

Site Review And Update

EVOR PHILLIPS LEASING

OLD BRIDGE, MIDDLESEX COUNTY, NEW JERSEY

CERCLIS NO. NJD980654222

SEPTEMBER 3, 1992

REVISED

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia

Site Review and Update: A Note of Explanation

The purpose of the Site Review and Update is to discuss the current status of a hazardous waste site and to identify future ATSDR activities planned for the site. The SRU is generally reserved to update activities for those sites for which public health assessments have been previously prepared (it is not intended to be an addendum to a public health assessment). The SRU, in conjunction with the ATSDR Site Ranking Scheme, will be used to determine relative priorities for future ATSDR public health actions.

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Prepared by:

New Jersey Department of Health
Environmental Health Service
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

SUMMARY OF BACKGROUND AND HISTORY

The Evor Phillips Leasing Company site is located on Water Works Road, approximately one mile west of Route 9, and 2.5 miles northwest of Route 18, in Old Bridge Township, Middlesex County, New Jersey. The site covers six acres and is bounded to the north by Water Works Road, to the northwest by Bordentown Road, and to both the northwest and southeast by railroad tracks (Figure 1).

The surrounding area is largely industrial. CPS Chemical and Madison Industries (CPS/Madison), another Superfund site, are located approximately 800 feet southwest of the site. Other industrial facilities in the vicinity include Easco Aluminum-Jersey Billets Division, Lionette Oil Recovery, Forte Pallet, BG & M Trucking, P & J Daughters Trucking and Old Bridge Recycling.

According to 1990 United States Census data, about 672,000 people live in Middlesex County. About 56,483 people reside in Old Bridge Township. At least 40 residences are located within a one mile radius, and several hundred homes and multi-dwelling buildings are located within two miles. The nearest residence is located approximately 750 feet to the northwest.

Contaminated groundwater is the primary public health concern at the EPLC site. Groundwater at the site occurs in two zones: a perched zone (Cape May Formation) exists in the overburden and underlying the Cape May formation is the Old Bridge Sand aquifer (intermediate aquifer). Together they form a confining layer between the Old Bridge Sand and the Farrington Sand, which is a deeper potable aquifer underlying the site. The perched aquifer and the Old Bridge Sand aquifer are hydraulically connected. The aquifers of concern are the perched aquifer (Cape May Formation), and an intermediate aquifer (Old Bridge Sand), both of which exhibit signs of contamination. The site is situated in the recharge area of the Old Bridge Sand aquifer. All nearby residences have discontinued use of their private potable wells and are on city water.

The City of Perth Amboy wellfield is located approximately 3000 feet southwest of the site. The Perth Amboy well field supplies the water mostly for the cities of Perth Amboy and South Amboy. Adjacent to the Perth Amboy well field are two recharge ponds, Tennent Pond, and Prickett's Pond. These ponds were specifically created to enhance groundwater recharge to the supply wells.

The Sayreville municipal wellfield is located approximately 1000 feet southwest. Groundwater flow in the underlying aquifers is generally to the southwest although pumping at the Sayreville wellfield is believed to cause an induced a gradient of unknown magnitude in the direction of the wellfield. Potable water to the Borough of Sayreville is supplied by the Sayreville Water Company which maintains wells, recharge lagoons and pump mains several miles south of the site. The water company wells range from 300 to 700 feet in depth and draw water from the Old Bridge formation servicing approximately 8,500 people (Figure 2).

The site was used for hauling operations between 1969 and 1971 by the Evor Phillips Leasing Company (EPLC). In 1971, the site was leased to North American Metal and Chemical Company (NAMCC).

In February 1973, NAMCC entered into an agreement with the New Jersey Department of Environmental Protection (NJDEP) and removed 1,100 drums and bulk liquid waste from the Site.

It is alleged that, from 1972 to mid-1974, bulk acids and caustic solutions delivered to the site were discharged directly on to the ground. Several hundred drums were reportedly disposed of in a ravine at the west end of the site. The drums were alleged to have contained chlorinated solvents, aromatic hydrocarbons, ammonia, benzene, toluene, xylene, ketones and alcohols. Waste disposal operations continued under various owners and operators until April 1975, when the treatment ponds were closed and all sludge was disposed of at a landfill.

