

Health Consultation

KIN-BUC LANDFILL

EDISON TOWNSHIP, MIDDLESEX COUNTY, NEW JERSEY

CERCLIS NO. NJD049860836

SEPTEMBER 28, 1999

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 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

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CERCLIS NO. NJD049860836

Prepared by:

**Hazardous Site Health Evaluation Program
Consumer and Environmental Health Service
Division of Environmental and Occupational Health
New Jersey Department of Health and Senior Services
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry**

BACKGROUND AND STATEMENT OF ISSUES

Statement of Issues

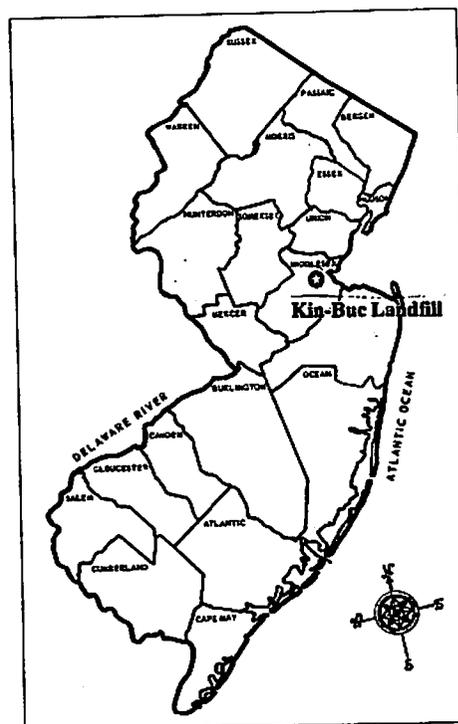
The Kin-Buc Landfill site is being revisited to determine whether conclusions and recommendations from previous ATSDR/NJDHSS activities remain valid within the context of present conditions at the site.

Background

The Kin-Buc Landfill consists of several inactive disposal sites covering approximately 220 acres at the end of Meadow Road, Edison Township, Middlesex County (Inset). The site is bordered on the south by the Edison Landfill, on the east by a tidal wetlands and the inactive ILR Landfill, on the west by the Raritan River, and on the north by the Edison Salvage Yard and a chemical manufacturing plant. The Kin-Buc site is located within an industrial and commercial area of Edison Township (Figure 1).

The site includes two major mounds (Kin-Buc I and Kin-Buc II) and one minor mound (Mound B). Historically, three pits of black, oily leachate, designated Pits A, B, and C, were located on the edge of Kin-Buc I. Adjacent to the pits was an impoundment called Pool C. Oil, containing polychlorinated biphenyls (PCB's), accumulated in Pool C and then discharged into the nearby Edmond's Creek. This creek is a tributary of the Raritan River.

The Kin-Buc Landfill began operating as early as 1947, accepting many types of waste materials including: municipal, industrial and hazardous waste. Very little is known about the landfill's operations between 1947 and 1968. Kin-Buc, Inc. operated the landfill from 1968 to 1976. It was a State-approved landfill for solid and liquid industrial and municipal waste between 1971 and 1976. The exact nature and quantity of the materials deposited at the Kin-Buc Landfill is not known, but the U.S. Environmental Protection Agency (USEPA) estimates that at least 70 million gallons of liquid waste and one million tons of solid waste were deposited between 1973 and 1976. In 1976, the New Jersey Department of Environmental Protection (NJDEP) revoked Kin-Buc's permit to operate because of violations of both State and Federal environmental statutes. The USEPA involvement at the site also began in 1976, and by 1979 they had filed initial charges against Kin-Buc Inc. Under a 1980 partial settlement, Kin-Buc Inc. agreed to install a landfill cap and monitor the site, but not to remediate the site or control further contaminant migration from the site. Therefore, in 1980, the



USEPA initiated its own cleanup activities that included collecting aqueous and oily leachate from the Pool C area for off-site treatment and disposal.

