A REPORT OF THE TASK GROUP

GLOBAL LANDFILL AND THE SOMMERS BROTHERS PROPERTY SITES

A PROJECT TEACH ACTIVITY

NEW JERSEY DEPARTMENT OF HEALTH
A BETTER STATE OF HEALTH

ENVIRONMENTAL HEALTH SERVICE
DIVISION OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH
NEW JERSEY STATE DEPARTMENT OF HEALTH

AUGUST 1988

A REPORT OF THE TASK GROUP

ON

GLOBAL LANDFILL AND THE SOMMERS BROTHERS PROPERTY SITES

A PROJECT TEACH ACTIVITY

ENVIRONMENTAL HEALTH SERVICE
DIVISION OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH
NEW JERSEY STATE DEPARTMENT OF HEALTH

AUGUST, 1988

A REPORT OF THE TASK GROUP

ON

GLOBAL LANDFILL AND THE SOMMERS BROTHERS PROPERTY SITES

A PROJECT TEACH ACTIVITY

ENVIRONMENTAL HEALTH SERVICE
DIVISION OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH
NEW JERSEY STATE DEPARTMENT OF HEALTH

AUGUST, 1988

THOMAS H. KEAN
GOVERNOR

MOLLY JOEL COYE, M.D., M.P.H.
COMMISSIONER
DEPARTMENT OF HEALTH

EXECUTIVE SUMMARY

Within the past few years, residents near hazardous waste sites in New Jersey have organized their own community action groups with the primary goal of forcing government to assume its responsibility to clean-up hazardous waste sites and protect public health. With the ever-increasing number of hazardous waste sites and delays in official recognition and clean up of these sites, the frequency of new community action groups has markedly increased.

Global Landfill and the Sommers Brothers Property are located in Old Bridge Township, Middlesex County, off Route 9 and the Garden State Parkway. Available evidence indicates that years of mismanagement (Global Landfill) and illegal/unregulated disposal of hazardous and solid wastes in both sites, have lead to varying degrees of groundwater and surface water contamination. On the basis of the available evidence of contamination, the EPA, on July 21, 1988, announced that Global Landfill and 9 other sites in New Jersey have been proposed for inclusion on the federal National Priorities List (NPL). Hazardous waste sites on the NPL list are eligible for clean-up under the federal Superfund program. After a period of public comment, the EPA can officially place Global Landfill on the NPL. However, because of the current proposed Superfund status, the EPA is authorized to begin a thorough assessment of the site and develop the alternative remedial plan to clean-up the site.

The community surrounding the Global Landfill and the Sommers Brothers Property sites became frustrated with the delays and the perceived lack of truthfulness on the part of the New Jersey State Department of Environmental

Protection (DEP) and the federal Environmental Protection Agency (EPA) in the cleanup of these sites. C.H.E.C. (Citizens Helping Environmental Cleanup) was borne out of this frustration in an effort to provide a cohesive approach to airing and addressing the community's concern. C.H.E.C. expressed a great deal of distrust in both DEP and EPA to the extent that the community would doubt any and all information which originated from either agency. The distrust, resentments, and subsequent impact on DEP's credibility has hampered progress in developing practical solutions to respond to health concerns and the remediation of the Global Landfill and the Sommers Brothers sites.

In response to public health concerns about the Global Landfill and the Sommers Brothers Property sites, Assemblywoman Joann Smith, 13th District, Monmouth-Middlesex Counties, in June, 1987 introduced legislation (Pamphlet Law [P.L.] 1987, c. 368) directing the New Jersey State Department of Health (DOH):

(1) to review existing information on both sites and other relevant information,

(2) to determine the required additional exposure data which must be collected, in order to determine the appropriate actions to address the residents' health concerns. Where appropriate, these actions could include an evaluation of the health status of community residents,

(3) to establish an outreach and education program for the residents living near the Global Landfill and Sommers Brothers sites, and

(4) to provide the Governor and Legislature with a progress report outlining the community's concerns, the activities to be implemented with the appropriation, and any recommendations.

The legislation appropriated $75,000 to the DOH to implement the activities to address the community's health concerns. (The legislation was signed into law by Governor Thomas H. Kean on January 6, 1988)

On June 23, 1987, DOH Deputy Commissioner Thomas A. Burke and staff attended a meeting arranged by Assessmblywoman Smith to discuss with community residents their health concerns. At the conclusion of the meeting and at the of request of Dr. Burke, a Task Group was established to scope out the activities under the legislation with the understanding that implementation of the activities requiring funds would be conducted once the legislation was enacted. The Task Group is comprised of DOH, the Department of Environmental Protection (DEP), and community representatives. At the request of the DOH, the Mayor of Old Bridge selected representative community participants. These representatives are members of a local citizens group (Citizens Helping Environmental Cleanup), Old Bridge and Sayreville Environmental Commissions, and the Old Bridge Health Department.

The activities directed by this legislation are coordinated by the DOH Project TEACH (Team for the Evaluation and Assessment of Community Health), Governor Kean's FY 87 initiative to enhance the DOH's efforts to respond to community health concerns.

The Task Group met several times between July, 1987 and March, 1988 to discuss the issues of concern to the community and to outline the appropriate actions to address these concerns. In response to the request for a community health study, the Task Group agreed that the primary reason for conducting a community health study was to determine a possible relationship between unusual rates of illnesses and sources of hazardous chemical exposures. The Task Group determined that it is necessary to first measure the extent and magnitude of community exposure to chemicals and to identify their sources. A determination of an exposure profile is vital in the assessment of the need for and the design of the health study. The Task Group's position recognizes the scientific limitations in designing, conducting, analyzing, and interpreting health studies for which exposure data were unavailable. From a risk management perspective, identifying the source of the exposure could lead to the development of appropriate means to reduce exposure, regardless of whether it is the cause of the illness.

The Task Group concluded that there are scant data describing possible, offsite community exposure to chemicals emanating from Global Landfill and the Sommers Brothers sites. The Task Group determined that there is a need to collect offsite soil and ambient air exposure profiles of the community and to determine the contribution of the sources to these exposures. The overall information would be used by the Group to determine if the data justify the need for a health study, and if so, to identify the best study design. The overall information would also be used to determine, based on the identified major sources of chemical exposure, the appropriate means to reduce exposure.

On the basis of the available information, the Task Group determined the types of activities and programs which could be conducted under the $75,000 appropriation and which activities and programs required additional funds from the State. The programs and activities to be funded by the appropriation are as follows:

1. **Community Soil Monitoring Program ($36,505).** The Task Group agreed that without information describing community exposure in the residential area, it would be difficult to determine the need for a health study, or to determine how a health study could be designed to detect a relationship between illness and a source of exposure. The soil monitoring program will include the sampling and analysis of soil gas to detect the presence of unusual chemical contamination in the area and to identify locations for boring sampling. Soil gas information would also be evaluated for contamination of the groundwater in the residential area. In addition, boring sampling in strategic areas in the residential area will be collected and analyzed visually and chemically for landfill materials and surface soil contamination.

2. **Community Demographic Profile ($10,479).** The purpose of this effort is to obtain information on the demographic characteristics of the population residing in the vicinity of both sites. The available information is too broad in that it is municipality-based. The size and characteristics of the population must be known in order to design the appropriate Pediatric Health Care Service, an educational and outreach program, and if found necessary, a community health study.

3. **Pediatric Health Care Service ($24,421).** The primary purpose of the pediatric health care service is to assess the current health status of the children residing in the vicinity of Global Landfill and the Sommers Brothers sites. The Pediatric Health Care Service should not be confused with a health study which attempts to relate illness to an exposure. Such a study is still under consideration and the requisite exposure information will be collected as previously described. Children will receive individualized routine history and physical examination and selected laboratory tests, at no cost to the family of the child. The individualized approach enables a one-to-one interaction between the child and pediatrician in order to address specific concerns either medically or educationally.

The evaluation process will also be used to uncover any common complaints or symptoms which seem to arise in this population independent of confirmation of the source of exposure. This information will be evaluated by the Task Group along with the exposure data to be collected to determine the need for a health study.

It is important to consider that a medically evaluated population will be self-referred and may possess characteristics different in some respects than the children from this overall target area. When indicated by the physicians in the Pediatric Health Care Service, some children may require additional visits to physicians. Within the constraints of the available funds, every attempt will be made to send any child requiring an additional visit to a physician back to the Pediatric Health Care Service at no cost to the parents.

4. **Community Outreach and Education Program ($3,595).** The primary purposes of this program are:

(1) to provide the residents with information about the hazards of the chemicals identified on the sites and on risk reduction methods,

(2) to allow the residents to act together to effect changes or obtain results on issues in which solutions cannot be controlled by individual action, and

(3) to stimulate community participation in the decision-making process related to the clean-up of the sites.

The secondary purposes of this program are:

(1) to maintain a close, working relationship between the residents and the Departments of Health and Environmental Protection,

(2) to elicit feedback from the community in order to assess their needs, and

(3) to stimulate community participation in the development and implementation of educational strategies.

Outreach activities, which have been already occurring on an on-going basis, will be stepped-up considerably, as data become available. Prior to the start of any soil contaminant analysis, demographic survey or other tasks, there is a need to disseminate information about planned activities. The organized citizen group, Citizens Helping Environmental Cleanup (CHEC), and the Environmental Commissions of Old

Bridge and Sayreville will lead efforts to communicate information to all residents in the vicinity of the landfill.

The New Jersey State Department of Health has arranged to enter into a health service contract with the Old Bridge Health Department to secure the necessary services for implementing the above programs. The programs and activities outlined above are scheduled to be implemented between August and December, 1988. Any and all information generated from these programs will be shared with the Task Group; the exception shall be any medically confidential data. The Group's input will be obtained as various milestones within each program are met and evaluated. The Task Group will also have input in the evaluation and selection of potential contractors for the various components of the programs.

The following two recommendations from the Task Group to Governor Thomas H. Kean and to the Legislature are integral components of an overall effort to obtain information critical for understanding the extent and magnitude of community exposure and sources of exposures. Special appropriations from state government will be necessary to implement these two recommendations. Immediate funding for the two recommendations is recommended.

1. **Community Ambient Air Monitoring Program.** The purpose of this program is to identify and manage important sources of ambient air exposures, thereby eliminating real or potential community health hazards. The information will also be vital in the overall decision-making process regarding the need to conduct a health survey in the residential community in the immediate vicinity of Global Landfill and the Sommers

Brothers site. This program includes an emissions inventory of point and area sources in the neighborhood of the sites, air modeling of these emissions sources to predict residential impacts, and the design and implementation of a three (3) to six (6) month ambient air monitoring sampling program for volatile organic compounds and heavy metals. The DEP estimates the cost of this air monitoring program to range from $200,000 to $500,000.

The proposed air monitoring program addresses potentially several sources of ambient air exposures, including Global Landfill. According to the DEP, Superfund may reimburse the DEP for any part of the air monitoring program considered to be consistent with the Remedial Investigation and Feasibility Study process for the Global Landfill.

To avoid any undue delays in addressing the community's health concerns, the Task Group recommends state funding of the program so that the results of the program could be available by the end of next summer.

The Task Group unanimously agreed that a contractor should be retained to design, develop, and implement the ambient air monitoring program. However, this program shall be submitted to the New Jersey Department of Environmental Protection for evaluation and approval. The Group also expressed the desire to maintain an oversight role over the air monitoring program to assure that the community's needs are adequately addressed.

2. **Odor Control Program.** The purpose of this program is to eliminate the potential hazard posed to the community by the air emissions emanating from the landfill and the ensuing nauseating effects on the population. Since the Global Landfill has been proposed by EPA for inclusion on the NPL, the Task Group recommends the design, construction, and maintenance of a temporary cap on the landfill until a final remedial plan is developed under the Superfund program which may require a minimum of 5 years to finalize. The temporary cap system should include an odor reduction plan. A special appropriation of a minimum of $500,000 (depending on the capping system) will be necessary to supplement the landfill's escrow account thereby assuring the funds to design, construct, and maintain the cap. The funds in the escrow account are not sufficient to assure final closure of the landfill.

According to the DEP, Superfund can only reimburse any part of a temporary cap which satisfies the requirements of the final remedial plan.

To reduce the anxiety caused by the odor problem, the Task Group recommends the beginning of the Summer of 1989 as a reasonable target date for the completion of the construction of the cap over Global Landfill.

The Task Group expressed the desire to maintain an oversight role in the selection of the appropriate capping system and in the selection of the contractor.

The report includes additional recommendations which do not require funding but are equally important to the overall effort to address the community's concern. These recommendations include the expeditious clean-up of the Sommers Brothers site which the community perceives is not getting appropriate attention from the State.

The Task Group on Global Landfill and the Sommers Brothers Property wishes to acknowledge the efforts of Assemblywoman Joann Smith and Senator Frank Lautenberg to address the concerns of the community near the two sites. The Task Group also acknowledges the support of Governor Thomas H. Kean and the Legislature, in partnership, to enhance the quality of life for area residents.

The DOH through Project TEACH, is committed to continuing the relationship between the Global/Sommers community and state government established under P.L. 1987, c. 368. The DOH and the Task Group believe that the establishment of a working committee comprised of representatives from the community, local and state governments is valuable and necessary in helping alleviate some of the local problems and in enhancing community participation in the decision-making process. However, the DOH and the Task Group hope that the establishment of such committees augment rather than place undue delays on the clean-up process. Preservation of the open process of these committees is expected to be valuable in improving the communities' understanding of environmental issues and trust in state government.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

LIST OF FIGURES

LIST OF APPENDICES

1. INTRODUCTION

We live in an era in which the advancement in the chemical and radiation hazard detection technologies has outstripped our ability to communicate and share information about the implications of this advancement with the public. The absence of this information exchange in combination with government's often paternalistic and condescending attitude towards communities have contributed to the public's distrust of government. Compounded by insensitive government responses to community concerns about an issue, the lack of any effort to address the public's fear of the unknown in a sensitive and compassionate manner has adversely affected government's credibility and effectiveness to protect the public. No other example can illustrate the effect of a communication void on the public and the subsequent impact on government credibility than a site contaminated with hazardous waste.

Within the past few years, residents near hazardous waste sites in New Jersey have organized their own community action groups with the primary goal of forcing government to assume its responsibility to clean-up hazardous waste sites and protect public health. With the ever-increasing number of hazardous waste sites and delays in official recognition and clean up of these sites, the frequency of new community action groups has markedly increased.

To enhance the New Jersey State Department of Health's efforts to work with communities to address their concerns about chemical related issues, Project TEACH (Team for the Evaluation and Assessment of Community Health)

became a Governor's initiative in 1987 (Appendix A). Project TEACH is a multidisciplinary approach comprised of physicians, toxicologist, epidemiologists, industrial hygienists, health education specialists, and field staff who work with local officials and community action groups to identify potential solutions to their health concerns. In the past year, the DOH has worked with several communities to address their concerns about health.

