

Health Assessment for

HIGGINS DISPOSAL

CERCLIS NO. NJD053102232

FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY

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Agency for Toxic Substances and Disease Registry
U.S. Public Health Service

THE ATSDR HEALTH ASSESSMENT: A NOTE OF EXPLANATION

Section 104(i)(7)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, states "...the term 'health assessment' shall include preliminary assessments of potential risks to human health posed by individual sites and facilities, based on such factors as the nature and extent of contamination, the existence of potential pathways of human exposure (including ground or surface water contamination, air emissions, and food chain contamination), the size and potential susceptibility of the community within the likely pathways of exposure, the comparison of expected human exposure levels to the short-term and long-term health effects associated with identified hazardous substances and any available recommended exposure or tolerance limits for such hazardous substances, and the comparison of existing morbidity and mortality data on diseases that may be associated with the observed levels of exposure. The Administrator of ATSDR shall use appropriate data, risk assessments, risk evaluations and studies available from the Administrator of EPA."

In accordance with the CERCLA section cited, this Health Assessment has been conducted using available data. Additional Health Assessments may be conducted for this site as more information becomes available.

The conclusions and recommendations presented in this Health Assessment are the result of site specific analyses and are not to be cited or quoted for other evaluations or Health Assessments.

HIGGINS DISPOSAL
FRANKLIN TOWNSHIP, SOMERSET COUNTY, NEW JERSEY

Prepared By:
Environmental Health Service
New Jersey Department of Health (NJDOH)

Prepared For:
Agency for Toxic Substances and Disease Registry (ATSDR)

OBJECTIVES

The Remedial Investigation of the Higgins Waste Disposal site is currently in the first year of the work plan. The objectives of this Health Assessment, based upon the current stage of site investigation and remediation, are to:

- * Assess the nature and magnitude of the potential health effects associated with the site, and determine the site's degree of public health concern;
- * Identify, if necessary, immediate actions necessary to minimize exposure to hazards and contamination associated with the site;
- * Identify, if necessary, gaps in data and information regarding the site;
- * Document the concerns of the community with regard to the site;
- * Review remedial activities within the context of potential public health implications;
- * Assess whether additional health study or investigation of the site is warranted.

SUMMARY

The Higgins Waste Disposal Site comprises an area of 38 acres located on Laurel Avenue in Franklin Township, Somerset County, New Jersey. An unpermitted hazardous waste landfill and transfer station was operated on site. The landfill contains approximately 2260 cubic yards of hazardous waste including PCBs and volatile organic chemicals. The underlying aquifer is extensively used as a

able source of potable water by residents in the area. Site related contaminants have been detected in potable wells near the site. A number of homes in the area have been supplied by the United States Environmental Protection Agency (USEPA) with carbon filtration systems. The site is currently ranked 79 among N.J. NPL sites. The Remedial Investigation was initiated by USEPA in the fall of 1989. ATSDR and NJDOH consider the Higgins Disposal Site to be of public health concern. This site is being evaluated for follow-up health study and/or investigation.

SITE DESCRIPTION

The Higgins Disposal Site consists of over 38 acres at 121 Laurel Avenue, in a semi-rural region of Somerset County, New Jersey (just north of the town of Kingston). The site was first identified in 1981 when FMC Corporation reported to USEPA that its Princeton plant had deposited approximately 61,000 cubic feet of chemical waste containing heavy metals, organic solvents, and pesticides at the site (in 1974). It was subsequently determined that the owner of the property operated an unpermitted landfill and an unpermitted transfer station on the site. Although it is not clearly established, the owner has claimed that the transfer station had been operating since 1952.

In 1982, the New Jersey Department of Environmental Protection (NJDEP) issued an Administrative Order under the State's Solid Waste Management Act requiring the owner to cease acceptance and disposal of solid waste, and to remove waste already at the facility. The USEPA conducted a potential hazardous waste site inspection in 1983, noting that hazardous waste was present in: a surface impoundment, piles, above ground drums, above ground tanks, a landfill, and in an unknown quantity of buried drums. In 1986, NJDEP sampled soil and water on site. Estimated quantities of waste on the site are 2,260 cubic yards of hazardous waste and 20,300 cubic yards of solid and liquid wastes.