There are about 3000 residents living within 3 miles of the site. Residents in the area of the landfill have often complained to the local health department about noxious odors emanating from the site. This was particularly true prior to the initial capping activities of Kin-Buc I in 1980.

The Kin-Buc Landfill was listed on the National Priorities List (NPL, a/k/a Superfund) in October 1981. The USEPA issued Unilateral Administrative Orders (UAO's) to the owners and operators of the landfill which required a removal program and performance of a Remedial Investigation/Feasibility Study (RI/FS).

For remediation purposes, the site has been divided into Operable Unit 1 (OU1, Kin-Buc I and Kin-Buc II landfills, Pool C, and portions of the low lying area between Kin-Buc and Edison Landfills) and Operable Unit 2 (OU2, including surrounding areas, e.g., Mound B, and adjacent surface water bodies, e.g., Edmond's Creek). Between 1982 and 1988 a RI/FS for OU1 was conducted by the owner-operators for the site. At the conclusion of the OU1 RI/FS there was enough information to make a decision with respect to a remedial remedy and a Record of Decision (ROD) was signed on September 30, 1988 by USEPA. The ROD for OU1 required the construction of a slurry wall and a groundwater treatment system. The remedial work of OU1 began in August 1993 and was completed in January 1997. The remediation included the installation of a 7,000 foot long circumferential slurry wall around the two major mounds (Kin-Buc I and Kin-Buc II), a final RCRA cap and a groundwater treatment system. The slurry wall was placed as deep as 60 feet in some locations and was keyed 3 feet into the bedrock layer under the mound. The groundwater treatment system was built to collect and treat groundwater and leachate from the two mounds.

An RI/FS for OU2 was completed in 1991 and a ROD for was signed on September 28, 1992. The ROD for OU2 selected a remedy that requires the excavation of Edmond's Creek and other nearby wetlands sediments contaminated with PCBs over 5 parts per million, and the disposal of these sediments within the landfill, as well as the restoration of excavated areas.

A biota and sediment study is currently being conducted by the PRPs, under USEPA monitoring. Recent sediment sampling has shown that in some instances it appears that PCB concentrations may not be trending downward. In some cases, PCBs have been detected at higher than expected levels (up to 15 ppm) in the Edmond's Creek. The USEPA will continue to monitor this situation until the study period is over (late 1999). If the results of the biota and sediment study (completion date February 2000) do not show improvement, USEPA will determine what additional remedial actions are necessary to ensure the protectiveness of the remedy. In addition, the New Jersey Department of Environmental Protection currently conducting a broader biota study of the Raritan River (NJDEP, personal communication).

Mound B is known to contains refuse, however, there is limited information available regarding the nature or origin of this material. During the excavation activities associated with the installation of

the outfall line for the OUI leachate treatment plant, a small number of buried drums were discovered in Mound B. This prompted the USEPA to conduct an investigation of the Mound. In June 1997 groundwater and subsurface soil samples were collected and analyzed for both organics and inorganics. In six sample locations, clean-up criteria for arsenic were exceeded. However, since all were estimated values, this phase of the investigation was inconclusive.

In January 1998, an geophysical survey of Mound B was conducted. In May 1998, based on the survey results, trenches were dug and drum waste samples were collected. Results indicated that Mound B contained hazardous substances which could serve as a continuing source of contaminants to groundwater and eventually the Raritan River. As a result of this information, the USEPA, or the PRPs, will perform a removal action at Mound B.

Previous ATSDR/NJDHSS Involvement

The ATSDR/NJDHSS has completed a Public Health Assessment (June 3, 1987), a Health Consultation (April 30, 1993) and a Site Review and Update (July 24, 1995, revised September 29, 1995). The following is a review of these documents:

Public Health Assessment ⁽³⁾

A Public Health Assessment (HA) was prepared by the Agency for Toxic Substances and Disease Registry (ATSDR) on June 3, 1987. The Health Assessment was in response to a USEPA request to review the final draft report of the Kin-Buc Landfill Endangerment Assessment. After analyzing all of the information and data available for the Kin-Buc Landfill site Endangerment Assessment, the ATSDR noted that the toxicological issues addressed in the assessment were reasonable, however, they found that many environmental data gaps remained. In particular, the ATSDR reviewed air monitoring data that had been collected on and around the site and found them unsuitable to draw any conclusions concerning human exposure. ATSDR concluded that relatively little data was collected on air levels of contaminants, but that the levels that were detected were quite low. The levels were easily within the levels one might expect to find for most chemicals as background levels in an urban area. They also noted, however, that it was not clear if the method to collect these air samples was adequate to characterize the air quality.