Silver recovery operations were also conducted at the site by NAMCC in the early 1970's, furnaces were used for the incineration of photographic film and printed circuit boards. Waste x-ray and other waste film was shipped to NAMCC from the Navy and Defense Department, incinerated, and reduced to ash. The ash was shipped to an off-site facility for metals recovery at Defense Department installations. Wastes associated with the silver recovery operations (silver and cyanide contaminated waste waters) were reportedly discharged directly to the ground. Silver recovery operations continued under various owners and operators until 1986.

Remedial Activities:

In 1982, the NJDEP Division of Hazardous Waste Management requested that the site be placed on the National Priorities List (NPL). Site investigations, consisting of initial physical and chemical characterizations, were performed. In December 1982, it was placed on the NPL. In 1983, the NJDEP excavated 30 to 40 drums and removed them from the site; approximately 30 drums remain buried on site.

An RI was performed to determine the type and concentrations of contaminants in the various media at the site and in the near vicinity. The field activities for phase I of the RI/FS in November 1986. In November 1989, the phase II field investigation was initiated. The RI/FS reports were completed in April 1992.^(1,2,3)

Samples were collected from surface soils and at various depths of the subsurface soils. Surface and subsurface soil samples were collected during both phases of the RI. The predominant contamination were present in subsurface soil. Contaminants of concern and their respective maximum concentrations in subsurface soil were: arsenic (38 ppm), chromium (2,870 ppm), cadmium (69 ppm) and phthalate esters (46.3 ppm), polychlorinated biphenyls (4.7 ppm), and base/neutral and acid extractables (106 ppm).

Test pits were excavated, and numerous buried drums were uncovered; waste samples were taken from intact drums and stained soils. Several of the drums that were encountered during the test pit excavations were sampled. The predominant drum contaminants and the respective maximum concentrations in parts per million (ppm) are: cadmium (22 ppm), chromium (1300 ppm), copper (440 ppm), and silver (55 ppm).

Groundwater Sampling:

Groundwater in the underlying aquifers and at the Sayreville potable wells were sampled. In addition, the contents of the septic system were sampled.

Monitoring Wells:

Several volatile organic compounds (VOCs) were detected in the perched aquifer in on-site and off-site monitoring wells. The following compounds were detected at levels exceeding the State and Federal Maximum Contaminant Levels (MCLs) for drinking water: 1,2-dichloroethane (1,2-DCA, 626 ppb), 1,2-dichloroethylene (1,2-DCE, 16 ppb), methylene chloride (363 ppb), tetrachloroethylene (PCE, 3.08 ppb), trichloroethylene (TCE, 7 ppb), vinyl chloride (2.06 ppb) and benzene (2.47 ppb). Inorganic contamination in the perched zone is widespread. Levels exceeding MCLs in groundwater wells were: antimony (68.3 ppb), beryllium (250 ppb), cadmium (21 ppb), chromium (5,280 ppb), copper (7,400 ppb), lead (279 ppb), nickel (3,890 ppb) and silver (441 ppb).

The following VOCs were detected in the on-site and off-site monitoring wells screened in the Old Bridge Sand aquifer exceeding MCLs: methylene chloride (22 ppb), benzene (12 ppb), chloroform (9 ppb), 1,2-DCA (35 ppb), 1,1-DCE (5 ppb), 1,1,2,2,-PCA (2 ppb), PCE (4 ppb), TCE (44 ppb), vinyl chloride (9 ppb). Metals contamination in the wells includes: beryllium (260 ppb), cadmium (25 ppb), and chromium (5,280 ppb). No PCBs were detected in the groundwater wells.

Municipal Wells:

The public supply well water sample results indicate the presence of low levels of VOC's in several of the Sayreville wells. The highest level of contamination was detected in well K, which is the closest well to the EPLC site. The well G and I showed contamination with 1,1-DCE at concentrations of 3.08 ppb and 3.43 ppb respectively. TCE was detected at concentration of 1 ppb in well K. Benzene was also detected in well K at concentration of 2 ppb.