With regard to Global Landfill and the Sommers Brothers sites, the surrounding community became frustrated with the delays and the perceived lack of truthfulness on the part of the New Jersey State Department of Environmental Protection (DEP) and the United States Environmental Protection Agency (EPA) in the cleanup of these sites. C.H.E.C. (Citizens Helping Environmental Cleanup) was borne out of this frustration in an effort to provide a cohesive approach to airing and addressing the community's concern. C.H.E.C. expressed a great deal of distrust in both DEP and EPA to the extent that the community would doubt any and all information which originated from either agency. The distrust, resentments, and subsequent impact on DEP's credibility has hampered progress in developing practical solutions to respond to health concerns and the remediation of the Global Landfill and the Sommers Brothers sites.

The community's frustration culminated in the delivery of a petition containing over 600 signatures of area physicians, administrators, and residents to Asseemblywoman Joann Smith, 13th District, Monmouth-Middlesex Counties (Appendix B). The petition called for the Department of Health to conduct a health study of the residents in the immediate vicinity of Global

Landfill and the Sommers Brothers sites. Although no documentation linking the residents' reported ailments with these sites were provided, the petitioners believed that a study was warranted because of the considerable anxiety residents had about potential adverse health effects. In follow-up to the petition, Assemblywoman Smith introduced legislation (Pamphlet Law 1987, c. 368) in June, 1987 with a $75,000 appropriation to assist the DOH in addressing the community's concerns (Appendix C). The proposed legislation directed the DOH:

(1) To review existing information on both sites and other relevant information,

(2) To determine the required additional exposure data which must be collected, in order to determine the appropriate actions to address the residents' health concerns. Where appropriate, these actions could include an evaluation of the health status of community residents,

(3) To establish an outreach and education program for the residents living near the Global Landfill and Sommers Brothers sites, and

(4) To provide the Governor and Legislature with a progress report outlining the community's concerns, the activities to be implemented with the appropriation, and any recommendations.

The legislation appropriated $75,000 to the DOH to implement the activities to address the community's health concerns. P.L. 1987, c. 368 was signed into law by Governor Thomas H. Kean on January 6, 1988.

On June 23, 1987, DOH Deputy Commissioner Thomas A. Burke and staff attended a meeting arranged by Assessmblywoman Smith to discuss with community residents their health concerns. At the conclusion of the meeting and at the of request of Dr. Burke, a Task Group was established to scope out the activities under the proposed legislation with the understanding that implementation of the activities requiring funds would be conducted once the legislation is enacted. This Task Group is comprised of DOH, the Department of Environmental Protection (DEP), and community representatives. At the request of the DOH, the Mayor of Old Bridge selected representative community participants. These representatives are members of a local citizens group (Citizens Helping Environmental Cleanup), Old Bridge and Sayreville Environmental Commissions, and the Old Bridge Health Department.

The activities directed by this legislation are coordinated by the DOH Project TEACH (Team for the Evaluation and Assessment of Community Health), Governor Kean's FY 87 initiative to enhance the DOH's efforts to respond to community health concerns.

The Task Group met several times between July, 1987 and March, 1988 to discuss the issues of concern to the community and to outline the appropriate actions to address these concerns. In response to the request for a community health study, the Task Group agreed that the primary reason for conducting a community health study was to determine a possible relationship between unusual rates of illnesses and sources of hazardous chemical exposures. The Task Group determined that it is necessary to first measure the extent and magnitude of community exposure to chemicals and to

identify their sources. A determination of an exposure profile is vital in the assessment of the need for and the design of the health study. The Task Group's position recognizes the scientific limitations in designing, conducting, analyzing, and interpreting health studies for which exposure data were unavailable. From a risk management perspective, identifying the source of the exposure could lead to the development of appropriate means to reduce exposure, regardless of whether it is the cause of the illness.

This Report reflects the concerns of the community and describes the process by which the Task Group undertook to evaluate the issues mandated by P.L. 1987, c. 368 for consideration. The Report includes a detailed discussion on the activities to be initiated in the Summer of 1988 and supported by the $75,000 appropriation. Recommendations to Governor Kean and the Legislature for future activities and funding deemed by the Task Group as integral components to the overall solution to the community's concerns are also included.

2. HISTORY AND STATUS OF THE SITES

2.1 Global Landfill

2.1.1 History

Global Landfill is a 50-acre landfill located in a salt marsh off Ernston Road between Route 9 and the Garden State Parkway (Figure 1). Cheesequake Creek which flows into the Raritan Bay is adjacent to the landfill and separates the landfill from Cheesequake State Park.

Records indicate that Global Landfill has been in operation since the late 1960s and was owned by Global Reclaiming Corporation. The landfill obtained a "grandfather" registration as an operating landfill in 1970 from the Department of Environmental Protection's (DEP) Bureau of Solid Waste Management. An engineering plan was submitted in 1972 which delineated landfilling over an area of approximately 100 acres. A review of the 1972 plan by the DEP indicated numerous deficiencies. These deficiencies were communicated to Global in 1974. In addition, a review of the 1972 plans by other DEP divisions indicated that encroachment into flood plain areas, riparian lands, and wetlands would occur.

In October 1974, the DEP issued a Notice of Disapproval of Engineering Design to Global. This disapproval was primarily due to Global's failure to obtain a Stream Encroachment Permit and for violations of wetlands regulations. Subsequently, Global filed suit against the DEP alleging that the wetlands regulations prohibited the continuation of landfill operations.

Global Landfill

Middlesex County, New Jersey

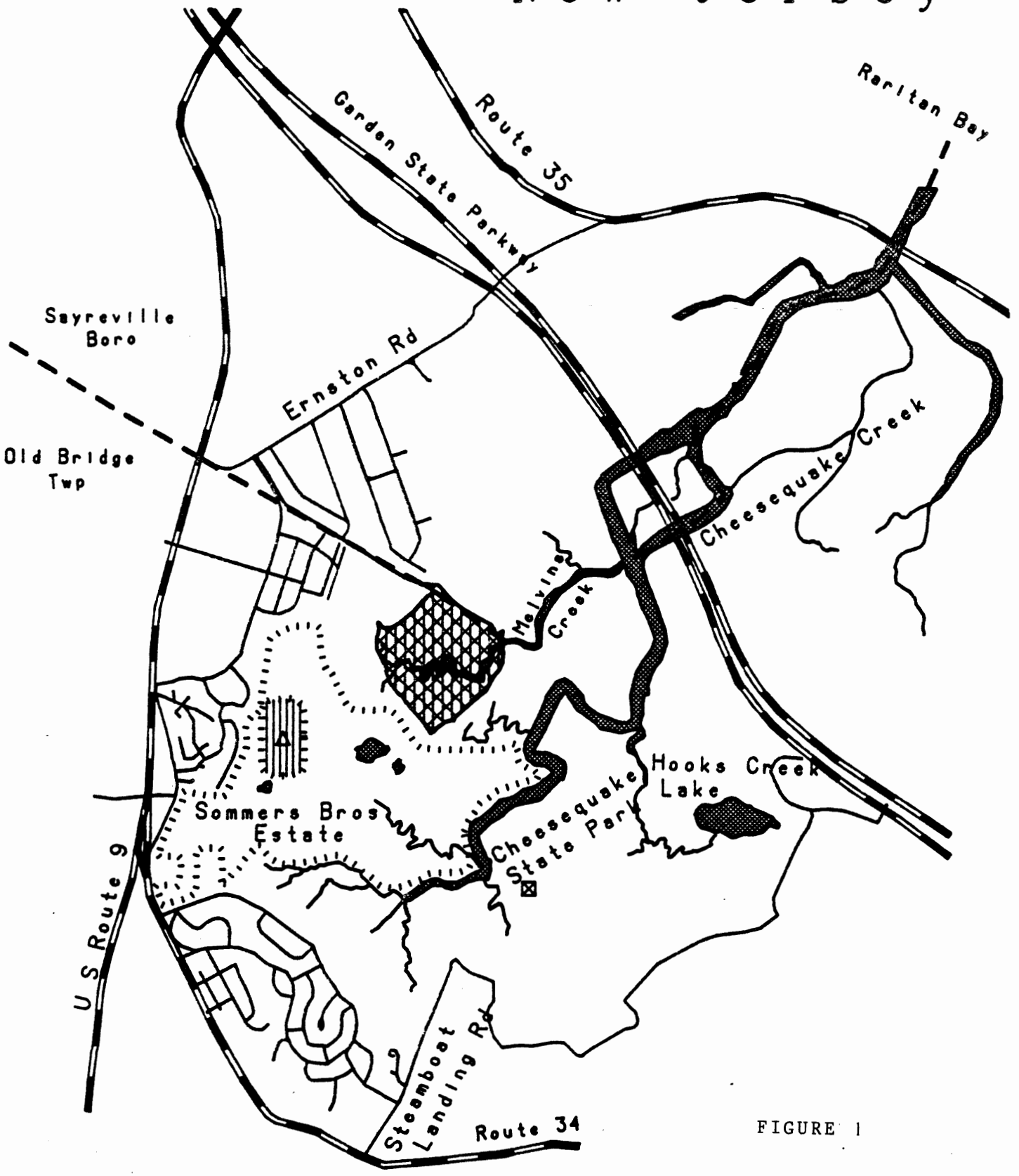


FIGURE 1

Composite Map Created on GIS 4/88 KLK - NJDOH EHS

COMPOSITE MAP LEGEND

Global Landfill
1986 NJDEP Orthophotoquad.

Madison Municipal Landfill
Approximated from 1969-70
aerial photo blueprint;
Tri-State Corporation.

Major roads

Streets

Sayreville/Old Bridge
Municipal Boundary

Streets, roads and boundary
from USGS Orthophotoquad;
photorevision 1981.

Sommers Brothers' Estate
Approximated from Middle-
sex County Tax Map #1658.

Cheesequake State Park
Centroid of hazardous
waste site from NJDEP
DSR GIS database.

Madison Municipal Landfill
Centroid of site from
NJDEP DHWM files.

At the culmination of this lawsuit in 1976, a Stipulation of Dismissal before the Court was entered. During the time that the suit was pending, Global submitted revised engineering designs to the DEP. These designs were reviewed and found to be basically acceptable provided that certain revisions were made.

In accordance with the Stipulation of Dismissal, the DEP agreed to approve the revised engineering designs submitted in 1975. The approval, however, could not be formally issued until Global obtained a Wetlands Permit and a Riparian Grant and Permit. The Riparian Grant and Permit were not obtained until early in 1981. Shortly after these were obtained by Global, the DEP issued a final Engineering Design Approval for the facility (March 11, 1981). The Engineering Design Approval set forth and enumerated the necessary environmental improvements to be constructed at the landfill, including seven (7) monitoring wells, clay-lined dikes, a leachate collection and management system and a methane gas control system. Monitoring of ground water was to be conducted in accordance with N.J.A.C. 7:26-2.5.22. The parameters to be sampled included heavy metals, cyanide, Chemical Oxygen Demand, Biochemical Oxygen Demand, and bacteria.

In early 1981, it was learned that Global landfill had accepted sewage sludge from the City of Perth Amboy and Woodbridge Township for more than five years. The disclosure came about as the result of DEP's investigation into a blocked sewer line in Perth Amboy. In January 1981, tests revealed that the material blocking that sewer line contained toxic materials, including PCBs and lead. Subsequent tests of the treatment plant sludge showed that it, too, was contaminated, and at this point Perth Amboy

officials told DEP that the sludge had been going to Global. Global's owner refused to accept any more sludge upon being informed of the sludge's contaminated state (April 1981).

In view of Global's acceptance of sewage sludge that had probably been contaminated by toxic chemicals, it was determined that additional ground and surface water monitoring would be required beyond the minimal requirements of N.J.A.C. 7:26-2.5.22, which only require landfills to test for "conventional" pollutants. An Administrative Order was issued by the DEP to Global on May 14, 1981, which required that monitoring wells be finished within 60 days and that they be tested for the presence of approximately 50 toxic chemicals.

In addition, the May 14, 1981, Order demanded that Global pay a penalty of $5,000 to the DEP for violating an administrative rule that requires landfills that accept sewage sludge to install and sample monitoring wells - something which Global had never done in the past.

In view of restrictions placed on the amount of fill that could be deposited on a gas line in the landfill, a revised engineering design adjusting the final grades without altering the approved capacity was submitted to the DEP in April 1981. This design was found to be acceptable and was formally approved by the DEP in January 1982.

In June 1982, representatives of the Division of Waste Management met with Global to discuss issues of noncompliance with the conditions of Registration. Among these violations were: dike construction being behind

schedule; inadequate details of leachate management; existing elevations in excess of those permitted; gas monitoring not performed; inadequate litter control and cover application. Global represented to the DEP that the rate application then pending before the Board of Public Utilities (BPU) would help resolve the compliance problems. The rate increase was granted in the Fall of 1982 with the requirement that deposits be made into an escrow account for environmental improvements.

An audit (required annually by the Board of Public Utilities) in early 1983 showed that Global was in arrears in depositing money into the BPU escrow account, as well as into the DEP-controlled escrow account statutorily required by the Sanitary Landfill Facility Closure and Contingency Fund Act (P.L., 1981, c.306). It also appeared that payments to the Division of Taxation for the Recycling Tax and surcharges had not been made. (The Closure escrow account monitored by DEP is still in arrears by more than $400,000, although Global had taken some measures during 1986 to correct this).

Due to Global's continued noncompliance with the conditions of its registration during 1983, the DEP issued an Administrative Order on November 30, which required the reconstruction of the perimeter dike, which had been built in disregard of the approved engineering designs, application of suitable soil cover, and appropriate measures to control litter and odor.

In April 1984, a slope failure measuring 300' x 75' x 50' occurred on the southeast face of the landfill. The collapse resulted in a break in a retaining dike and displacement of the adjacent wetlands. As a result, a

Court Order was issued on April 17, 1984, requiring that Global cease accepting waste. The Order also required that a remediation plan for the slope failure area be prepared, as well as a closure plan, in accordance with N.J.S.A. 13:1E-100 et seq. and N.J.A.C. 7:26-2.9. In addition, the Order stated that the facility's funds were to be placed under control of DEP.

Remedial construction, which consisted primarily of regrading and covering of the slope failure area, began in July 1984 and was completed in June 1985. Closure work began in spring 1985. However, in the early stages of construction, it became apparent that Global's closure was inadequate. In light of this, as well as the landfill owner's previous disregard of operational requirements, Global was advised in September 1985 that no further disbursement of escrow funds would be authorized.

On January 13, 1986, a Consent Order was issued requiring that Global Landfill retain the services of Richard Sullivan of New Jersey First, Inc., to administer closure of the landfill. In this capacity, Dr. Sullivan solicited bids from three engineering firms, and received proposals from two of them in March 1986. Based on these proposals, Elson T. Killam Associates was selected and a contract was signed between Killam and New Jersey First on November 25, 1986.