Volatile organic compounds have been detected in potable wells near the site. As a result, a well restriction area, which is approximately 1,800 feet by 2,200 feet, is in effect near the site. Homes within the well restriction area are currently supplied with a filtration system to filter out contaminants that might be present in their water.

The landfill was described in an EPA report as having inadequate cover, no diversion system, and consisting of at least some leaking containers which were deposited and buried. Other inspections of the site have reported that the roads in and out of the site are not paved, the entire lot surface itself is dirt, and the disposition of the hydrocarbon, medical, and chemical waste was not visible. The owner has stated that the landfill has no liner.

SITE VISIT

On May 8, 1989, two members of the NJDOH Environmental Health Service, accompanied by local health officials of Franklin Township Health Department, visited the Higgins Disposal Service site. The Higgins Disposal site is approached from Laurel Avenue. It is not densely populated in the immediate environs of the site. There are six single family homes located across the road from the site, to the east on Laurel Avenue. The owner of the disposal service resides on-site. There are also horse stables, riding areas, and a barn on the site.

The transfer station and landfill are not readily apparent from the road. To the north of the site is a forested area; to the east on one side of Laurel Avenue there are open fields; to the south/southwest are Dirty Brook Stream and the Trap Rock Quarry property. The site does not appear to be easily accessible without detection, as both the entrance and exit roads are in close proximity to the owner's office and residence. The fact that there are horses boarded on the property containing the site would imply that there are people in the area on a regular basis.

There was a noticeable amount of various types of surface trash at the back of the site, not visible from Laurel Avenue, consisting of road and construction debris, as well as old and rusted vehicles and equipment.

COMMUNITY CONCERNS

The concerns of nearby residents have centered around the quality of their groundwater, along with the need for a well restriction area and individual filtration systems. Some concerns have been expressed by residents about another nearby NPL site, the Higgins Farm site, which has the same owner/operator as Higgins Disposal Service site.

Aside from the residents immediately impacted by the site, there is little concern regarding the site among the community at large. The lack of additional expressed concerns may be due to a combination of factors: the waste disposal activities are not visible or apparent from off-site, the surrounding area is rural and sparsely populated, and the site was only recently proposed for inclusion on the Superfund list.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

Environmental pathways at the site are related to contamination in the following media: groundwater, surfacewater soils and sediments. Media that have been sampled on or near the Higgins Disposal site include groundwater (potable wells), soils,

and sediments. Additional sampling will occur as part of the ongoing RI/FS. Comprehensive data describing contamination in suspected media are not available for review and evaluation.

In 1985, eight samples from private potable wells of nearby residents were collected by the Franklin Township Health Department and analyzed by the State Department of Health Laboratory. Volatile organic compounds were detected in all of the wells. The maximum concentration of the contaminants that were detected in the potable wells are presented in Table 1.

In 1986, the NJDEP sampled and analyzed soil and surface water sediments from an on-site pond several hundred feet downgradient from the landfill area. In 1987 soil from the area around the landfill and the pond were sampled and analyzed. Of the compounds identified during this analysis, AROCLOR 1248, at 43 ppm, is a contaminant of concern.

The groundwater in the area consists of the Lockatong argillate formation and the Brunswick shale which are hydraulically connected. The soils in this area are described as permeable. The depth to groundwater has been reported to be as shallow as 20 feet. The direction of groundwater flow in this area is reported as being to the west. The well records indicate that well depths in the immediate vicinity vary from 29 to 500 feet. There is evidence of perched aquifers in the region. A combination of surface water conduit, shallow hydraulically connected groundwater formations, and permeable soils are considered to produce circumstances which would facilitate off-site movement of contaminants.