Remedial Plan:

In 1992, EPA signed a Record of Decision (ROD) selecting the following interim remedy to clean up the site: removal and disposal of buried drums, and extraction and treatment of on-site groundwater. In addition, off-site groundwater investigations and treatability studies for the remediation of contaminated on-site soil will be undertaken prior to development of a second ROD.⁽⁴⁾

The problems at the site are complex. There are three major categories of contaminated media on site: buried drums and debris, soils, and ground water. In addition, there is an underground septic tank, a surface impoundment area, and underground fuel storage tanks, which may need to be addressed. As a result, the Environmental Protection Agency (EPA) and NJDEP have separated the remediation into two phases, or operable units.

The major components of the selected remedy include the following:

- Extraction of contaminated ground water underlying the site with on-site treatment and recharge of the treated water;
- Excavation of buried drums and debris in the drum disposal areas with off-site disposal at an appropriate facility; and,
- Environmental monitoring to evaluate the effectiveness of the remedy.

First of two planned operable units for the Evor Phillips addresses the drum disposal areas on the site and ground water in the underlying aquifer. The first operable unit, will initiate groundwater remediation and arrest further deterioration of the Old Bridge Sand aquifer, which is a major drinking water source for the region. Buried drums which serve as a continuing source of ground-water contamination will be removed and disposed of at an off-site facility.

A second operable unit will be performed to address the contaminated surface and subsurface soils on the site, and a comprehensive study to assess the impact of the site on the nearby municipal well fields. In September 1994, the New Jersey Department of Environmental Protection (NJDEP) started construction of the groundwater extraction system. The removal of the buried drums is expected to be started in late 1995 or early 1996. The studies called for in the first ROD will be conducted by NJDEP after the on-site groundwater pump and treat system is completed and will lead to a second ROD.

ATSDR Activity:

The Agency for Toxic Substances and Disease Registry (ATSDR) completed a Preliminary health assessment for the Evor Phillips Leasing Company site in April 1989.⁽⁵⁾ The preliminary health assessment noted that contaminated groundwater, surface water, on-site soils, leachate,

and sediment were the identifiable potential environmental pathways associated with the site. Groundwater contaminants of concern at the site consisted of volatile organic compounds (VOC's), including 1,2-dichloroethane and trichloroethylene.

The preliminary health assessment documented contamination of private wells with 1,2-dichloroethane, copper, nickel and zinc. However, no information was provided as to whether area residents were using these private wells for potable purposes. According to current site information provided by the NJDEP there are no private potable wells in use which have been impacted by the site, and all residences in the vicinity of the site are provided with municipal waterlines. The use of private wells for potable purposes in the past could not be confirmed.

Potential human exposure pathways included ingestion and direct contact with groundwater, surface water, soil, and possible ingestion of bioaccumulated contaminants in the food chain. In addition, inhalation of volatilized contaminants or contaminants entrained in air during remedial operations is another potential source for human exposure.

The 1989 preliminary health assessment did not identify any community health concerns. The ATSDR identified the following public health concerns in the 1989 preliminary health assessment:

- 1) Inhalation of site related contaminants entrained in air is a potential exposure pathway to the residents living near the site. This pathway is not substantiated in the light of current site data and information because the site is well vegetated;
- 2) Seven private wells were found to be contaminated; however, it was not known at this time whether these wells were used for potable purposes. The use of private wells for potable purposes in the past could not be confirmed. Presently, these wells are no longer in use and, based upon the current information, all the residents in the area are provided municipal waterlines.
- 3) Direct contact and incidental ingestion of contaminated soil by area residents is the likely route of exposure. This pathway is not substantiated in the light of current site data and information because the site is partially fenced and unauthorized access is not likely;

In summary, the ATSDR categorized the site in 1989 as a public health concern because of the risk to human health resulting from possible exposure to hazardous substances at concentrations that may result in adverse health effects. In addition, ATSDR concluded that further information is needed to adequately assess the impact of the site on public health.

Recommendations were made to conduct the following activities:

- 1) Restrict access to the site;
- 2) Insure that contaminated groundwater is not being used for potable purposes;

- 3) Obtain additional information on contaminants to further characterize the site and characterization of the hydrogeology of the area;
- 4) Additional information on potential environmental pathways through which the contaminants can reach the residents living near the site; and,
- 5) Continued monitoring of municipal wells in the vicinity of the site to ensure the safety of the public water supply.

CURRENT CONDITIONS OF SITE

On July 19, 1995, Narendra P. Singh and James Pasqualo of the New Jersey Department of Health (NJDOH) visited the EPLC site accompanied by the NJDEP Project Manager and ATSDR Regional Representatives Arthur Block and Steve Jones. The site visit included a formal presentation by the NJDEP.