In July 1987, a contractor was hired to repair the access road and to provide fill dirt to the landfill road. The contractor was also to fill in the large crevice on the southwest side of the landfill and to place a soil barrier across the road behind the abandoned trailer to limit unauthorized

entry. This work was completed in September 1987. In addition, an extra cyclone fence and gate was installed in October. This gate was to act as a second level of access control.

It is important to note that the fence was constructed for the entrance of the landfill only. This impacts vehicular access through the former truck access. As the fence does not span the perimeter of the landfill at the residential borders, this site is accessible to children and others.

2.1.2 Sampling Activities

2.1.2.1 Water Analysis

Following the slope collapse in the spring of 1984, priority pollutant analysis of three leachate samples indicated the presence of methylene chloride, toluene, trichloroethylene, benzene, and chlorobenzene. The DEP Division of Science and Research initiated a study in June 1984 to assess the impact of this leachate on surface water quality and wetlands biota. The results of the study did not provide evidence that the leachate was adversely impacting the biota and surface water quality.

In February 1985, the DEP Division of Water Resources issued a final New Jersey Pollutant Discharge Elimination System/Discharge to Ground Water (NJPDES/DGW) Permit to Global Landfill. This permit required the monitoring of the ground water in 10 wells around Global Landfill. These wells included 8 new wells and 2 existing wells. Global was required to sample

the wells on a quarterly basis for water quality indicator parameters. In addition, on an annual basis, Global was required to sample the ground water for heavy metals, pesticides, PCBs and volatile and semi-volatile organic compounds. In 1986, Killam recommended that 5 additional wells be installed to provide more information on ground water flow patterns at the site and baseline ground water quality. Due to numerous delays, all the wells were not installed until September 1987. The quarterly sampling under the permit commenced in October 1987.

Groundwater samples from the fifteen monitoring wells as well as ten surface water samples and five leachate samples were taken from and around the landfill in October 1987 and in January 1988 (Appendices D and E). According to Killam, preliminary assessment of the data indicates that leachate quality is generally typical of solid waste landfills, being characterized by elevated levels of such parameters as Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), iron, chlorides, ammonia, total dissolved solids, and lower levels of various volatile organic and semi-volatile organic compounds. Based on the analysis of ten surface water samples, surface water quality in the vicinity of the landfill is generally in compliance with DEP surface water quality standards for estuarine waters except for fecal coliform.

The groundwater monitoring data indicate elevated levels of several typical leachate indicator parameters such as total dissolved solids, chlorides, iron, ammonia, COD, BOD, primarily in the shallow wells. It should also be noted that the elevated levels of iron, chlorides, and total dissolved solids may also be partially attributed to background conditions

in the Old Bridge Sand Aquifer and in a typical coastal water table aquifer. Although the landfill does appear to be affecting groundwater quality in the immediate vicinity, the level of impact does not, in Killam's opinion, warrant any immediate or emergency remedial actions prior to closure of the landfill.

2.1.2.2 Onsite Ambient Air Analysis

In response to residents concerns of a fire burning under the landfill, DEP's Bureau of Environmental Measurements and Quality Assurance (BEM&QA) conducted monitoring of ambient air and subsurface temperature at the landfill. Based on data collected on subsurface temperature the possibility of an underground fire was ruled out. The highest temperature recorded was 152 F and according to BEM&QA this reflects normal landfill decomposition under aerobic conditions, reported to exist due to the fissure on the southwest face of the landfill. Visual inspection of the fissure showed no obvious signs of a fire burning under the landfill or presence of charred material in the fissure itself.

Onsite ambient air monitoring was conducted by BEM&QA using a MSA combustible gas indicator, a Foxboro Analytical OVA-128, and a HNU photo-ionization detector. The data indicated the presence of methane which is normally detected in landfills. Low-level hydrocarbon emissions from the crevice, not atypical of municipal landfills, were shown in EPA's report on air monitoring at Global Landfill. Concentrations of volatile contaminants decreased significantly, however, at a short distance from the crevice. BEM&QA concluded "that the crevice is not substantially contributing to a

degradation of air quality relative to the remainder of the landfill."

2.1.2.3 Drum Content Analysis

In March 1987 the DEP Office of Regulatory Services obtained information that substantial drum dumping had occurred at the northwest toe of the landfill between 1968 and 1977. This allegation caused all closure work to be suspended and thus a geophysical investigation was initiated into the matter. It was decided in April that Killam would do the investigation as part of their closure contract and that the Division of Solid Waste would continue to be the lead contact for the project.

A work plan was submitted in May 1987 by Killam which described the scope of the drum investigation. The work plan consisted of two phases. Phase I involved subsurface investigatory techniques which would delineate areas containing large concentrations of ferrous material. Phase I was completed in July 1987. The magnetometer survey revealed four principle regions of magnetic anomalies which confirmed the presence of metallic substances.

Phase II of the work plan addressed exploratory excavation, sampling and evidence collection, ambient air monitoring, and health and safety requirements. Phase II was completed in March 1988 and a report on the findings was released in May 1988 (Appendix F). Eight trenches and seven pits were excavated based on the Phase I information. The excavated trenches and pits contained garbage, construction debris, roofing shingles, logs, and fill material.

Sixty-three drums were identified in the excavation. Seventeen drums (plus one surface drum) were removed from the excavation, sampled for Priority Pollutants plus 40 peaks and additional parameters, and overpacked. The description of the contents included white powder from fiber pack, black and gray solids, gray and white sludge, tan solid, pink and purple solid, dark purple sludge, and red, purple, and green solids. The analyses indicated that 14 out of 18 drums contained hazardous waste according to DEP standards. The contents of the four remaining drums were non-hazardous based on Killam's interpretation of the data.

Since the water table was expected to be close to the surface in several of the areas to be excavated, Killam determined that a dewatering system might be necessary to remove the ground water from the trenches so that the excavation could proceed. The dewatering plan consisted of pumping the ground water from the excavation into a 50,000 gallon-pool which was erected on site, and then discharging the water on a daily basis into one of the trenches which was not expected to contain drums. In March 1988, the DEP Division of Water Resources issued an emergency NJPDES/DGW permit to discharge the water from the dewatering system into the ground. One of the requirements of the permit was to sample the water in the pool at the point of discharge on a daily basis and analyze the samples for the priority pollutants plus 40 additional tentatively identified peaks.

During the excavation, water was discharged into the ground on two days and thus only two samples of the pooled water were collected. Chemical analysis of the water in the pool showed the presence of volatile and semi-volatile organic compounds, metals, and pesticides, some of which were also found in samples collected from the drums.

In the report, Killam expressed their opinion that there are more drums buried at the site. However, a more expansive excavation of the entire site would be necessary in order to locate the drums.

2.1.3 Superfund Status

On July 9, 1985, the DEP submitted Global Landfill to the United States Environmental Protection Agency at Region II for Superfund consideration. Global Landfill is also included in DEP's Management Plan for hazardous waste site cleanups so it will be addressed with state funds, if necessary.

Several attempts have been made to place Global Landfill on the National Priorities List (NPL) in the past. There were two overriding issues that were raised during the quality assurance review which subsequently kept the Hazard Ranking System (HRS) score below the 28.5 cutoff point for listing on the NPL:

A. Documentation of hazardous waste quantity.
B. Documentation of a hydraulic connection between the underlying aquifers.

In the most recent HRS package submitted by the Department to the EPA last June 1987, additional information substantially changed and/or clarified these issues so that the overall HRS score was raised to 45.92. This now exceeds the 28.5 minimum score required for the site to be proposed on the NPL.

On June 21, 1988, the EPA announced that 10 new hazardous waste sites in New Jersey have been proposed for inclusion on the NPL (Appendix G).

Global Landfill is among the 10 new sites. After the site has been published in the Federal Register, public comment will be invited. Thereafter, the EPA can officially place Global on the NPL. This process will most likely take several months. However, proposing the inclusion of Global Landfill on the NPL authorizes the EPA to begin the thorough assessment of the site and develop the remedial plan to clean-up the site.

2.2 Sommers Brothers

The Sommers Property consists of approximately 234 acres east of Route 9 and north of Route 34 in Old Bridge Township (Figure 1). Until 1968, a portion of the site was used by Old Bridge Township as a landfill.

In April 1986, the DEP's Division of Hazardous Waste Management/Central Field Office (DHWM) was notified of the existence of drums at the site. A field visit on April 7, 1986, identified approximately eight different drum areas.

Phase I of the cleanup operation at the Sommers Brothers site consisted of the surface removal of drums containing tars, resins, vermiculite, non-hazardous solid waste and unknown solids. Representatives of the Sommers property estate contracted with Accutech to provide sampling analysis and removal services for identified drums. The surface removal was completed on August 18, 1986.

On September 10, 1986, the DHWM was notified that additional drums were found. These drums became visible due to dense vegetation receding and soil erosion. Phase II of the project will consist of removal of the additional drums, an electro-magnetic survey to locate buried drums, soil sampling and analyses, ground water monitoring well installation, sampling and analyses. According to DEP, the owners of the Sommers Brothers Property have indicated a willingness to perform a Remedial Investigation and Feasibility Study at the site. Phase II of the clean-up operation has yet to be initiated at the writing of this report.

3. COMMUNITY CHARACTERISTICS

The following is a brief description of Old Bridge Township and Sayreville Borough. The information was obtained from the New Jersey State Department of Health's Community Profile database. The Community Profile is a joint effort between the DOH and local health officers with the primary purpose of developing a profile of each New Jersey community with respect to characteristics in health status, demographics and socio-economic, environmental, social assistance services, health planning, and local resources. This type of information is valuable in our attempt to understand, from public policy perspective, the needs of the community and how to design and implement a particular service based on the community's characteristics.

3.1 Old Bridge Township

3.1.1 General

Old Bridge Township, located in Middlesex County, encompasses a land area of 39 square miles. The 1985 estimated population of Old Bridge was 54,669, or 8.7 percent of Middlesex County residents. The population density for that year was estimated at 1,398 persons per square mile.

The population of Old Bridge increased approximately 600 percent between 1950 and 1980. This is compared to an 86.4 percent increase in Mercer, Somerset, and Middlesex regions, and a 52.3 percent increase in the

state population. Between 1970 and 1980, the township's population increased by 5.7 percent, remaining a higher growth rate than that of Mercer, Somerset, and Middlesex regions (1.9%) and than that of the state (2.7%). According to Middlesex County Planning Board projections, township growth is expected to continue its acceleration throughout this decade, achieving a 17.9 percent increase by 1990, far exceeding the projected growth of the county (8.8%) or state (6.3%).

3.1.2 Age Profile

In 1980, over half (56.4%) of the population was between 18 and 64 years of age, and the median age was 29. A small percentage (6.6%) of the population in Old Bridge is 65 or older, compared to the County and state percentages, 8.9 percent and 11.7 percent respectively. In the younger ages, a larger percentage (6.8%) are under 5 years of age than in the County (5.8%) and the State (6.3%). The working-age population (18-64 years of age) comprises the greatest proportion of Township residents (56.4%).

3.1.3 Family Structure

In 1980, there were 13,500 families and 16,593 households. Sixty (60%) percent of the families had children less than 18 years of age. Thirteen (13%) percent of the families had children less than 6 years of age, 36 percent had children between the ages of 6 and 17 years, 11 percent had children in both age groups.

Marital status statistics of the population over age 15 show 61.1 percent to be married, 26.8 percent to be single, 5.5 percent widowed, 4.3 percent divorced and 2.3 percent to be separated in 1980.

3.1.4 Race Profile

The racial composition of Old Bridge in 1980 was 94.7 percent White, 3.2 percent Hispanic, 2.1 percent Black, 1.2 percent Asian, 0.4 percent Chinese, 0.3 percent Filipino, and 0.1 percent Korean. In 1980, 7.2 percent of Old Bridge residents were foreign born, of which approximately 60 percent were naturalized citizens.

3.1.5 Income Profile

Old Bridge Township compares favorably with the County and the State in terms of mean household and family income and per capita income. The median income for resident households in Old Bridge was $23,222 and $25,279 for resident families in 1979.

3.2 Sayreville Borough

3.2.1 General

Sayreville, a Middlesex County township, borders Old Bridge and is approximately 17 square miles in size. The 1985 estimated population of Sayreville was 30,843, or 8.7 percent of Middlesex County residents. The

population density for that year was estimated at 1,858 persons per square mile.

3.2.2 Age Profile

Based on the 1980 census, approximately 64 percent of the population was between 18 and 64 years of age. Nine (9%) percent was 65 or older and five percent was under five years of age. The median age for the population was 33.

Marital status statistics of the population over age 15 show 48 percent to be married, 22 percent to be single, 5.5 percent widowed, 6 percent divorced and 1 percent to be separated in 1980.

3.2.3 Family Structure

In 1980, there were 8,061 families and 9,396 households. Fifty (50%) percent of the families had children less than 18 years of age, 8.5 percent of the families had children less than 6 years of age, 35 percent had children between the ages of 6 and 17 years, 8 percent had children less than 6 and between 6 and 17 years of age.

3.2.4 Race Profile

The racial composition of Sayreville in 1980 was 98.6 percent White, 0.2 percent Black, and 1.2 percent Hispanic, Asian, Chinese, Filipino, Korean, and Asian Indian.

3.2.5 Income Profile

Sayreville Borough compares favorably with the County and the State in terms of mean household and family income and per capita income. The median income for resident households in Sayreville was $24,683 and $26,253 for resident families in 1979.

3.3 Global/Sommers Community

There are eight housing units or developments within a mile and a half and to the immediate west of the two sites, and east of Route 9 and north of Route 34 (Figure 2). Cheesequake Creek and Park are to the immediate east of the sites and there are not residential properties within a mile and a half.