The 1987 HA noted that conclusions regarding groundwater contamination and movement needed further consideration. In addition, ATSDR concluded that food chain contamination with PCB's, cadmium and possibly other heavy metals should be considered.

1993 Health Consultation ⁽⁴⁾

On April 30, 1993, the ATSDR performed a health consultation at the Kin-Buc Landfill site. The consultation followed a request by the Health Officer for the Edison Township and the USEPA to comment on the health concerns posed by the existing conditions at the site. In particular, the Edison

Township Division of Health requested a Health Consultation on the issue of human consumption of fish (and crabs) from the Raritan River as a possible threat to human health.

ATSDR concluded the following:

1. PCBs have migrated from the Kin-Buc Landfill into Edmond's Creek. The discharge of Edmond's Creek into the Raritan River has resulted in the disposition of PCB-contaminated sediment in the Raritan River at the Edmond's Creek outfall. The extent of PCB contamination in the Raritan River has not been determined.
2. Surface water runoff and tidal water flow in the Edmond's Creek and the channel from Pool C may result in the transport of additional PCBs into the Raritan River.
3. PCB concentrations in excess of acceptable health-based levels were detected in edible species of fish (striped bass and white perch) and shellfish (blue crab hepatopancreas) from the Raritan River.

The Health Consultation recommended the following:

1. Prevent further off-site migration of PCBs and other toxic substances from the Kin-Buc Landfill.
2. Restrict consumption of fish and shellfish from the Raritan River downstream of the Kin-Buc Landfill until it can be determined that PCB concentrations in edible fish and shellfish are below levels of health concern.

1995 Site Review and Update ⁽¹⁷⁾

In the 1995 Site Review and Update (SRU) of the Kin-Buc Landfill site, the ATSDR/NJDHSS discussed the current status of the site and tried to identify future ATSDR activities at the site. The SRU noted that some exposures to site contaminants, in the air and on-site soils, may have occurred in the past. However, under current site conditions at that time, both of these potential human exposure pathways had been interrupted and were not a health concern at the site.

The SRU noted that further off-site migration of PCBs has essentially been halted by pumping leachate from Pool C and restricting leachate runoff from the pool into the Edmond's Creek. Since remedial work on the major mounds and Pool C was found to be complete, the issue of additional PCB migration into the creek was determined to be eliminated.

Fishing and consumption of fish and shellfish from the Raritan River downstream of the Kin-Buc Landfill has been greatly reduced particularly through the efforts of the Edison Township Division of Health. These efforts included the issuance of fishing advisories, press releases, educational pamphlets, and the posting of signs along the river. Despite all these efforts it was noted that some

fishing still took place in the river. The SRU concluded that human exposure to PCB concentrations in excess of acceptable health-based levels may still occur at the site.

The SRU recommended the following:

1. Efforts to restrict consumption of contaminated fish and shellfish from the Raritan River may require reemphasis from the responsible health and environmental agencies to ensure compliance.
2. Testing of suspect biota should be ongoing and include all edible species of fish and shellfish available to residents fishing near the site.
3. The role of Mound B as a source of contamination and the possible future need to remediate this area needs to be addressed.