The EPLC site is partially fenced and hazard warning signs are posted. The site contains several structures which present a physical hazard. There was no evidence of any trespassing on the site. However, any trespassers entering the area would be at some physical risk due to the hazardous materials and old equipment stored on site. There are no known or suspected radiological or biological hazards associated with the site.

As noted in the site documents, the surrounding area is industrial. Conditions at the site have changed since the 1989 preliminary health assessment as installation of a groundwater collection and extraction system for removal of contaminated groundwater from the perched zone and upper bedrock aquifer has been completed.

The main operations area of the site consists of furnaces. The furnaces were used for the incineration of photographic film and printed circuit boards. The furnaces were fired by fuel oil stored in three underground storage tanks. At the eastern portion of the site are several buildings which consist of offices, garages, and storage areas. At the northeast portion of the site is parking area where numerous buried drums were unearthed. The western end of the property, in which the majority of waste burial is thought to have occurred, is characterized by small piles of soil and debris.

CURRENT ISSUES

Based on the Remedial Investigation, site related contamination is present in groundwater and soil. The primary public health issue associated with the EPLC site pertains to the potential impact of the groundwater contamination on existing municipal wells.

At the time the original ATSDR preliminary health assessment was written, there was a great deal of concern regarding off-site groundwater contamination, and it was noted that the full extent of the off-site groundwater contamination was not known.

The City of Perth Amboy and the Borough of Sayreville both have major municipal water supply well fields within one mile of the site. The Perth Amboy public water supply has been contaminated and there has been a high level of community interest in this particular issue. The Perth Amboy public water supply wells (Supply Wells #5 and #6) have been affected by contaminants from the CPS Chemical Company and Madison Industries. The CPS Chemical Company and Madison Industries facilities are located approximately 800 feet southwest of the EPLC site. The treating and blending of potable water has temporarily eliminated concerns from exposure to groundwater contaminants via affected Perth Amboy public supply wells. Community health concerns regarding the presence and potential health effects from soluble organics in Perth Amboy's finished water has not been verified. The Evor Phillips site is thought to have little impact on the Perth Amboy well field, which is upgradient of the site. However, the site may have an impact on the Sayreville well field which is downgradient.

Sayreville Wellfield

The Borough of Sayreville Water Department operates 12 wells at the Bordentown well field. Eleven of the 12 wells are screened in the Old Bridge Sand. Chlorinated hydrocarbons and aromatic organics have been detected in the Bordentown supply wells. The total population served by both these well fields is approximately 94,000 people.

The pre-treated public well water sample results indicate the presence of low levels of VOC's in several of the Sayreville wells. The highest level of contamination was detected in well K, which is the closest well to the EPLC site. 1,1-DCE was detected at concentration of 3.08 ppb in well G, and at concentration of 3.43 ppb in well I. TCE was detected at concentration of 1 ppb in well K. Benzene was also detected in well K at concentration of 2 ppb. Aeration, pre-chlorination, coagulation with alum, flocculation and sedimentation, and sodium hexametaphosphate treatment are the water treatment processes currently used by the Sayreville Water Department. The Borough of Sayreville Water Department samples and tests its water quality as required by the Federal and State of New Jersey Safe Drinking Water Acts.

Municipal well water is treated to ensure the safety of the water supply. However, the level of contaminants detected in the untreated municipal water supply would not pose a potential for adverse health effects based on toxicological evaluation of these contaminants.

The community health concerns associated with the site focus upon the groundwater contamination particularly by volatile organics and heavy metals and their impact on public supply wells. Local officials, as well as private citizens, have expressed concern to NJDEP about the Evor Phillips site and other sites in the area. The residents of Old Bridge Township, through their Environmental Commission, have interacted and communicated with NJDEP on a continual basis.

All of the Township residents are served by the public water supply system. The earlier removal of contaminated drums has reduced the risks at the Evor Phillips site. In addition, the site does not pose an immediate threat to the surrounding community while the interim remedial work and further site studies are taking place. NJDOH has not identified any additional community health concerns.