The eight residential developments cover approximately 1.1 square miles of land. According to information made available by the Old Bridge School Board, the following is a tabulation of the residential developments and number of units:

A. Sayreville

	Number of Units
Sky Top	840
Oak Tree Village	101
Le Meir (condominium)	176
Harbor Club (condominium)	408
	1,525

Global Landfill

Middlesex County, New Jersey

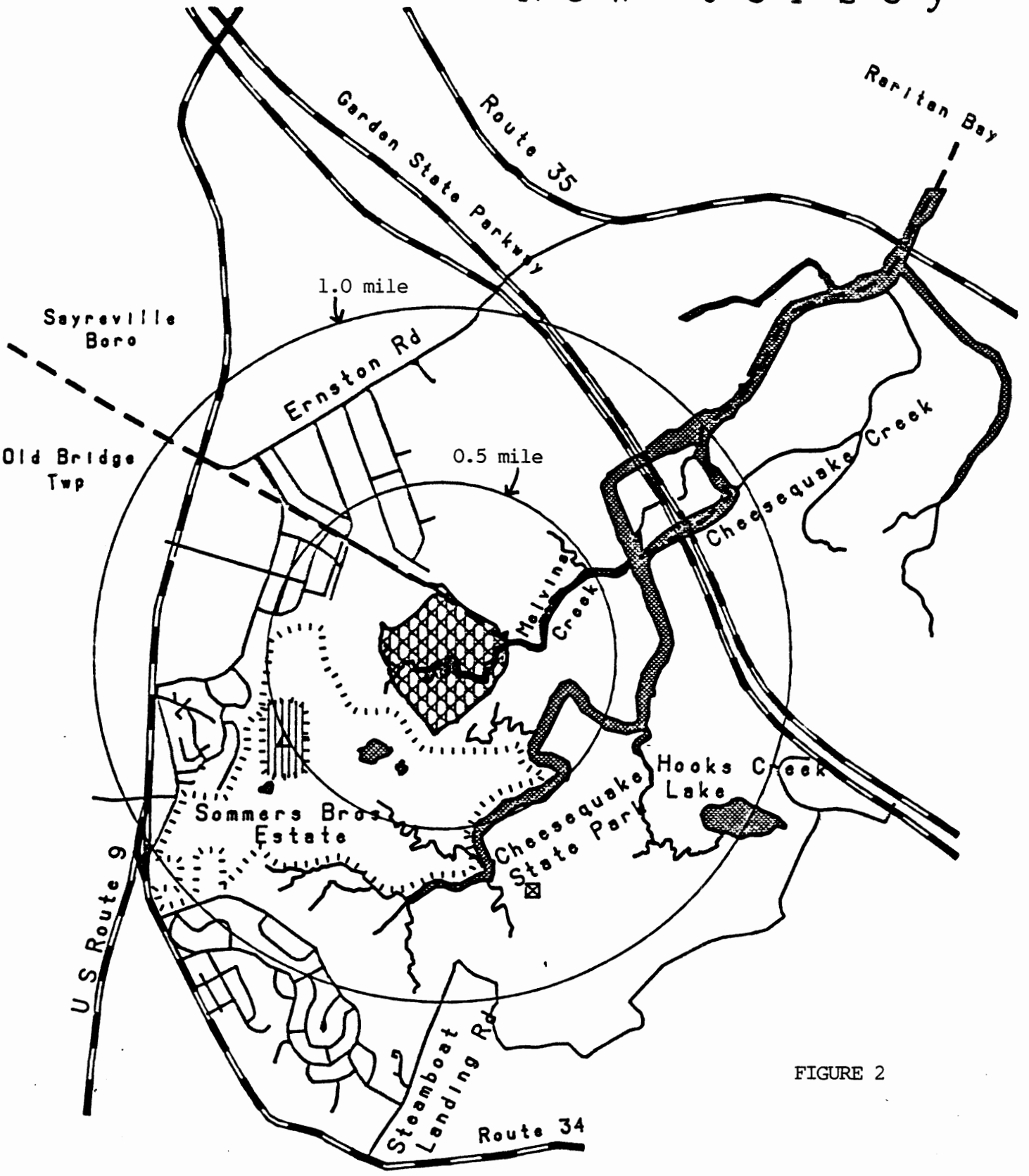


FIGURE 2

Composite Map Created on GIS 4/88 KLK - NJDOH EHS

B. Old Bridge

Central Park and Anchor Parks	478	
London Terrace	962	
Nieuw Amsterdam	480	
Parkwood Village	500	(single family homes)
	2,420	
TOTAL	3945	

The 3945 units may represent approximately 11,835 individuals of all ages assuming the local average of 3.0 individuals per home applies in these areas. The 2420 units in Old Bridge would represent a population of 7,206 (13% of Old Bridge's 1985 estimated population) and the 1525 units in Sayreville would represent 4,757 individuals (15% of Sayreville's estimated 1985 population). On the basis of these figures, the estimated population density is approximately 11,000 individuals per square mile for both Old Bridge and Sayreville sections or 11 times higher than the average population density for the state (1,000 individuals per square mile).

4. EVALUATION OF COMMUNITY CONCERNS

4.1 Assessment of the Need for a Community Health Study

A health study is a form of an epidemiologic investigation. Epidemiology is broadly defined as the study of the distribution and determinants of diseases and injuries in human populations. Epidemiologic studies attempt to evaluate the relationship between exposures to potential disease-causing factors and the related health outcomes in large groups of people.

A request for a health study is often the initial response of a community expressing concern that their health may have been compromised following the discovery of chemicals in food, drinking water, ambient air, and soil. The response from public health officials for a health study is usually a cautious one because of the difficulties inherent in designing and implementing the appropriate study to answer the community's health questions. These difficulties can be numerous depending on the disease(s) under investigation, the size of the population at potential risk, and the nature and level(s) of the exposure(s).

The identification of the sources of exposure is virtually impossible from the report of a single case of illness, especially if there are multiple pathways and sources of exposures. Even though an individual may perceive that he or she contracted an illness from breathing contaminated air or touching chemically-contaminated soil, it is equally plausible that

the actual source of exposure could be in the workplace or commonly used consumer products containing the same chemicals as those found outdoors.

Where public funds are to be expended, it is important to appreciate the limitations of health studies and the health-related questions of most concern to the community. An appreciation of these issues should enable the Task Group to determine the need for a health study, outline possible alternatives, and avoid the conduct of a health study which may not answer the community's questions.

4.1.1 Anecdotal Reports of Community Health Problems

C.H.E.C. conducted a brief survey of the residential area in the immediate vicinity of Global Landfill and the Sommers Brothers sites in order to catalog a list of symptoms and health concerns of the residents which they perceive to be related to the sites. The reported symptom and health concerns are as follows:

Headache
Congestion
Coughing
Irritated eyes
Loss of hair
Skin rash
Ulcers
Diarrhea
Nausea
Urinary tract infections
Water retention
Anxiety
Loss of appetite
Cancer
Degenerative bone disease
Heart disease
Glaucoma
Birth defects
Developmental disorders
Sore throat
Sinus problems
Asthma
Conjunctivitis
Dental problems
Cysts or skin growths
Constipation
Vomiting
Fatigue
Vaginal infection
Depression
Tremor
Loss/gain of weight
Anemia
Degenerative muscle disease
Diabetes
Mental illness
Hepatitis
Behavioral disorders

The above list includes self-reported, subjective symptoms (such as headaches, nausea, and skin rash) which are cautiously interpreted because medical confirmation of the symptoms are difficult to establish and the assumed "exposed" population may have a heightened awareness of their medical conditions compared with the "unexposed" population. This heightened awareness may overemphasize the magnitude of the true effect from the exposure. Although there are analytical tools for analyzing the data which take into account heightened awareness, the problem cannot be ruled out entirely. It is for these reasons that "subjective" illnesses are not highly regarded as parameters to consider in health studies of communities concerned about chemical exposures.

There is need for recognition, however, that although self-reported illnesses cannot be verified by objective means, these illnesses require no verification to the individual residing in the community under investigation and can impact heavily on the individual's and the community's quality of life. To the Global and Sommers Brothers community, there is no question that their reported health problems are real to them, irrespective of whether the medical community can clinically confirm their illnesses. However, the primary question remains, given the real or perceived health problems in the community, is there a need for a health study?

4.1.2 Assessment of the Purpose and the Appropriate Type of Community Health Study

The next step in the process undertaken by the Task Group was to determine the purpose and type of health study which may be best suited for addressing the need of the community.

Purpose #1: To determine the community's health profile.

This type of survey provides a snap shot of the health status of the community and does not confirm the presence or the absence of a health problem in the community or relate the health status to an exposure.

Where available, municipality-wide statistics on cancer, birth defects, birth weight, and deaths could be used to generate a health profile of a community. However, because a defined concerned community is often a neighborhood within a municipality or could overlap with several communities, municipality-based statistics may not adequately describe the health status of the smaller community under investigation. In these situations, municipality-based statistics may be supplemented with information describing the characteristics of the concerned community, possibly through a door-to-door survey of residents to collect information on the residents' age, sex, race, income, years of residency, health problems, and other factors. The information could be analyzed and expressed in terms of percentage of residents having a selected characteristic.

Purpose #2: To determine how the community's health profile compares to normal conditions.

This type of survey requires the comparison of the community's health profile with baseline statistics on the health outcomes under investigation. Occassionally, state-wide or municipality-wide statistics on certain disease outcomes could be used as the basis for comparison. These outcomes may include cancer incidence, birth defects, birth weight and deaths. In

situations where baseline statistics are not available, another community (comparison community) may be selected and a random sample of the residents given the same health survey provided to the initial community. The comparison community must be identical to the initial community with respect to distributions in age, sex, race, socioeconomic, and smoking characteristics but should not have the exposure characteristic in question. Where possible, comparisons with state-wide statistics are much cheaper than conducting a survey in a comparison community. In order to make the appropriate inferences, however, the identification of the correct comparison community is both a difficult and critical process.

Because exposure information is usually not adequate and the size of a community's population is often too small, it is difficult to draw conclusions regarding a likely cause of a detected difference in illness rates between communities.

Purpose #3: To determine how the community's health profile compares to normal conditions and to determine relationships with possible causes.

This type of survey, which attempts to determine a cause and effect relationship between exposure and a disease outcome in a population, is the most common type of study requested by a community when confronted with hazardous waste issues. This survey combines the surveys outlined for Purposes 1 and 2, with information describing community or individual exposure (water, air, soil, and other exposures unrelated to a hazardous

waste site). Exposure information is crucial in distinguishing those individuals who are exposed from those who are not exposed.

On the basis of the limitations described in the previous section on components of a health study, this type of survey is the most difficult one to design, implement, and analyze, and is the most expensive. Exposure data is usually the crucial limiting factor to designing a health study of this type. Unfortunately, community exposure data are often lacking. Even if adequate community exposure information is available, the limited size of the population often is a major limiting factor in detecting a difference in disease outcome between exposed and unexposed populations.

4.1.3 Conclusion

Cognizant of the limitations inherent in conducting health studies, the Task Group concluded that Question 3 is the primary question to be asked and should be the driving force for designing a health study, if determined to be warranted. The reason for this decision is three-fold:

A. From a scientific perspective, classification of exposed and non-exposed populations is critical, especially if the size of the population may be a limiting factor to detecting differences in illness rates.

B. From a public health policy perspective, the following reasons prevailed:

i. Because public funds may be used to conduct a health study, it is important to assure that the study is designed properly to maximize the utilization of information required to answer the question.

ii. If differences in illness rates are detected between exposed and nonexposed individuals, the identity of the source of exposure is important from a risk management perspective, in order to develop appropriate means to reduce exposure.

Failure to include the exposure component in the study design would not benefit the community. This omission would only heighten the communities' concerns if differences in illness rates were detected and if there is no effective determination of the sources of exposure that may be responsible for the effects.

4.2 An Evaluation of the Presence of an Old Municipal Landfill

C.H.E.C. had expressed concern that the London Terrace apartment complex may be built upon an old municipal landfill. These concerns are based on comments provided by individuals who are familiar with the history

of the area. The presence of a landfill underneath the apartment complex could adversely affect indoor air quality and ensuing health problems. This would be of more concern to the occupants of the first floor apartments, some of whom have unfinished basements.

Efforts to locate records describing soil analysis during the construction permitting process for the new development were not successful. Aerial photographs of the region taken in the 1970's provided information on the changing topography of the area but could not address the landfill concern. However, the photographs did show remnants of the old Madison municipal landfill on the Sommers Brothers site and west of the Global Landfill (Figure 1). According to individual testimonies, this landfill operated until the late 1960's, as did other landfills during that period, in the absence of the regulatory programs established under the auspices of the New Jersey Solid Waste Act which was enacted in 1970.

A visual indication that the land underneath the apartment complexes may not be an old municipal landfill was provided by photographs taken by the Old Bridge Township Engineer of a slope collapse in the London Terrace area in 1984. (Copies are available at NJDOH and the Old Bridge Township Engineer) These photographs demonstrate that the resulting exposed layers of under soil are indicative of virgin soil and not landfill materials. Although this was welcome news, the Task Group believed that the analysis of soil samples taken from several depths would provide conclusive evidence of the absence or presence of an old municipal landfill or any other type of contamination.

4.3 Odor Concerns

The Old Bridge/Sayreville area is surrounded by municipal landfills, both closed and operating. This area is well known for the putrid odor emanating from landfills, such as those operated by Dupont, NHL Industries, Edgeboro, and Sayreville Borough (Figure 3). The odor is typical for municipal landfills because of the nature of the waste disposed and the expected state of decomposition of the waste material.

Odor complaints from residents living near landfills are common. Exposure to unpleasant odors is widely reported to cause nausea and headache, but no well-documented investigation of this was found in the literature. Exposure to low-level irritants is a recognized cause of eye, upper airway (nose and throat) and, possibly, lower airway (bronchial tree and lungs) irritant symptoms. It is quite clear that municipal landfill odors like industrial odors can impact heavily on the community's quality of life.

Because of the difference in size and location of each landfill, control of odor problems from landfills must be addressed on a case-by-case basis. Control of odors could be possible for some landfills yet be technically difficult for others. Where technically possible, the cost of the design, materials, implementation and maintenance of the odor control program becomes prohibitive, especially for landfills with low funds in their escrow accounts.

