's approval of the Remedial Action Report on January 28, 1994.

Surface Soils Excavation and Disposal

The remedial action for the refinery surface soils excavation was implemented in accordance with an Administrative Order issued by the EPA to ARCO on May 1, 1992. The objectives of the remedial action consisted of the following:

- Excavate refinery surface soils exhibiting concentrations above 1000 parts per million (ppm) of lead and 25 ppm of arsenic to a depth of one foot below surface;
- Consolidate the excavated soils into the landfill prior to closure;
- Fill the excavated area with 6 inches of clean soil and 6 inches of topsoil; and
- Revegetate the disturbed areas.

The design to accomplish this work was approved by EPA on May 29, 1992 and construction commenced on July 8, 1992. The work was completed in early 1994, necessitating some of the excavated soil to be disposed of at an approved off-site facility. The work was carried out by ARCO's contractor and overseen by the U.S. Army Corps of Engineers through an interagency agreement. EPA performed a final inspection of the construction on May 10, 1994; the remedial action was completed upon EPA's approval of the Remedial Action Report on November 23, 1994.

IV. SCOPE AND NATURE OF THE FIVE-YEAR REVIEW

As previously discussed, EPA guidance sets forth three types of review. All types stress a review of the protectiveness of the remedy.

EPA determined the appropriate review at this time is a statutory Type Ia review. The final remedial action has not yet been completed at the site. Work at the site is on-going. However, the remedial actions for the first operable unit, and part of the second operable unit, have been completed and are fully protective.

The site was visited at least twice during the past year by the EPA project manager. The purpose of these visits was to observe the on-going remedial action at the site and to ensure that the contractor was adhering to all approved plans, specifications and protocols.

In addition to site visits, the following documents, data and information were examined in completing the Five-Year Review:

- *Record of Decision, Sinclair Refinery Site (OU1)*
- *Record of Decision, Sinclair Refinery Site (OU2)*
- *Remedial Action Report, Genesee River Partial Channelization and South Landfill Area Remediation, Sinclair Refinery Site*
- *Remedial Action Report, Central Elevated Landfill Area, Sinclair Refinery Site*
- *Remedial Action Report, Refinery Surface Soils Remediation, Sinclair Refinery Site*
- *USEPA CERCLIS3 Database*

V. RESULTS OF THE FIVE-YEAR REVIEW

The remedial actions for the first operable unit and part of the second operable unit have been completed. These actions include partial river channelization, landfill remediation, and excavation and disposal of contaminated surface soils, each for the purpose of preventing direct or potential exposure to on-site contamination. As previously stated, the final remedial action at the site, groundwater extraction and treatment with monitoring of site media, is not complete. However, the final remedial action has at this time been constructed and start-up has taken place.

In summary, although the final remedial action has not been yet been completed for the clean up of the site, I find that the remedy selected for the first operable unit and the action taken and completed for the second operable unit remains protective of public health and the environment. There is currently no exposure to human or environmental receptors because of the actions taken.

EPA is monitoring the progress of the final remedial action to complete making the site protective of human health and the environment. This remedy is currently being augmented to include source-control measures to improve its overall performance. Continued data collection will allow EPA to make a determination as to whether the groundwater remedy is operational and functional and will ultimately enable EPA to determine whether the groundwater remedy is effective in meeting the requirements of the OU2 ROD. It is expected such a determination can be made within the next two years. Within this timeframe, EPA will also make a determination as to whether modifications to the remedy warrant issuance of a ROD Amendment or Explanation of Significant Differences (ESD). Pending the outcome of current efforts, certain institutional

controls may be an appropriate component of the ROD Amendment or ESD. EPA is scheduled to conduct another Five-Year Review of the remedial action at the Sinclair Refinery Site in the year 2002.

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Sept 30, 1997