CONCLUSIONS

1. Based upon current site data and information, site-related contamination is present in groundwater and on-site soils.
2. After a review of the most recent documents and the current site conditions, the ATSDR and the NJDOH have determined that currently the site poses no apparent public health hazard under current hydrogeological conditions.
3. Under present site conditions there are no completed human exposure pathways of public health concern. Off-site migration of site related contaminants in groundwater have affected the Sayreville municipal wells with low levels of contaminants, which are treated and are monitored to ensure the potability of the effluent water. Currently, exposure to on-site soil contamination is not probable as the site is partially fenced and unauthorized access is not likely. Contaminants in subsurface soils, are not readily accessible for human contact and, therefore do not pose a direct contact hazard.
4. The human exposure pathway cited in the preliminary health assessment associated with the use of private potable wells is not valid based on present site information. According to current information provided by the NJDEP, past usage of contaminated private well water could not be verified. Currently, there are no private potable wells in use which have been impacted by the site.
5. Conclusions that were made in the 1989 health assessment regarding the site being of public health concern are no longer valid because there are presently no completed human exposure pathway associated with the site and measures are in place to reduce or eliminate exposures to site related contaminants.
6. The recommendation from the 1989 ATSDR Preliminary Health Assessment to restrict access to site has been partially satisfied. The human exposure pathway cited in the preliminary health assessment associated with on site soil contamination is not valid under present site conditions.
7. The recommendation from the 1989 ATSDR Preliminary Health Assessment to obtain additional information on contaminants to further characterize the site and characterization of the hydrogeology of the area will be completed as specified in the work plan (operable unit 2).

8. The recommendation from the 1989 ATSDR Preliminary Health Assessment for continued monitoring of municipal wells in the vicinity of the site to ensure the safety of the public water supply was satisfied.

RECOMMENDATIONS

Cease/Reduce Exposure Recommendations

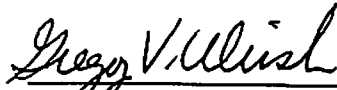
1. Continued monitoring of municipal wells is indicated to evaluate trends in contaminant concentrations and distributions, and to ensure the safety of the public water supply.
2. Results of periodic environmental monitoring programs for groundwater quality should be reviewed for public health significance when available. Should the data indicate a change in site conditions, a health consultation should be performed to evaluate potential toxicological implications.
3. The data and information developed in this Site Review and Update have been evaluated to determine whether Health Activities Recommendation Panel (HARP) follow-up actions may be indicated. No HARP evaluation is indicated at this time.

Site Characterization Recommendations

1. The remedial activities specified in the ROD, when implemented, are sufficient to address remaining concerns of the ATSDR, the NJDOH, and the community regarding the site and are consistent with protection of the public health.

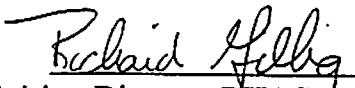
CERTIFICATION

The Site Review and Update for the Evor Phillips Leasing Company (EPLC) site was prepared by the New Jersey Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the site review and update was initiated.



Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Site Review and Update and concurs with its findings.


for Division Director, DHAC, ATSDR

REFERENCES

1. Remedial Investigation Report- Volume I: Technical Report, Evor Phillips Leasing Company site, Old Bridge Township, Middlesex County, New Jersey. NJDEP. April, 1992.
2. Remedial Investigation Report- Volume II: Human Health Evaluation and Environmental Assessment, Evor Phillips Leasing Company site, Old Bridge Township, Middlesex County, New Jersey. NJDEP. February, 1992.
3. Remedial Investigation Report- Volume I: Appendices, Evor Phillips Leasing Company site, Old Bridge Township, Middlesex County, New Jersey. NJDEP. April, 1992.
4. Record of Decision, Evor Phillips Leasing Company site, Old Bridge Township, Middlesex County, New Jersey. USEPA. July, 1992.
5. Preliminary Health Assessment for the Evor Phillips Leasing Company site, Old Bridge Township, Middlesex County, New Jersey. ATSDR. April 1989.
6. Agency for Toxic Substances and Disease Registry, Toxicological Profile for trichloroethene, Atlanta. ATSDR, 1993.
7. Agency for Toxic Substances and Disease Registry. Toxicological Profile for 1,1-Dichloroethene, Atlanta. ATSDR, 1993.
8. Agency for Toxic Substances and Disease Registry, Toxicological Profile for Benzene, Atlanta. ATSDR, 1993.

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Appendix - A