Overview: Global Landfill

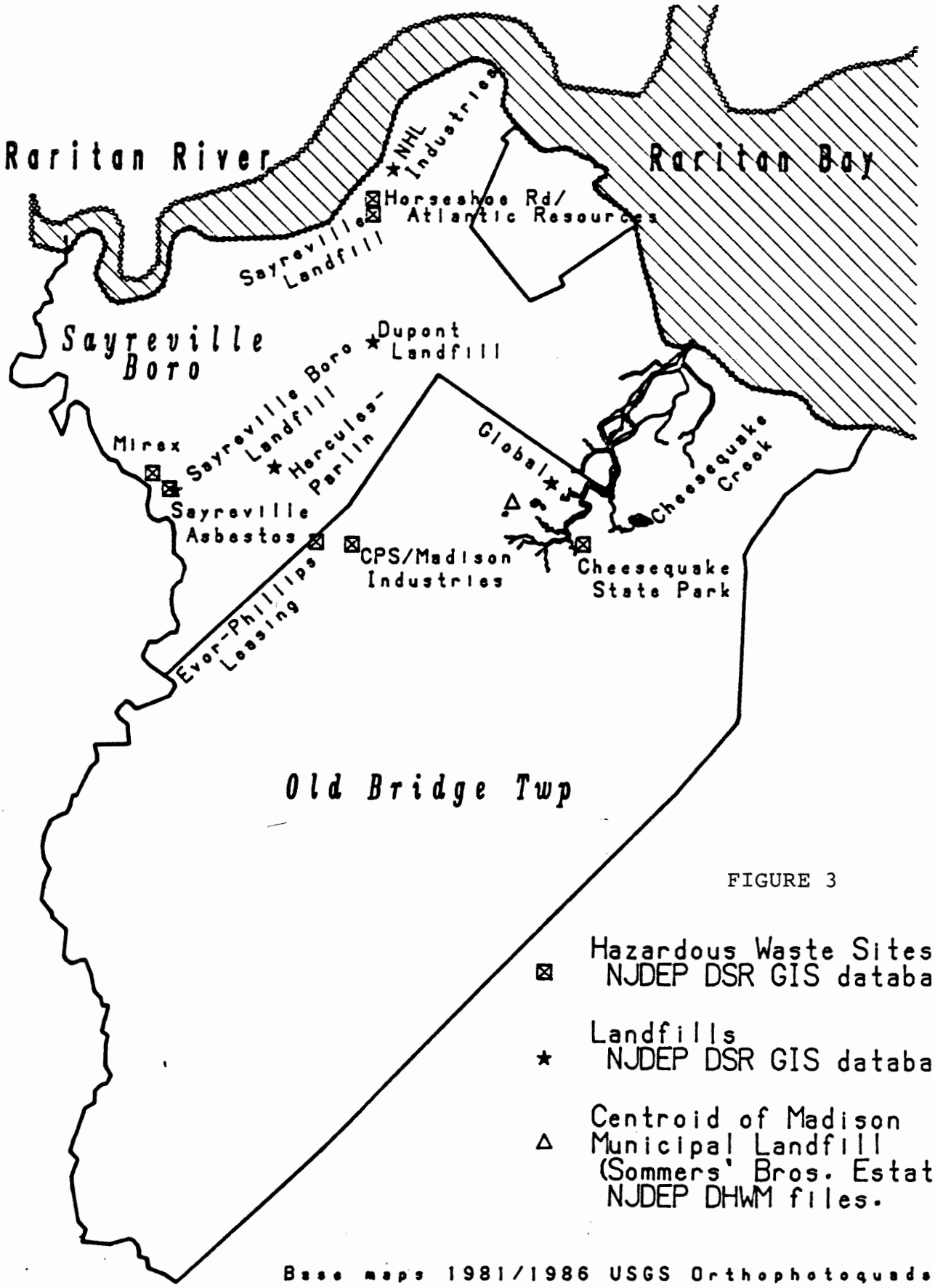


FIGURE 3

⊠ Hazardous Waste Sites
NJDEP DSR GIS database.

★ Landfills
NJDEP DSR GIS database.

△ Centroid of Madison Municipal Landfill (Sommers' Bros. Estate)
NJDEP DHWM files.

Base maps 1981/1986 USGS Orthophotoquads
Created on GIS 4/88 KLK NJDOH DOEH EHS

For the community residing near Global Landfill, odor is a recognized problem and, according to the residents, has impacted their quality of life. The list of complaints described earlier in this section of the report is consistent with odor problems.

Members of the Task Group differed in their perspective of whether odor control should be limited to Global Landfill or should include other nearby landfills as well as the Sommers Brothers site. While not underplaying the importance of odor control, certain members of the Task Group believed that odor control should be addressed on an area-wide basis, and, therefore, should not be a priority for discussion. On the other hand, other members of the Task Group believed that the quality of life issue in the neighborhood should be a priority for discussion and should be addressed as quickly as possible. These members felt that the continued feeling of ill health, nausea, and headaches resulting from the odor should not be allowed to continue.

After further consideration, the Task Group agreed that odor control should be discussed and options and recommendations developed for further follow-up. The Group reached this decision for the following reasons:

A. For the community near Global Landfill, the landfill is most likely the major source of odor and, therefore, control of the odor should reduce the amount of reported odor complaints.

B. Odor should not be considered a minor nuisance problem with associated minor health problems. Odors could serve as early warning signals for potential health problems. Chemicals which are the source of the odor could also be accompanied by yet undetected non-odorous chemicals which are more toxic. Therefore, the control of the odor problem should also control emissions of toxic chemicals from the landfill.

C. The escrow account for Global Landfill can be used to fund an odor control program as a component for final closure. Therefore, a funding mechanism is available for odor control and should be used.

The Task Group evaluated the information prepared by Killam Associates on cover alternatives, each with a gas and odor control component, specific for Global Landfill and the associated costs (Appendix H). The cover alternatives are designed to last for five years and do not comply strictly with DEP requirements for final cover on landfills. These alternatives are designed to serve only as a temporary cover while a final remedial plan is developed. The cost for the alternative covers ranges from $2.2 million to $4.5 million. These cost estimates do not include engineering, contingencies, operation, and maintenance costs.

The Task Group addressed the issue of whether to recommend a temporary cover or a permanent cover which would be designed to be maintained for approximately 30 years. Pursuant to the New Jersey Solid Waste Act, plans

for final closure are under way and should commence in the Winter of 1989/1990, under the direction of Mr. Sullivan. These plans include a cover for the landfill with an associated gas and odor control program. The final cover design will comply with DEP requirements and will be maintained for approximately 30 years. The cost for the final cover is anticipated to be in excess of $4 million, an amount far beyond the available funds in the landfill's escrow account. Thus, final closure at Global Landfill will require additional funds.

As an immediate resolution to the concerns for odor and toxic chemical emissions from the landfill, the Task Group entertained the possibility of recommending a temporary cover for Global Landfill until the final cover can be designed and constructed. Under this scenario, the designed and construction of the temporary cover could begin as soon as public funds become available. Thus, if funds are appropriated through the Legislature in the Summer of 1988, the construction of the temporary cover could be completed by the Summer of 1989. The temporary design would be consistent as possible with the permanent plan. This would be followed by the design of the final cover, removal or adaptation of the temporary cover, and construction of the final cover. Under this temporary cover scenario, the construction of the final cover should be completed approximately six months after the construction of the temporary cover.

From a public policy perspective, the Task Group agreed that if final closure of the Global Landfill can be addressed under the New Jersey Solid Waste Act, then the cover should be well-designed and should last a long time. The design and construction of a temporary cover would not be in the

public interest, especially since approximately six months would lapse before the construction of the final cover. It is for these reasons that the Task Group recommends that if final closure is pursued under the New Jersey Solid Waste Act, the funds should be used for the design, construction, and maintenance of a "final" cover which should include a gas and odor control program.

As discussed in Section 2 of the report, EPA proposed the inclusion of Global Landfill on the NPL on June 21, 1988. The official placement of Global Landfill on the NPL would result in the termination of any plans to close the landfill under the New Jersey Solid Waste Act. Site investigation and remediation plans for the landfill would begin immediately with an anticipated timetable of a minimum of five years before a final remedial plan is approved for Global Landfill.

The Task Group discussed whether a temporary cover for the landfill should be recommended once the landfill is placed on the NPL. According to DEP, Superfund could not pay for the temporary cover or any other temporary relief from odor, but could reimburse the State for any part of a temporary cover meeting the requirements of the final remedial plan. Cognizant of the minimum five years before a final remedial plan is approved for Global, the Task Group agreed to recommend that the escrow account, supplemented by public funds should be used to design, construct, and maintain a temporary cover on Global to offer relief to the community from the odor problem until a final remedial plan is approved.

5. SELECTION OF REQUIRED EXPOSURE INFORMATION

Several sampling programs have been conducted to evaluate the extent and magnitude of chemical contamination within the boundary of Global Landfill. Similar programs are yet to be instituted for the Sommers Brothers sites.

It is quite clear from the available information presented in Chapter 2 that there are no offsite exposure data and that the limited onsite data are of insufficient quantity and quality to reasonably assess exposure to the community. The data from these sampling programs do not provide any useful information on whether the chemicals found in those sites are in any way finding their way into the water, soil, and air in the adjacent residential community.

The absence of this critical information is typical in Superfund investigations and hampers the efforts to determine the potential health problems in the community and the appropriate actions necessary to protect public health. The Task Group agreed that without a clear understanding of the extent and magnitude of exposure and the implication to community health, the design and implementation of a health study would be premature. On this basis, the Task Group outlined the various types of exposure information to be obtained through existing funds and through the legislative process.

5.1 Community Soil Monitoring Program

The potential presence of an old municipal landfill under the apartments may constitute a serious public health threat to the residents, especially to those living in the first floor apartments which have unfinished basements. An underneath municipal landfill could serve as a major source of indoor air pollutants, in excess of what may be expected from Global Landfill and the Sommers Brothers sites.

The Task Group outlined a soil monitoring program with the following components:

A. Analysis of test and control soil gas samples to be collected from strategic areas in the community. The chemicals to be analyzed include volatile organic chemicals and pesticides.

B. Soil gas information to be used to select areas for collecting soil boring samples.

C. Soil boring samples to be analyzed for surface contamination and chemical contamination at selected depths. Chemical analysis will be conducted for the priority pollutants, including heavy metals.

5.2 Community Ambient Air Monitoring Program

The residential area in the vicinity of Global Landfill and the Sommers Brothers sites is potentially impacted by a variety of sources of chemical emissions ranging from existing opened and closed sanitary landfills, hazardous waste sites, and licensed facilities utilizing chemicals for various operational needs. Because of the variety of sources, caution must be exercised to assure that the ambient air monitoring program is designed to provide data appropriate to address the purpose of the program. Failure to determine the purpose of an air monitoring program could lead to an inappropriately designed program.

To determine the type of air monitoring program to be designed, the Task Group evaluated two possible purposes of the program:

Purpose #1: The Air Monitoring Program Should Describe the Extent and Magnitude of Community Ambient Air Exposure.

Purpose #2: The Air Monitoring Program Should Describe the Extent and Magnitude of Community Ambient Air Exposure and Evaluate the Contribution of Various Sources to Ambient Air Exposure.

The Task Group unanimously agreed that Purpose #2 should be the basis for designing a community ambient air monitoring program. Although Purposes 1 and 2 would provide similar information with respect to community exposure, the source contribution information provided by Purpose #2 would

be very valuable with respect to identifying the major or important sources of emissions that heavily impact on community health. The identification of major contributors to community ambient air exposure would allow the regulatory agency to design the appropriate management program to reduce or eliminate the exposures, thereby protecting public health.

At the request of the Task Group, the New Jersey State Department of Environmental Protection outlined the components for a community ambient air monitoring program based on Purpose #2 and provided estimates of the cost and time for designing and completing the program. The components of the program are as follows:

A. An emission inventory of point and area sources neighboring the residential community in the vicinity of Global Landfill and the Sommers Brothers site to assess emission potential.

B. Air modeling of these emission sources to predict potential human exposure levels in the surrounding residential community.

C. Based on the information collected in Tasks A and B, design and implement a three (3) to six (6) months ambient air monitoring program for the residential area. The program should include the following:

i. Air monitoring stations to be strategically located around and within the community.

ii. Routine ambient air sampling for volatile organic compounds at an interval of once a week.

iii. Particulate sampling for particulate and metals concentrations at an interval of once a week, and

iv. Meteorological data collection.

D. Evaluation of the data to determine the magnitude and nature of exposures and to define possible source-exposure relationships.

Sampling should cover the months of expected highest concentrations (i.e. summer) if the monitoring program is to be implemented for a period of only three to six months.

6. ACTIVITIES TO BE IMPLEMENTED UNDER P.L. 1987, c. 368

After evaluating the available information on Global Landfill and the Sommers sites, the Task Group agreed that certain essential activities could be funded by P.L. 1987, c. 368 to address the immediate concerns of the community and begin the process for collecting data describing the extent and magnitude of exposure in the residential area. The following programs and activities are scheduled to be implemented between August and December, 1988.

6.1 Community Cancer Evaluation

The Department of Health will evaluate the incidence of cancer in Old Bridge by utilizing the state-wide cancer registry which has been maintained by the Department since 1979. This evaluation should provide an indication of how the community compares with the overall state and/or national cancer experience.

The results will be evaluated along with other information to be collected in the overall effort to determine the health status of the community and any appropriate follow-up activities.

6.2 Agency for Toxic Substances and Disease Registry Health Assessment Process

The Department of Health, in cooperation with the Department of Environmental Protection, will prioritize Global Landfill for a health

assessment under a cooperative agreement between DOH and the federal Agency for Toxic Substance and Disease Registry (ATSDR). ATSDR is mandated under the Superfund Amendments and Reauthorization Act of 1986 (SARA) to conduct health assessments at all Superfund sites on the NPL. ATSDR has entered into cooperative agreements with 11 State health departments, including the DOH, to assist the Agency in fulfilling the congressional mandate.

The DOH considers the ATSDR health assessment process as an extension of Project TEACH and of the efforts of the Task Group to involve communities in the decision-making process regarding evaluation of their health and of remedial options in a manner similar to that established under P.L. 1987, c. 368. The DOH also considers the health assessment process as a mechanism for obtaining funds for conducting health studies, if appropriate, on Superfund communities.

6.3 Community Soil Monitoring Program

The Task Group agreed that without information describing community exposure in the residential area, it would be difficult to determine the need for a health study, or to determine how a health study could be designed to detect a relationship between illness and a source of exposure. Cognizant of the lack of community exposure information and the need to confirm the absence or presence of an old municipal landfill underneath the apartment, the Task Group outlined a soil monitoring program which contains the following components:

A. Sampling and analysis of soil gas to detect the presence of unusual chemical contamination in the area and to identify locations for boring sampling. Soil gas information would also be evaluated for contamination of the groundwater in the residential area.

B. Boring sampling in strategic areas in the residential area. Samples to be analyzed visually and chemically for landfill materials and surface soil contamination.

The cost for this program is anticipated to be approximately $36,505.

6.4 Pediatric Health Care Service

The collection of relevant exposure data outlined above and in Section 7 has been determined by the Task Group as a necessary step in evaluating the need and design of a community health study. Nevertheless, parents in the community are still expressing concerns about their children's health. To provide the parents with some assurance that their children are receiving proper medical attention, the Task Group agreed that the funds appropriated under P.L. 1987, c.368 should be used to set up a health care service based upon the grounds of social and public health policy for the children residing near the Global Landfill and the Sommers Brothers sites.

The Pediatric Health Care Service (PHCS) should not be confused with a health study which attempts to relate illness to an exposure. The examinations to be offered in the Service are no different clinically than

those obtained by children from their pediatricians. The PHCS clinical staff will be compiling uniform information, however, that will be used to determine whether problems are occurring excessively within the study population. The information will also be evaluated, along with other data, to determine whether there is a need for a health study. The Community Health Study is still under consideration and the requisite exposure information will be collected as previously described.