The landfill itself is located on slightly elevated ground and the edges depress to more level ground with the slope being to the southwest in the direction of the on-site pond. This pond, when full, discharges into a conduit which travels for 75 feet to Dirty Brook stream which flows through the Trap Rock property to the Delaware and Raritan Canal.

The site contains no apparent or discernible physical hazards.

QUALITY ASSURANCE/QUALITY CONTROL

Quality Assurance/Quality Control data relating to the materials reviewed to date was not available for evaluation. There are some indications of blank contaminations (i.e. methylene chloride), which could have yielded a false positive reading for the sample(s).

DEMOGRAPHICS

The area surrounding the site, just north of the town of Ringston, is a rural but developing community. It is approximately two miles from a commercial/industrial area. There are approximately 2,000 private wells within 3 miles of the site serving a population of about 8,000 individuals. The population within one, two, and three miles of the site is 4,134, 8,268, and 12,403 respectively. The landfill itself is situated 400 feet from the owner's private well. The distance to the nearest off-site private well is several hundred yards.

Within a three-mile radius there are several farms which produce fruits and vegetables for human consumption, as well as sod and animal feed. According to a 1986 NJDEP memo, these farms do not use groundwater for irrigation and their water sources are derived from streams and ponds which are not considered to be in the contaminant migration pathway.

The habitats of nine endangered species are within one mile of the site. A fresh water wetland is situated 300 feet away. Within three stream miles of the discharge point of Dirty Brook, the Delaware and Raritan Canal is utilized for fishing, boating, and swimming. The North Brunswick Township Water Department has a drinking water intake located on the canal six miles downstream from the entry point of Dirty Brook. Due to the distance of this intake from the site, it is highly unlikely that the quality of the water at the intake is affected by the site. There is a historical marker that is separated from the site by a wooded area.

Sensitive populations that may be exposed to contaminants from the site include children who may visit the historical marker near the site, ride the horses on the site, or utilize the Canal for recreational purposes.

ENVIRONMENTAL DATA GAPS

The RI/FS on the Higgins Disposal Site has not yet been completed. The Remedial Investigation Report, when available, will provide additional data regarding the contamination associated with the site. The following site data and information needs are desirable for the formulation of a comprehensive health assessment.

Additional monitoring wells and samples are needed to better characterize and/or delineate the hydrogeology and groundwater contamination in the area. If these studies indicate a potential for contamination of potable wells that have not been sampled,

Additional potable well sampling should be expedited.

A geophysical survey is indicated to ascertain the presence of buried drums, especially in those places serviced by the on-site road patterns.

Additional soil samples are needed to delineate soil contamination and to identify the presence of "hot spots". Efforts should be directed toward characterizing the medical/laboratory waste known to exist on-site. The potential exists for some of this to be radiologic or infectious in nature. Since various site inspections have not been definitive in determining the disposal fate of various medical, chemical and hydrocarbon (i.e. number 2 fuel oil, JP-4, and turbine fuels) wastes, the on-site septic systems ought to be sampled. Soil sampling needs to also include areas used for riding and training of the horses.

The hydrogeology reports indicate that surface waters to the south/southwest might be the discharge area for the groundwater plume. The plume discharge area needs to be established and, depending on the location and distance from the site, may need to be sampled.

In addition to groundwater, media that may be affected by the site and need to be sampled off-site include soils, surface water, sediment, and possibly air and fauna. Sensitive subpopulations and fragile ecosystems need to be addressed in the impending RI/FS. Studies off-site also need to address the issue of whether rock that is removed from the adjacent quarry could be impacted by the contaminants on the site.

EXPOSURE PATHWAYS

The primary exposure pathway related to the Higgins Disposal site is the use of contaminated groundwater by residents in the area. Suspected significant pathways are currently undocumented, but may be associated with contaminated soils, surface water, and sediments. Pathways associated with air contamination, with the exception of soil dusts generated by sporadic on-site activities, do not appear significant at this time, based upon available data.