Site Visit

On July 28, 1999, J. Pasqualo and J. J. Winegar of the NJDHSS visited the Kin-Buc Landfill site accompanied by a representative the USEPA. The following observations were made during the site visit:

- The site is a very large inactive landfill consisting of two major mounds (Kin-Buc I and Kin-Buc II). The two large mounds have been capped and seeded.
- Conditions at the Kin-Buc Landfill site, since the 1995 Site Review an Update, have changed physically. Remedial work, as part of OU1, has been completed. The remediation, including the installation of a 7,000 foot long circumferential slurry wall and final cap, was completed in 1997. The slurry wall was placed as deep as 60 feet in some locations and was keyed 3 feet into the bedrock layer under the mounds.
- All planned remedial actions at the landfill are not complete, as of this site visit. Additional work was being done at the Mound B area. This additional work is due to the recent discovery of buried drums in this area. This activity is part of OU2 investigations.
- In addition, as part of OU2 investigations, USEPA began investigating the PCB levels in the remediated and unremediated parts of the Edmond's Creek. This study was conducted to verify that the remedial goal of 5 ppm PCBs in creek sediments, was met. Unfortunately, higher than expected levels of PCBs (up to 15 ppm) have been detected in Edmond's Creek sediments. It is important to note that the higher levels found in Edmond's Creek were found further from the site, towards the Raritan River.

- To date, results from the USEPA biota monitoring program show that PCB exposure to the creek biota is still occurring in Edmond's Creek. This study should be completed by February 2000 (USEPA, personal communication).
- The remedial contractors and the USEPA have removed the support trailers and the portable cement mixer from the site.
- The site was fenced and appeared to be secure. Under current site conditions, trespassing is unlikely.

DISCUSSION

Remedial actions at the Kin-Buc Landfill site have greatly reduced the potential for human exposure to hazardous substances. The remediation of the major mounds was completed in 1997 and, along with other control systems (e.g., leachate collection system), effectively halts contaminant migration and eliminates the possibility of human contact with contaminated on-site media. In addition, off-site migration of PCBs is believed to have been halted by remediation of Pool C, which has prevented on-site leachate migration site into the Edmond's Creek. Therefore, the issue of PCB migration from the site into the creek should be totally eliminated.

The 1993 Health Consultation and the 1995 Site Review and Update (SRU) raised concerns about PCB contamination in edible species of fish (striped bass, white perch) and shellfish (blue crab hepatopancreas) from the Raritan River. Past public health concerns regarding potential human exposure pathways associated with the human consumption of contaminated fish and shellfish remain valid due to higher than expected levels of PCBs (up to 15 ppm) that have been detected in the Edmond's Creek. The PRP's biota and sediment study, currently in progress, will investigate the effectiveness of the Edmond's Creek PCB removal action. This study will be completed on or about February 2000 and results will be evaluated by the USEPA. In addition, the NJDEP biota study of the Raritan River may also help towards future ATSDR/NJDHSS evaluation of PCB contamination in area fish and shellfish and its relation to public health issues.

Another newly identified concern at the site involves the area known as Mound B. Mound B is located outside the slurry wall, along the Raritan River. This area came under USEPA investigation during the excavation activities associated with the installation of the outfall line for the OU1 leachate treatment plant. During the digging through the Mound, a small number of buried drums were discovered. The role of Mound B as a source of contamination to the Raritan River is unknown and possible future remediation of this area is currently being addressed by the USEPA. USEPA soil sampling in the area has shown that, while some PCBs were detected, they were found at very low concentrations (maximum 72 ppb). This concentration is well below the USEPA soil cleanup level. Because of Mound B's location, this area is not contributing to any contamination in the Edmond's Creek.

ATSDR Child Health Initiative

ATSDR's Child Health Initiative recognizes that the unique vulnerabilities of infants and children demand special emphasis in communities faced with contamination in their environment. Children are at greater risk than adults from certain kinds of exposures to hazardous substances emitted from a waste site. They are more likely to be exposed because they play outdoors and they often bring food into contaminated areas. They are shorter than adults, which means they breathe dust, soil, and heavy vapors closer to the ground. Children are also smaller, resulting in higher doses of chemical exposure per body weight. The developing body systems of children can sustain permanent damage if toxic exposures occur during critical growth stages. Most important, children depend completely on adults for risk identification and management decisions, housing decisions, and access to medical care.