The PHCS will provide a screening and evaluation of general health in the pediatric population bordering the Global Landfill and Sommers Brothers dump sites (refer to Section 3). Children will receive a pediatric health examination and specific laboratory tests, at no cost to the family of the child. It is important to consider, however, that a medically evaluated population, will be self-referred and may possess characteristics different in some respects than the children from this overall target area. The service will provide a health evaluation which will include a review of all systems by thorough physical examination, family history and past medical history. Also to be included for each individual, will be blood screening for anemia and lead exposure, and a urine test to evaluate renal function.

When indicated by the physicians in the PHCS, some children may require additional visits to physicians. Within the constraints of the available funds and after confirming that most of the pediatric population in the community received a primary checkup, every attempt will be made to send back to the PHCS any child requiring an additional visit to a physician, at no cost to the parents.

Based on the judgement of the attending physicians, more detailed information on the activities of the child requiring additional visits may be required. In addition to a complete family and past medical history, a lifestyle and recreational exposure history will be designed to determine any routine exposures at home which may impact health (i.e., environmental tobacco smoke, hobbies, exposure to household toxic cleaning substances) and usual outdoor play habits.

The cost for this clinic service is anticipated to be approximately $24,421.

6.5 Community Demographic Profile

Although the statistics for most of the community are documented, there is little information on the numbers of children below school age. Information on this age group is important in order to design and initiate the appropriate pediatric health care service as previously described. In order to project the potential service population, identify accurate numbers of residents and utilization projections for a planned pediatric health examination, it has been determined that a 30% sample of households in this community shall be surveyed. Interviews of randomly selected residences (approximately 1,200 of the almost 4,000 residences in this community), shall be conducted by interviewers trained by the NJ Department of Health. This interaction shall also provide a valuable opportunity to conduct specific education and outreach functions.

The cost to generate this profile is anticipated to be approximately $10,479.

6.6 Community Outreach and Education Program

There are many purposes for community outreach and education activities at residences close to the Global Landfill and Sommers Brothers sites. Generally, those of primary importance are: (1) to allow individuals to make decisions about actions which may be taken by themselves or their families, and (2) to act together to effect changes or obtain results on issues in which solutions cannot be controlled by individual action.

Most communications in the outreach and education effort will be an interactive process. Perhaps written materials are the only exception. However, any written materials provided to the community-at-large will include a reference to contacts for further information or suggestions about ways to participate in activities related to this project. The outreach component provides contact with residents in order to provide and obtain information, to elicit feedback to assess the needs of a broad group, to stimulate community participation, to assist in the development and the implementation of educational strategies, and to allow individuals to decide that social actions are needed.

The Department of Health, in cooperation with the Department of Environmental Protection, will establish an outreach and education program for the residents living near the Global Landfill and Sommers Brothers site. The purposes of this program are: (1) to maintain a close, working relationship between the residents and the Departments of Health and Environmental Protection and (2) to provide the residents with information

(a) on the hazards of the chemicals identified on the sites and (b) on risk reduction methods.

Outreach activities, which have been already occurring on an on-going basis, will be stepped-up considerably, as data become available. Prior to the start of any soil contaminant analysis, demographic survey or other tasks, there is a need to disseminate information about planned activities. The organized citizen group, Citizens Helping Environmental Cleanup (CHEC), and the Environmental Commissions of Old Bridge and Sayreville will lead efforts to communicate information to all residents in the vicinity of the landfill. The Departments of Health and Environmental Protection and past Task Group members are willing to assist in planning this effort, developing any supportive materials and cooperating in problem-solving activities, as the need is identified through the Task Group.

Small group meetings, perhaps on a building-by-building basis, (or block-by-block), are suggested to facilitate communications and informational exchange. Interviews to be conducted for the purpose of profiling demographic characteristics will incorporate an educational component. It is likely that questions will arise at this time and that interviewers, who will receive special training from DOH staff, would answer them or provide appropriate referral sources.

General fact sheets are to be developed (1) regarding land fills and (2) perhaps regarding the types of "community health studies" existing and what can be expected of them. More specific information will also be created outlining the activities, both short and long range, which have been

planned by the Task Group. Any mailings or printed materials will identify appropriate contacts for further information and to identify a conduit for individual participation. It is hoped that activities planned by the Task Group will involve active and continued resident participation.

The cost for this service is anticipated to be approximately $3,595.

6.7 Cooperation with the Old Bridge Health Department

The New Jersey State Department of Health has arranged to enter into a health service contract with the Old Bridge Health Department to secure the necessary services for implementing the above programs (Appendix I). The program and activities outlined above are scheduled to be implemented between August and December, 1988. Any and all information generated from these programs will be shared with the Task Group; the exception shall be any medically confidential data. The Group's input will be obtained as various milestones within each program are met and evaluated. The Task Group will also have input in the evaluation and selection of potential contractors for the various components of the programs. The State Department of Health will assume total responsibility for monitoring and obtaining the deliverables from the contract.

7. RECOMMENDATIONS FOR CONTINUATION OF ACTIVITIES

The previous section addressed the activities to be funded by the appropriation provided by P.L. 1987, c. 368. The following recommendations to Governor Thomas A. Kean and to the Legislature were set forth by the Task Group as part of an overall effort to obtain information critical for understanding the extent and magnitude of community exposure and sources of exposures. Recommendations are also included for controlling odor from Global Landfill in an effort to increase the quality of life in the communities near the landfill.

7.1 Community Ambient Air Monitoring Program

The Task Group recognizes the need for ambient air exposure information as being vital in the overall decision making process regarding the need to conduct a health survey in the residential community in the immediate vicinity of Global Landfill and the Sommers Brothers site.

The Task Group also recognizes that an evaluation of community exposure must include an assessment of source contribution. This assessment is important from a public health perspective because of the opportunity provided to identify and manage important sources of exposures, thereby eliminating real or potential community health hazards. On the basis of these premises, the following actions are recommended:

A. An emissions inventory of point and area sources in the neighborhood of the Global/Sommers residential community.

B. Air modeling of these emission sources to predict potential human exposure levels in the residential community.

C. Based on the information collected in Tasks A and B, the design and implementation of a three (3) to six (6) month ambient air monitoring program for the residential area. The program should include the following:

i. Air monitoring stations to be strategically located around and within the community.

ii. Routine ambient air sampling for volatile organic compounds at an interval of once a week.

iii. Particulate sampling for particulate and heavy metal concentration at an interval of once a week.

iv. Meteorological data collection.

Based on estimates provided by the Department of Environmental Protection, the cost for this air monitoring program could range from $200,000 to $500,000 (Appendix J).

The Task Group unanimously agreed that a contractor should be retained to design, develop, and implement the ambient air monitoring program. This program should be submitted to the New Jersey Department of Environmental Protection for evaluation and approval. The Group also expressed the desire to maintain an oversight role over the air monitoring program to assure that the community's needs are adequately addressed.

The proposed air monitoring activities address potentially several sources of ambient air exposures, including Global Landfill. According to DEP, Superfund may reimburse the DEP for any part of the air monitoring activities which are considered to be consistent with the Remedial Investigation and Feasibility Study for the landfill. To avoid any further undue delays in addressing the community's health concerns, the Task Group recommends state funding of the proposed air monitoring activities so that the results could be evaluated by the end of the Summer of 1989.

7.2 Odor Control Program

Odor has often been treated as a nuisance problem and, therefore, delegated to the regulatory abyss where these types of issues are never appropriately addressed. Odor regulations in some situations do provide relief to communities where there is a commitment to enforcement and the source of the odor is easily recognized and could be reduced or eliminated in a practical manner. By contrast, the odor problem associated with Global Landfill, although easily recognizable as emanating from the landfill, is difficult to address because of its size, the pending Superfund status, and the availability of funds.

After further consideration, the Task Group recommended the following actions depending on whether Global Landfill attains NPL status:

A. Non-NPL Status

Final closure of Global Landfill should be pursued under New Jersey's Solid Waste Act. The permanent capping system under final landfill closure should include systems for surface runoff, leachate collection, gas recovery and flaring, security, and long-term maintenance.

B. NPL Status

Until a final remedial plan is developed for Global Landfill under Superfund, which may require a minimum of 5 years to finalize, a temporary capping system should be designed and constructed for the site to reduce odor and chemical emissions. The components to the temporary capping system should make the most of available funds in the landfill's escrow account which could become eligible for reimbursement by Superfund once the landfill is placed on the NPL.

It should be noted that the State may be reimbursed for only a part of the temporary cap. Superfund can only reimburse components of a temporary cap which satisfy the requirements of the final remedial plan.

To reduce the anxiety caused by the odor problem, the Task Group recommends the beginning of the Summer of 1989 as a reasonable target date for the completion of the cap over Global Landfill.

C. The Task Group should maintain an oversight role in the selection of the appropriate capping system and in the selection of the contractor.

D. A capping system, final or temporary, should be consistent with any other effort, current or future, designed to identify and remediate real or potential hazards that may exist on Global Landfill and the Sommers Brothers Site.

E. The landfill's escrow account should be supplemented through a special appropriation thereby assuring the funds to construct and maintain a temporary or permanent capping system.

7.3 Additional Recommendations

A. The New Jersey Department of Environmental Protection (DEP) and the U.S.E.P.A. mutually agree on lead roles for Superfund sites although both agencies work closely on each site irrespective of who is the lead. However, to assure an active participation in the remedial efforts for Global Landfill the Task Group recommends the DEP as the lead agency on Global Landfill.

B. The bulk of the recommendations address the community's concerns about Global Landfill. However, the Task Group does not wish to understate the community's equal concern

for the Sommers Brothers site. The Group urges the DEP to expedite the cleanup of the Sommers Brothers site.

C. To assure continuation of the activities under P.L. 1987, c. 368 should Global Landfill attain NPL status, the Task Group recommends its continued close relationship with DEP, EPA, and DOH in the overall remedial investigation process.

APPENDICES

APPENDIX A

Description of Project TEACH

Team for the Evaluation and Assessment of Community Health

GOAL

The goal of this initiative is the establishment of a multidisciplinary investigative Team to evaluate and assess community health - Project TEACH. This Team will reach out to local leaders, health officials and the public to evaluate community health concerns, providing information, reassurance, and improving trust in environmental solutions.

BACKGROUND

When an individual fears that he or she has a health problem or serious disease, nothing can provide the reassurance of a full medical evaluation -- he wants a "clean bill of health". Similarly, as New Jersey strives to improve our quality of life by aggressively addressing environmental issues, many communities concerned about adverse health effects are demanding the reassurance of a "clean bill of community health". Citizen awareness of the hazards of pollution has made New Jersey a national leader in environmental protection. To continue that leadership we must also address the health concerns of our communities - providing a full evaluation of the health effects of past problems and future solutions.

Health concerns and perceptions have been the paramount contributor to the "environmental gridlock" which now faces the nation. In New Jersey this gridlock is stalling efforts ranging from the disposal of household garbage to the cleanup of hazardous and radioactive wastes. Despite the fact that the underlying goal of our environmental programs is the preservation of public health, many of our citizens perceive that their health is secondary to regulatory, political, engineering and cost considerations when key decisions are made concerning environmental actions in their communities.

During the past decade the State of New Jersey has greatly enhanced its capabilities to detect and address environmental hazards. These advances however, have far exceeded our ability to evaluate and effectively communicate the community health effects of these hazards. In most cases, hazardous site evaluations which include extensive measures of ecological impact do not include any concurrent evaluation of the impact of pollutants on worker or community health.

This year New Jersey has established two major new programs to improve responsiveness to community environmental health issues. The new DOH Division of Occupational and Environmental Health, together with the newly formed DEP Office of Environmental Health Assessment provide the organizational, technical and scientific foundation upon which we can build our knowledge of environmental health risks. Both programs must now continue to move forward as partners, developing approaches for proactive community health surveillance and a strong educational outreach program to assist communities in understanding environmental solutions.

COMPONENTS OF PROJECT TEACH

Outreach	-	to identify target communities and listen to the health concerns of local leaders and the public before key environmental decisions are made.
Health Surveillance and Epidemiology	-	to establish a profile of community health, conducting epidemiological studies, and answering frequently asked questions concerning disease incidence within affected towns.
Exposure Evaluation	-	to conduct environmental and biological monitoring specifically aimed at evaluating the exposures of community members from hazardous sites.
Medical Evaluation	-	in appropriate cases when harmful exposures have been identified, to provide medical testing and counselling by physicians using the new mobile clinic.
Education and Communication	-	to develop targeted educational materials and methods to assist communities and answer citizens questions concerning health issues.

ACTIVITIES

The following is a description of the planned activities of Project TEACH. These projects are broad in scope, allowing flexibility in approaching New Jersey's evolving environmental health issues.

Demonstration Communities

To initiate Project TEACH a small number of demonstration communities will be identified. Working with these communities the Team will identify the environmental health concerns of the community and develop investigative and educational approaches for answering questions and working toward appropriate solutions to prevent exposures and eliminate hazards.

Selected communities would include those with recognized environmental problems as well as those with strong community concerns which have not yet reached "crisis" proportions. Through these demonstration communities, methods will be developed for wider application, with the goal of developing effective community interventions and involvement techniques which prevent the need for future "crisis management" approaches.

New Jersey Environmental Health Profile

Utilizing state-of-the-art computer mapping, a geographic profile of New Jersey's health will be developed. Statewide databases including the cancer and birth defects registries and hospital admissions information will be included. This information can be combined with statewide environmental data to evaluate geographic associations and answer frequently asked questions concerning community health.

DEP - DOH Joint Investigations

With DEP, the Team will participate in joint investigations of potential environmental health hazards. These investigations may include a broad range of hazards such as dumpsites, spills, accidental releases, or contaminated water supplies. Also included would be proactive initiatives aimed at explaining the health impacts of proposed environmental projects to involved communities.

Centers for Disease Control Superfund Investigations

The newly reauthorized Superfund gives broad authority to the CDC concerning the investigation of hazards at Superfund sites and the recommendation of cleanup standards. The Team would provide a multidisciplinary cadre of health professionals, including physicians, epidemiologists and industrial hygienists to work closely with CDC in the evaluation of New Jersey sites.

Response to Local Health Officers

The Team would be available to provide broad assistance to local health officers in addressing community environmental health concerns. Health officers often serve as the front line, identifying hazards and shaping community attitudes. Improved communication with these local officials can provide a valuable link to more effective public outreach.

Development of Educational and Communication Resources

Building upon existing resources within the Environmental, Occupational and Right to Know Programs, an information center and clearinghouse will be developed. This center will provide information to local officials and the public concerning environmental health. Additional approaches including films and videos will be explored to develop improved understanding of environmental health issues.