Potential exposure to contaminated groundwater could occur via ingestion, dermal contact, and/or inhalation of volatilized contaminants in indoor air. Nearby residents have been provided with a filtration system, but it is likely they would have previously been exposed to the contaminants. Current exposure via this route would only be occurring if wells that have not yet been identified and sampled have been impacted by the site.

On-site pond sediments containing PCBs empty into Dirty Brook stream which discharges into the Delaware and Raritan Canal.

People who use the Canal for fishing, boating and swimming may be at risk for contamination via ingestion and dermal contact.

Individuals who trespass or work on-site may contact contaminated soils. Since, to date, the soil contamination has not been adequately delineated or characterized, and the areas where soil contamination has been found are not posted or fenced off, on-site workers, the owners, and guests, as well as those who use the equestrian facilities could contact contaminated soil and intermittent dust.

PUBLIC HEALTH IMPLICATIONS

It is difficult to accurately address the potential health implications associated with the Higgins Disposal Site, since the RI/FS on the site has not yet been completed and the contamination associated with the site has not been delineated and characterized. Significant public health implications exist because of the:

- * Contaminants that have been detected on site;
- * Demonstrated groundwater contamination and the dependence upon groundwater as a sole source of potable water;
- * Characteristics of the soil, groundwater, and surface water in this region are conducive to the migration of contaminants off site;
- * Size of the site, and period of years that the site was operational, and;
- * Proximity of the site to recreational areas.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the information reviewed, ATSDR has concluded that this site is of public health concern because humans have been exposed to hazardous substances at concentrations which may result in adverse health effects. As noted in the Environmental Contamination and Physical Hazards section above, human exposure to volatile organic chemicals is possibly occurring and has probably occurred in the past via the domestic and potable use of contaminated groundwater.

In accordance with CERCLA as amended, the Higgins Waste Disposal Service site has been evaluated for appropriate follow-up with respect to health effects studies. Since human exposure to on-site and off-site contaminants may be occurring and has probably occurred in the past, this site is being considered for follow-up health effects studies. After consultation with Regional EPA staff

State and local health and environmental officials, the Division of Health Studies, ATSDR, and the New Jersey Department of Health will determine if follow-up public health actions or studies are appropriate for this site. ATSDR will be considering sites for inclusion in the benzene sub-registry, and this site will be included in the consideration.

The landfill area needs to be fenced and posted. If "hot spots" are detected, they should also be fenced and posted. People who frequent the property (i.e., workers, horseback riders) need to be made aware of the presence of the Superfund site, and the need to stay away from areas of contamination.

Plans for development of the area must be carefully reviewed in the context of current and forthcoming site data to insure the public health is not compromised.

When indicated by public health needs, and as resources permit, the evaluation of additional relevant health outcome data and community health concerns, if available, is recommended.

CERTIFICATION

This Health Assessment was prepared by the New Jersey State 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 health assessment was initiated.


Technical Project Officer, SPS, RPB, DHAC

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


Division Director, DHAC, ATSDR

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REFERENCES

Superfund Documents:

FMC Corporation, CERCLA Reporting Form.

United States Environmental Protection Agency, Potential Hazardous Waste Site Inspection Report

Laboratory Reports:

Accutest Labs Analysis Reports.

New Jersey Department of Environmental Protection (NJDEP) Environmental Testing and Certification Reports.

New Jersey Department Of Health (NJDOH) Laboratory Report.

File Reviews:

Franklin Township Files.

NJDOH Files.

NJDEP Files.

Interviews:

Franklin Township Health Officer.

Franklin Township Environmental Officer.

TABLE 1 - Maximum Concentration of Contaminants in Off-Site
Potable Wells; Higgins Disposal Service Site.

Compound	ppm
Methylene Chloride	15
Carbon Tetrachloride	66
Chloroform	300
1,2-Dichloroethene	130
Tetrachloroethene	130
1,1,1-Trichloroethane	140
1,1,2-Trichloroethane	32
Trichloroethene	230