NJDHSS/ATSDR evaluated the likelihood for children trespassing on the Kin-Buc Landfill site to be exposed to contaminants at levels of public health concern. Most of the site has been remediated and the areas of contaminated soil are inaccessible, making contact with contaminated surface soil very unlikely. PCBs in the Edmond's creek sediments are not accessible to children.

CONCLUSIONS

Evaluation of Nature and Magnitude of Health Risks

On the basis of the information reviewed, the ATSDR and NJDHSS have concluded that due to remedial actions at the site, on-site contaminants are no longer accessible to persons using the site. Previously noted potential human exposure pathways (air and on-site soils) have been interrupted and are not presently a health concern at the site. The sites currently constitutes no public health hazard for exposures to on-site surface soil and/or sediments due to a lack of completed human exposure pathways.

The April 30, 1993 ATSDR Health Consultation and the September 29, 1995 Site Review and Update (SRU) for the Kin-Buc Landfill site concluded that it is of public health concern because PCBs have migrated from the landfill into edible species of fish (striped bass, white perch, etc.) and shellfishes (blue crab hepatopancreas) in the Raritan River remain valid. The site is apparently no longer contributing to this problem. However, because of historic releases of PCBs from the site, and numerous other possible sources of PCBs along the Raritan River, residents who consume fish or shellfish captured in this area may be exposed to PCB concentrations in excess of acceptable health-based levels.

While Mound B is known to contain materials such as municipal and household refuse and debris, it has not been fully characterized. The limited USEPA soil sampling in the area has shown very low concentrations of PCBs (maximum 72 ppb). This concentration is well below the USEPA soil cleanup level.

RECOMMENDATIONS

Several of the recommendations made in the in the April 30, 1993 ATSDR Health Consultation and the 1995 SRU at the Kin-Buc Landfill site are still valid. The recommendations were largely satisfied, however, there is a need for additional work before they are totally satisfied.

Recommendations that are still valid include:

1. Continue efforts to prevent further off-site migration of PCBs and other toxic substances from the Kin-Buc Landfill.
2. Continue to restrict consumption of fish and shellfish from the Raritan River until it can be determined that PCB concentrations in edible fish and shellfish are below levels of health concern. Efforts to restrict consumption of contaminated fish and shellfish from the Raritan River require continuing reemphasis from the responsible health and environmental agencies to ensure compliance.
3. Testing of suspect biota should be ongoing and include all edible species of fish and shellfish available to residents fishing near the site.

New recommendations include:

1. Continued efforts to characterize the role of Mound B as a possible source of contamination and the possible future need to remediate this area is warranted.
2. The biota and sediment study currently being conducted by the PRPs, under USEPA monitoring, should continue to investigate the source of the higher levels of PCBs in the Edmond's Creek. In addition, studies should continue to examine PCB's effects on the biota of the Raritan River. It should be noted that the Kin-Buc Landfill is just one of many possible sources of the PCBs found in the Raritan River.

New environmental, toxicological, health outcome data, or changes in conditions as a result of implementing the proposed remedial plan, may determine the need for other additional actions at this site.

PUBLIC HEALTH ACTION PLAN

The Public Health Action Plan (PHAP) for the Kin-Buc Landfill site contains a description of the actions to be taken at or in the vicinity of the site. The purpose of the PHAP is to ensure that this health consultation not only identifies public health hazards, but provides a plan of action designed to mitigate and prevent adverse human health effects resulting from exposure to hazardous

substances in the environment. Included, is a commitment on the part of ATSDR and NJDHSS to follow-up on this plan to ensure that it is implemented. ATSDR will provide an annual follow-up to this PHAP, outlining the actions completed and those in progress. This report will be placed in repositories that contain copies of this health consultation, and will be provided to persons who request it. The public health actions taken or to be implemented are as follows:

Actions Undertaken by ATSDR/NJDHSS:

1. These data and information developed in the Health Consultation have been evaluated by ATSDR/NJDHSS to determine public health concerns, regarding potential human exposure pathways associated with the Kin-Buc Landfill site.