APPENDIX B

Petition to Assemblywoman Joann Smith Signed by Area Physicians, Administrators, and Residents

THE ASSEMBLY
STATE OF NEW JERSEY
TRENTON

JOANN H. SMITH
ASSEMBLYWOMAN 13TH DISTRICT
MONMOUTH-MIDDLESEX COUNTIES
2-B HIGHWAY #34
MATAWAN, NJ 07747
201-583-5558

COMMITTEES
VICE-CHAIRMAN
TRANSPORTATION, COMMUNICATIONS
& HIGH TECHNOLOGY
APPROPRIATIONS
GOVERNMENT OPERATIONS

May 15, 1987

Dr. Molly J. Coye, Commissioner
Department of Health
John Fitch Plaza
CN 360
Trenton, NJ 08625

Dear Dr. Coye:

There is considerable evidence that chemicals buried at the Global Landfill, and the adjacent Sommers Brothers site, both located in Old Bridge, are causing serious health problems to residents living in the area.

I join the petitioners, listed on the enclosed forms, in urging the state Department of Health, to promptly conduct epidemiological studies in the area. The medical histories of the residents in the area, who have suffered severe illnesses, should also be reviewed. Eleven physicians have also signed a separate petition, and they can provide evidence of the adverse health conditions these people have exhibited.

I would also like to arrange a meeting, at a mutually convenient time and place, between the executive members of C.H.E.C. (Citizens Helping Environmental Cleanup) together with you and select members of your staff.

Over 5,500 residents of Old Bridge and Sayreville live in the apartment complexes adjacent to the two landfills. The London Terrace apartment complex was built years ago over the old Madison Township municipal landfill. There is evidence that chemicals buried at these sites have seeped into the basements of the apartment complexes. Residents continue to get sick and are understandably frustrated at the lack of action by local and state officials.

Please take action to address the residents' concerns, and contact my office if you need any information.

Respectfully yours,

Joann H. Smith

Joann H. Smith

THE ASSEMBLY
STATE OF NEW JERSEY
TRENTON

JOANN H. SMITH
ASSEMBLYWOMAN 13TH DISTRICT
MONMOUTH-MIDDLESEX COUNTIES
2-B HIGHWAY #34
MATAWAN, NJ 07747
201-583-5558

COMMITTEES
VICE-CHAIRMAN
TRANSPORTATION, COMMUNICATIONS & HIGH TECHNOLOGY
APPROPRIATIONS
GOVERNMENT OPERATIONS

MEMORANDUM

TO: Dr. Molly J. Coye, Commissioner
Department of Health

FROM: Hon. Joann H. Smith
Assemblywoman, 13th district

The list below is of the address and phone numbers, taken from the local telephone directory and checked by my aide, of the 11 physicians listed on the enclosed petition.

Virginia Borromeo, M.D. F.A.A.P.
238 Ernston Road
Parlin, N.J. 08859
(201) 727-5110

Revilla Zapanta, M.D.
340 Ernston Road
Parlin, N.J. 08859
(201) 727-5113

S.J. Ambrosio, M.D.
318 Ernston Road
Parlin, N.J. 08859
(201) 721-3422

M.B. Parikh, M.D. F.A.A.P.
200 Perrine Road
Old Bridge, N.J. 08857
(201) 727-1818

Said Abou Samra, M.D.
200 Perrine Road
Old Bridge, N.J. 08857
(201) 727-8800

Paul M. Goldberg, M.D.
200 Perrine Road
Old Bridge, N.J. 08857
(201) 525-1144

Martin Sckalor, M.D.
984 Route 9
Parlin, N.J. 08859
(201) 727-0750

G. Swamy, M.D.
984 Route 9
Parlin, N.J. 08859
(201) 727-3723

Norman Barofsky, M.D.
28 Throckmorton Lane
Old Bridge, N.J. 08857
(201) 727-6558

Stanley J. Schnall, M.D. P.A.
28 Throckmorton Lane
Old Bridge, N.J. 08857
(201) 679-6300

Raj Dhakhwa, M.D.
200 Perrine Road
Suite 230
Old Bridge, N.J. 08857
(201) 727-0060

C.H.E.C.

Citizens Helping Environmental Cleanup

To: Joann Smith
Assemblywoman, 15th District
Monmouth-Middlesex Counties

We, the executive members of C.H.E.C. (Citizens Helping Environmental Cleanup), request that the State of New Jersey Department of Health conduct an epidemiological study among the residents living in the apartment complexes surrounding the Global landfill, and the Somer Bros. Estate.

We believe the environmental problems evident in this area require further investigation concerning possible adverse health effects upon these residents. To this end, we have collected signatures from local physicians, administrators and residents who have endorsed our request.

We hope the State of New Jersey will act expeditiously in this matter, as it is of grave concern to the people of this community.

Respectfully,

Christine Lamb, RN
President

Jean Chiusano
Vice President

Bernard Lamb
Secretary

Janis Rosbash
Treasurer

Steve Rosbash

Dave Goldstein

Doris Goldstein

Maxine Jerome

Debbie Cahill

Nora Tuor

Michael Chiusano

Robin Pagano

Christine Lamb, RN
President, C.H.E.C.
Citizens Helping
Environmental Cleanup

To: Assemblywoman Joann Smith
15th District
Monmouth-Middlesex Counties

We, the undersigned physicians, endorse the request by the group C.H.E.C., (Citizens Helping Environmental Cleanup), for an epidemiological study to be conducted among the residents residing in the apartment complexes surrounding the Global landfill, and the Somer Bros. Estate.

We believe the environmental problems evident in this area require further investigation concerning possible adverse health effects upon these residents.

Respectfully,

Virginia Borromeo, MD F.A.A.P.

Revilla Zapanta, MD

S.J. Ambrosio, MD

M.B. Parikh, MD F.A.A.P.

Said Abou Samra, MD

Paul M. Goldberg, MD

M. Sckalor, MD

G. Swamy, MD

N. Barofsky, MD

Stanley J. Schnall, MD P.A.

Raj Dhakhwa, MD

Christine Lamb, RN
President, C.H.E.C.
Citizens Helping
Environmental Cleanup

To: Joann Smith
Assemblywoman 13th District
Monmouth-Middlesex Counties

We, the undersigned, endorse the request by the group C.H.E.C., (Citizens Helping Environmental Cleanup), for an epidemiological study to be conducted among the residents residing in the apartment complexes surrounding the Global landfill, and the Somer Bros. Estate.

We believe the environmental problems evident in this area require further investigation concerning possible adverse health effects upon these residents.

Respectfully,

Joseph B. Landuth V.P. Old Bridge Bd of Ed.
Old Bridge Township Council
O/B Bridge Township Council
O.B Twp Council - President
O.B. Twp Councilman
O.B. Twp Councilwoman -
O.B.
O B Twp Councilman
O B Twp Councilman
O B "
O-B Township N.J.

Christine Lamb, RN
President, C.H.E.C.
Citizens Helping
Environmental Cleanup

To: Joann Smith
Assemblywoman 13th District
Monmouth-Middlesex Counties

We, the undersigned, endorse the request by the group C.H.E.C., (Citizens Helping Environmental Cleanup), for an epidemiological study to be conducted among the residents residing in the apartment complexes surrounding the Global landfill, and the Somer Bros. Estate.

We believe the environmental problems evident in this area require further investigation concerning possible adverse health effects upon these residents.

Respectfully,

George B. Landseth V.P. Old Bridge Bd of Ed.
Old Bridge Township Council
O.B. Twp Council - President
O.B. Twp Councilman
O.B. Twp Councilwoman
Mayor
O.B. Twp Councilman
O.B. Twp Councilman
O.B. "
O.B. Township N.J.

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

Mrs. Grasso 1705 Westminster Blvd Parlin, N.J.
Mr. Joseph Grasso — 1705 Westminster Blvd Parlin, N.J.
Mrs Blanca Cabrera 1703 Westminster Blvd Parlin N.J.
Mrs. Pamela Strickland 1702 " " " "
Mr. Vincent 1701 Westminster Blvd Parlin
[illegible] 1514 WESTMINSTER BLVD
Khanvilkar 1517 WESTMINSTER Blvd
Elizabeth Padasack 1507 Westminster Blvd Parlin
John Kropp apt 1505 Westminster Blvd
[illegible] 2201 Mills Dr Parlin NJ 08859.
Chandulal Shah 2211 Westminster Blvd
Mary Pittman 2209 Westminster Blvd
Lois Mandracchia 2207 " "
Madhuri Shah 2205 Westminster Blvd
Mary Ann " " "
Doris Ann " " "
Diane Marra 2115 Westminster
James French 2115 Westminster
Mary Pullano 2111 Westminster Blvd
Rosemarie Gamcar 2105 Westminster Blvd
Tracy Smolko 2103 Westminster Blvd
JANET BRESCIA 2101 WESTMINSTER BLVD.
[illegible] 2306 Westminster
[illegible] DE SAL 2305 WESTMINSTER BLVD PARLIN
[illegible] 2303 WESTMINSTER BLVD PARLIN
[illegible] 2301 Gorniak dr Parlin N.J.

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

Mary Ann Maverick	3505 Wells Dr Toms River
Cheryl Beckles	1913 Westminster Blvd
[illegible]	3313 Wells Dr.
K Marsana Rao	3311 WELLS DRIVE
[illegible]	3307 Wells Dr. Palm.
Rachel A. Nader	3304 Wells Dr
[illegible]	1901 Westminster Blvd
Lillian Nunley	3301 Wells Drive
Kasab Nejad	3302 Wells Drive
[illegible]	3207 Wells Dr.
Beulah Remedios	3109 Wells Drive
[illegible]	3103 Wells Drive
[illegible]	3105 Wells Dr
Judy [illegible]	3002 Wells Dr.
Vat Patel	3003 Wells DR.
Gordon B. Richards	3007 Wells DR.
Susan Dawson	2313 Westminster Blvd.
Rose Budicke	2315 Westminster Blvd.
Robert E. [illegible]	2204 Westminster Blvd
Diane Provenzano	2204 Westminster
[illegible]	2405 Westminster
[illegible]	2406 Westminster Blvd
[illegible]	2403 " "
[illegible]	2402 " "
[illegible]	2401 "
[illegible]	213 Westminster Blvd.
[illegible]	205 Westminster Blvd

Citizens Helping
Environmental Cleanup
C.H.E.E.C.

Petition for Epidemiological Study

Tonya Mulligan - 1303 Westminster Blvd - Parlin, N.J.
Thomas Flood - 1306 Westminster Blvd - Parlin, NJ
[illegible] 1307 Westminster Blvd Parlin
Elizabeth Sipos 1309 Westminster Blvd Parlin
[illegible] 1311 Westminster Blvd Parlin
[illegible] 1313 [illegible] Parlin
[illegible] 1315 WESTMINSTER BLVD PARLIN
S. Babb 1201 Westminster Blvd Parlin
[illegible]
Rosemary Villanueva 1202
Susan Arnold 1203 Westminster Blvd Parlin
Kelly Tryniski 5707 Wells Dr Parlin NJ
Shelly Henderson 5707 Wells Dr. Parlin
Yash Arya 1209 Westminster Blvd Parlin
Mark Cirtelli 1211 Westminster Blvd. Parlin
Gail Larson 1213 Westminster Blvd Parlin NJ
[illegible] 1215 WESTMINSTER BLVD PARLIN NJ
Dennis Gallagher 1216 WESTMINSTER BLVD
Dawn Gallagher 1216 Westminster Blvd
Dawn Mueller 1217 Westminster Blvd Parlin
Westminster Blvd 1217 Columbus Parlin NJ
Diane White 5703 Wells Dr - Parlin NJ
[illegible] 5713 Wells Dr. Parlin
Mike Fiore 5714 Wells Dr. Parlin
Vivian Kalfayan 5712 Wells Dr
Mary Page 5719 Wells Drive
Bhavesh Shah 5720 Wellsdrive Parlin

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

[illegible]	[illegible]	Parlin, N.J.
[illegible]	5715 Wells Dr.	"
[illegible]	5717 Wells Dr.	"
Ray Shah	5720 Wells Dr.	"
[illegible]	5717 Wells Dr.	"
[illegible]	5712 Wells Dr.	"
[illegible]	5604 Wells Dr.	Parlin N.J.
[illegible]	[illegible]	"
[illegible]	5601 Wells Dr.	Parlin N.J.
[illegible]	1101 Westminster Blvd	Parlin NJ
[illegible]	1111 Westminster Blvd	Parlin N.J.
[illegible]	[illegible]	[illegible]
[illegible]	1112 Westminster Blvd	Parlin NJ
[illegible]	1113 Westminster Blvd	Parlin NJ
[illegible]	1114 Westminster Blvd	Parlin NJ
Sandra Bache	5601 Westminster Blvd	Parlin, N.J.
[illegible]	5605 Westminster Blvd	Parlin, N.J.
[illegible]	5603 Westminster Blvd	Parlin N.J.
Margaret Raby	5611 Westminster Blvd	Parlin, N.J.
[illegible]	1601 WESTMINSTER BLVD	Parlin " "
[illegible]	[illegible]	:
[illegible]	[illegible]	"
[illegible]	1607 WESTMINSTER BL.	PARLIN, N.J.
[illegible]	1605 Westminster	Parlin, N.J.
R. Ford	1609 " Blvd	" "
B. Kora	1610 " "	" "
[illegible]	1611 " "	" "
[illegible]	1612	
[illegible]	1612 " "	" "
[illegible]	[illegible]	" "

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

Dec 21 87

Darlene Hand — 3417 Wells Dr Parlin NJ.
Melissa Daly — 3415 Wells Dr Parlin
Sandra Longo — 1504 Westminster Blvd
Priscilla Blunk — 3416 Wells Drive
Ronald Dancy — 3413 Wells Dr
Patricia Miller — 1412 Westminster Blvd Parlin, N J 08859
Dorothy Miller — 1408 Westminster Blvd Parlin NJ 08859
Ann Marie — 3115 Wells Dr Parlin N J 08859
Chuck Ferraro — 3131 skytop Dr Sewaren NJ 08859
Anna Lee — 3114 Wells Dr Parlin N.J. 08859
Hannah Houston — 3113 Wells Dr Parlin, N.J. 08859
Tina Fazzi — 3113 Wells Dr. Parlin N.J. 08859
Mary Lou — 3015 Wells Dr Parlin N.J. 08859
Dave — 3011 Wells Dr Parlin NJ 08859
Lenny — 2213 Westminster Blvd Parlin 08859
Judy — 2210 Westminster Blvd Parlin NJ
Mary Ann Murray — 2215 Westminster Blvd Parlin NJ
Evelyn Lasko — 2207 Westminster Blvd Parlin NJ
Joseph Spindaty — 4707 Wells Dr. Parlin NJ
Richard Pawlikowski — 5303 Westminster Blvd. Parlin NJ
Phillip Poole — 2201 Westminster Blvd

E SPADO 2512 " "
[illegible] 2414 " " "
N Snyder 6511 " "
[illegible] 103 " "
[illegible] 113 " " "
[illegible] Cortez 116 Westminster " "
[illegible] Cortez 6 Westminster " "

Petition for Epidemiological Study

ROBERT HUTKIN
1413 WESTMINSTER BLD.
PARLIN N.J.