Actions Planned

1. NJDHSS and the ATSDR will evaluate the biota and sediment study when these data are released following the studies completion on or around February 2000.
2. NJDHSS and the ATSDR will coordinate with the NJDEP, U.S. EPA, and Edison Township Division of Health to implement the recommendations and public health actions delineated in this health consultation.
3. ATSDR will provide an annual follow up to this PHAP, outlining the actions completed and those in progress. This report will be placed in repositories that contain copies of this Health Consultation, and will be provided to persons who request it.

ATSDR will reevaluate and expand the Public Health Action Plan (PHAP) when needed. New environmental, toxicological, health outcome data, or the results of implementing the above proposed actions may determine the need for additional actions at this site.

CERTIFICATION

The Health Consultation for the Kin-Buc Landfill site was prepared by the New Jersey Department of Health and Senior Services 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 Consultation was initiated.



Technical Project Officer, SPS, SSAB, DHAC

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



Acting Chief, SSAB, DHAC, ATSDR

DOCUMENTS REVIEWED

1. Record of Decision, OU1, Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, USEPA Region II, September 30, 1988.
2. Record of Decision, OU2, Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, USEPA Region II, September 28, 1991.
3. Agency for Toxic Substances and Disease Registry, Health Assessment for the Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, June 3, 1987.
4. Agency for Toxic Substances and Disease Registry, Health Consultation for the Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, April 30, 1993.
5. U.S. Environmental Protection Agency (Region II), Superfund Proposed Plan, Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, July 1992.
6. U.S. Environmental Protection Agency (Region II), Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, October 1994.
7. Geoengineering, Inc., Revised by Wehran Engineering, Draft Remedial Investigation Report for Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, April 1988.
8. Wehran Engineering Corporation, Draft Final Feasibility Study for Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, May 1988.
9. Wehran Engineering Corporation, Draft Remedial Investigation Report for Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, October 1990, Revised May 1991, Revised October 1991.
10. Wehran Engineering Corporation, Draft Supplemental Sediment Sampling Report for Kin-Buc Landfill site, Operable Unit 2, Edison Township, Middlesex County, New Jersey, April 1991.
11. Wehran Engineering Corporation, Final Work Plan for Kin-Buc Landfill site, Operable Unit 1, Remedial Design/Remedial Action, Edison Township, Middlesex County, New Jersey, March 1990.
12. Wehran Engineering Corporation, Final Work Plan for Kin-Buc Landfill site, Operable Unit 2, Remedial Investigation/Feasibility Study, Edison Township, Middlesex County, New Jersey, October 1989.

13. **CDM Federal Programs Corporation, Final Risk Assessment, Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, February 27, 1992.**
14. **Memorandum to general public utilizing the Raritan River and bay, Re: Fishing Advisory - Raritan Bay Complex, From John O. Grun, Health Officer, Department of Health and Human Resources, Edison, New Jersey, November 1993.**
15. **Memorandum to Hon. George A. Spadoro, Mayor, Re: Raritan River Fishing Advisory - Update, From John O. Grun, Health Officer, Department of Health and Human Resources, Edison, New Jersey, March 23, 1994.**
16. **Internal Memorandum to John O. Grun, Health Officer from Jay P. Elliot, Chief Sanitary Inspector, Re: Raritan River Fishing Advisory Signs, Department of Health and Human Resources, Edison, New Jersey, March 23, 1994.**
17. **Agency for Toxic Substances and Disease Registry, Site Review and Update for the Kin-Buc Landfill site, Edison Township, Middlesex County, New Jersey, July 24, 1995, revised September 29, 1995.**
18. **U.S. Environmental Protection Agency (Region II), Five-Year Review Report, Kin-Buc Landfill Superfund Site, Edison Township, Middlesex County, New Jersey, February 1999.**
19. **U.S. Environmental Protection Agency (Region II), National Priority Site Fact Sheet, Kin-Buc Landfill, Edison Township, Middlesex County, New Jersey, March 23 1999.**

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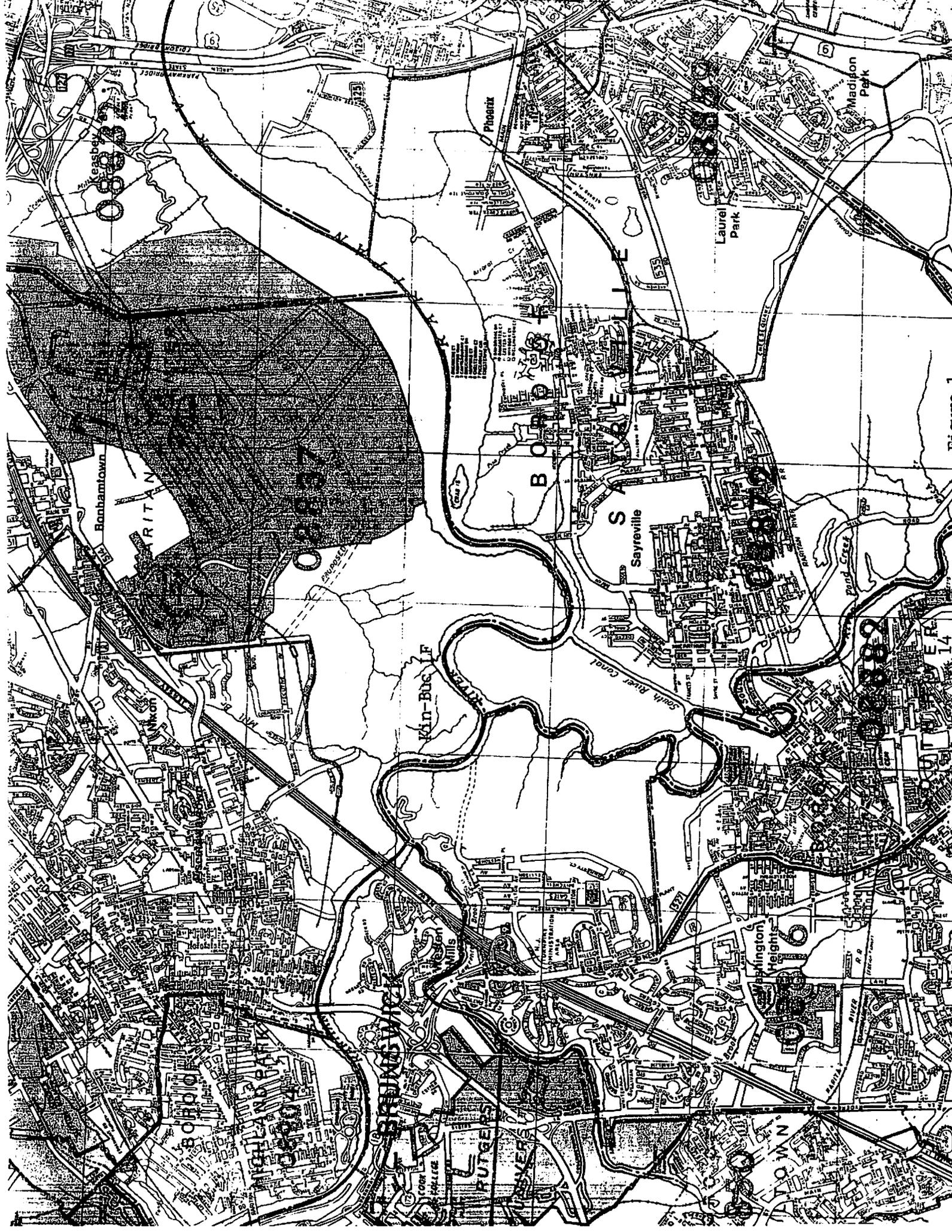


Figure 1