Tracey McCoich 1411 Westminster Blvd Parlin NJ 08859
Sandy Oppenheim 1410 Westminster Blvd.
MARIO MEJA - 5610 WELLS Dr. PARLIN - N.J. 08859
Kim Novak - 5616 Wells Dr. Parlin, N.J. 08859
JOSEPH EGAN - 5501 Wells Dr. Parlin, N.J. 08859
Rachel Lieberman 5503 Wells Dr. Parlin
Michael Kawczak 5502 Wells Drive Parlin NJ
Eleanor Kawczak 5502 Wells Drive Parlin NJ
Saray Bonao 5508 Wells Drive, Parlin, NJ
Eppie D-Dias 5505 Wells Drive Parlin, NJ
[illegible] 550? Wells Drive Parlin, NJ
Arthur Pires 5511 WELLS DR. PARLIN, N.J.
Jean Talbot 5509 Wells Dr Parlin NJ
[illegible] 5510 WELLS DR PARLIN N.J
Marlene L. Arduca 5612 Wells Dr. Parlin NJ
Chester Mulan 5415 Wells Dr. Parlin N.J.
Romanie Mulany 5415 Wells Dr. Parlin
Dinesh & Daksha Gadhia 5413 Wells Drive Parlin.
[illegible] STELLMACHER 5414 WELLS DR. N.J.
Sue Alexander 5416 Wells Dr. Parlin
Keith Rapsa 5412 Wells Dr Parlin
Kathy Diffor 5409 Wells Dr Parlin
Bucky O'Halloran 5407 Wells Dr Parlin
[illegible] 5405 WELLS DR PARLIN
[illegible] Colonna 5406 Wells Dr. PARLIN
[illegible] 3709 Wells Dr Parlin

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

Margaret Gmolarski	206 Westminster Blvd.
Mumtaz Ansari	203 Westminster Blvd
[illegible]	204 Westmen Bd.
B. McCarthy	201 Westminster Blvd.
H. Heckelman	202 Westminster Blvd.
[illegible]	510 Westminster "
[illegible]	508 Westminster BLVD
[illegible]	505 Westminster Blvd.
[illegible]	506 Westminster Blvd.
[illegible]	503 " "
[illegible]	504 " "
J. J. Hoffman	717 Downing St.
[illegible]	715 Downing St.
[illegible]	713 Downing St.
[illegible]	801 Downing St.
[illegible]	1002 WESTMINSTER BLVD
[illegible]	1006 Westminster Blvd.
[illegible]	1018 " "
[illegible]	19K Westminster Blvd.
[illegible]	190 Westminster Blvd.
[illegible]	19B Westminster Blvd.
[illegible]	190 Westminster Blvd.
[illegible]	20K - PARKWOOD VILLAGE
[illegible]	202 [illegible]
[illegible]	22E [illegible]
[illegible]	21-D Westminster Blvd
[illegible]	22-F Westminster Blvd.

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

[illegible]	118	Westminster Blvd	Parlin NJ
[illegible]	114	Westminster Blvd	Parlin NJ
[illegible]	418	Westminster Blvd	Parlin NJ
[illegible]	417	Westminster Blvd	Parlin NJ
D [illegible]	412	Westminster Blvd	Parlin NJ
W [illegible]	519	Westminster Blvd	" "
A. Sikora	515	[illegible]	" "
[illegible]	[illegible]	[illegible]	" "
[illegible]	703	Dominick Ct	" "
[illegible]	"	"	" "
Margaret McDougan	707	Dominick CT	Parlin, N.J. 08859
[illegible]	711	"	" "
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1012	Westminster Blvd	NJ 08859
Gita K. Desai	1013	Westminster Blvd	NJ 08859
[illegible]	"	"	" "
H. Phadke	1014	Westminster Blvd	NJ 08859
S. MAHMUD	1015	Westminster BLVD	NJ 08859
J Demaio	4903	Gemini Parlin	N.J 08859
[illegible] Jabbie	4904	Gemini DR Parlin	NJ 08859
[illegible] Ruzicki	4902	Gemini Dr Parlin	NJ 08859
[illegible] Sautter	5008	Dominick Ct	Parlin NJ 08859
M. Mehta	5007	Dominick Dr.	N.J. 08859
Zalida [illegible]	5016	Dominick Dr	" "
Brig. Lt. Tony	5103	"	"
Lea Eisfeldt	4504	Wells Dr	NJ 08859
Jo Ann Mancilla	4502	Wells Dr.	Parlin NJ 08859
MARC PETERMAN	4519	WELLS DR	PARLIN N.J. 08859
Deborah Moody	4523	Wells Dr.	Parlin NJ 08859
Steph [illegible]	[illegible]	[illegible]	[illegible] NJ 08859

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

[illegible] 1603 Westminster Blvd Toms River NJ
[illegible] 2401 Corniak Dr Toms River NJ
[illegible] 231 Westminster Blvd Toms
[illegible] 2301 Westminster Blvd, Toms
[illegible] 2401 " " "
[illegible] 2601 " " "
[illegible] 201 Westminster Blvd
[illegible] 115 Westminster Blvd.
[illegible] 1001 Westminster Blvd
[illegible] 313 Westminster Blvd
[illegible] 305 Westminster Blvd
[illegible] 602 Westminster Blvd
[illegible] 603 [illegible]
[illegible] 605 [illegible] - 732-657-7
[illegible] 602 [illegible]
[illegible] [illegible]
[illegible] 199 Westminster
[illegible] 1001 Westminster Blvd
[illegible] 1010 Westminster Blvd.
[illegible] 1603 Westminster Blvd
[illegible] 4914 GORNIAK DR.
[illegible] 5005 GORNIAK DR
[illegible]
[illegible] Mascullo 5111 Gorniak Dr
[illegible] 4603 Wells Drive
[illegible] 4404 Wells Dr.
[illegible] 4413 Wells DR.

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition For Epidemiological Study

Joyce E. McAfee	22 D Parkwood Gardens
Steven Cohen	18C Parkwood Dr. S.A.
John H. Allen	" "
Peter Lewis	Apt. 18-A Parkwood Gardens Bldg. So. Amboy N.J. 08879
R. Andrich	18J Parkwood Dr S A.
L. Williams	18-K Parkwood DR South amboy
J. Robinson	18-K Parkwood DR South amboy
Randall Steinhauser	18-M Parkwood Dr South Amboy
L. Pinsenberg	18-M Parkwood dr So Amboy
Sylvia Quesada	18T Parkwood Dr. So. Amboy
Bobby Egan	12 T PARKWOOD DR. So. Amboy
Sylvia Ritchell	12L Parkwood Drive So Amboy
James Quinn	12K Parkwood Dr So Amboy NJ
Patricia Ward	12S Parkwood Dr South Amboy NJ
Steve + Natalie May	12 K PARKWOOD DR. S AMBOY
W.R. Dyson	11-P Parkwood Dr "
Dorothy Meehan	12-C Parkwood
Judith Kudrick	12A PARKWOOD DR
V. [illegible]	18B Parkwood Dr S Amboy NJ
[illegible]	17C Parkwood dr So Amboy
[illegible]	17L PARKWOOD DR. SOUTH AMBOY
[illegible]	17 R PARKWOOD Dr. South Amboy
[illegible]	17S PARKWOOD DR S AMBOY NJ
[illegible]	23-I Parkwood Dr. S. Amboy, NJ
[illegible]	23E —" —

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

Baum 3711 Parlin Wells Drive
Fee Ferro 3705 Wells Drive
Raquel Medina 3701 Wells Drive
Humphrey Vick 3611 Wells Drive.
[illegible] 3610 Wells Dr.
[illegible] 3604 Wells Drive
[illegible] 3607 Wells Drive.
[illegible] 3603 Wells Drive
3604 WELLS DRIVE.
Bernice Archbold 3601 Stellhorn,
Gurvader Grover 1512 Westminster
Mary Ann DeMaio 1401 Westminster Blvd
Allin Johnson 1401 Westminster Blvd
Leslie Wright 1401 WESTMINSTER BLVD.
Richard Wright same.
Phyllis Jenkins 1408 Westminster Blvd.
Rosa Crawford 1416 Westminster Blvd
[illegible] 19 I Park Ward
Elizabeth Mazalis 19 G Westminster Blvd
Cynthia Dickerson 19-F Parkwood Dr.
Mary Hays 20-J Parkwood Dr
Judith M. Brown 20C Parkwood Dr.
[illegible]
Jeannette Smith 21-G Parkwood Dr
[illegible] 21-20 VAN DYKE DR
GENEVIEVE M. CARLOCK 21 G Parkwood
[illegible]
Linda Conroy - 23A Westminster Blvd

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

David Herring 23D Westminster Blvd South Amboy N.J.

Debra Altarac 23F Westminster Blvd South Amboy NJ

Fiona Kaufman 24D " "

[illegible] 24G Parkwood Drive

[illegible] 24-G Parkwood Drive

[illegible] 24G " "

[illegible] 24F Parkwood Drive

[illegible] 25D Westminster Blvd South Amboy NJ 08879

[illegible] 25N Westminster Blvd South Amboy NJ 08879

Janet Inman 25 A Parkwood Dr So Amboy NJ 08879

[illegible] 26 Parkwood

[illegible] 26F Westminster Blvd So Amboy NJ 08879

[illegible] 1-A Westminster Blvd So Amboy

[illegible] 1E Westminster Blvd South Amboy

[illegible] 2D Parkwood Dr. So Amboy

[illegible] 3D Parkwood Drive So Amboy, NJ

William P Sharp 3C Parkwood Drive So Amboy N.J.

Barbara Sharp 3C Parkwood Drive So Amboy N.J.

[illegible] 3-I Parkwood Drive So Amboy NJ

[illegible] 3-E " " " NJ

[illegible] 6C Parkwood Drive So Amboy NJ

[illegible] 6-S Parkwood Drive South Amboy NJ

[illegible] 6-S Parkwood Drive South Amboy NJ

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

David R Mulligan 2-4 Parkwood Dr S. Amboy
Norma M. Mulligan 2 M Parkwood Dr S Amboy.
Stuart M Kaplan 2K Parkwood Dr S. Amboy.
[illegible] 3-O
[illegible] 3P Parkwood
[illegible] 3M Parkwood Dr.
[illegible] 5C Parkwood Dr.
[illegible] 5E Parkwood Dr.
[illegible] 5F Parkwood Dr
[illegible] 6F PARKWOOD DR
[illegible] 6P Parkwood Village
[illegible] 6G Parkwood Village
[illegible] 6L Parkwood Dr.
[illegible] 8-K Parkwood Dr.
[illegible] 8-O Parkwood Dr.
[illegible] 9M Parkwood Dr.
[illegible] 9P Parkwood Dr
[illegible] 4I Parkwood Dr.
[illegible] 4H
[illegible] 4F
[illegible] 4C Parkwood Drive
[illegible] 4-C Parkwood Dr.
[illegible] 4-B Parkwood Dr

C.H.E.C.

Citizens Helping Environmental Cleanup
Petition for Epidemiological Study

Teresa C. Erdelyi	23 P Westminster Blvd. South Amboy NJ 08879
[illegible]	23 P Westminster Blvd South Amboy NJ 08879
[illegible]	23 P WESTMINSTER BLVD N.J. 08879
Michael A. [illegible]	24-P WESTMINSTER BLVD. NJ. 08879
Kathy Sidorko	24-P WESTMINSTER BLVD, N.J. 08879
[illegible]	25-T WESTMINSTER BLVD
Patricia Santucci	26 L Parkwood Vlg. SA NJ 08879
Ann Maccado	26-I Parkwood Vlg SA. NJ 08879
Dear Elkhraf	26A westminster Blvd.
[illegible]	1-T Parkwood Village
Dina Ingratta	1R Parkwood Dr. S.A NJ. 08879
Terry Mucke	1-R Parkwood Dr S.A. 08879
Margaret M Russell	1-U Westminster Blvd, South Amboy NJ 08879
Steven [illegible]	1-P westminster Blvd. S. Amboy
[illegible]	1M Parkwood Dr. So Amboy
[illegible]	1N Parkwood Dr. S. Amboy
Mary E. McGuire	1N Parkwood Dr. S. Amboy
[illegible]	1N Parkwood Dr. S. Amboy
[illegible]	1M Parkwood Dr. S. Amboy
J Schneeman	2 N Parkwood Dr
[illegible]	2R Parkwood Dr.
[illegible]	2O Parkwood Dr.

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

Lana K Mezzacappo	4514 Wells Drive Parlin NJ (08859)
Angelo Binkowsky	4214 Wells Dr Parlin NJ
Stella Binkowsky	" " "
Eugene Binkowsky	" " "
Edward Binkowsky	" " "
Joyce DeNardis	4205 Wells Dr.
Lucy DeNardis	4205 Wells Dr.
Annette Reis	4003 Wells Dr.
George Sauer	4000 Wells Dr.
T. Zamora	4217 Wells Dr.
A. Parlin.	5302 GORNIAK. DR.
[illegible]	5308 GORNIAK DR
A. Ellwanger	5312 Gorniak Dr. Parlin N.
S. Desai	5315 GORNIAK DR Parlin
N Bittar	5319 GORNIAK DR PARLI
[illegible]	5326 Gorniak dr. Parlin, N J
[illegible]	1-4 VanDelft dr
[illegible]	3 Van Delft DR.
Roberta Mather	3-9 Van Delft Dr.
Kathryn Crowell	3-12 Van Delft Dr.
[illegible]	3-5 Van Delft Dr.
[illegible]	3-4 Van Delft Dr.
Marsha Plucinik	4-18 Van Delft Dr.
[illegible]	4-8 VAN DELFT DR
[illegible]	4-12 VAN DELFT DR.
Agatha Saccardi	5-17 Old Road

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

Joe Virgo	8 Old Rd. Apt 1	SA NJ
Lauraine	8 Old Rd Apt 5	S A N.J.
Mary Lou	8 Old Rd. Apt 13	SA NJ
Vinnie Mangino	8-18 Old Rd	SA NJ
Mary Ann Cicalla	8 Old Rd - Apt. 14	So. Amboy, NJ
Mrs. Rosaria Sciria	8 Apt 15	
Mrs. M.	Morrison apt 2 - 7B.	So Amboy 08879
Rebecca Hoffman	7-17 Van Deift Dr.	So. Amboy N.J. 08879
Kenneth P. Reed	9/13 Van Deift Dr.	S. Amboy NJ 08879
[illegible]	9/5 VANDEIFT DR.	SOUTH RIVER, N.J. 08879
Linda J. Tiger	9 VAN DEIFT DR.	SO. AMBOY, N.J. 08879
[illegible]	9 VAN DEIFT DR.	
[illegible]	22-20 [illegible]	So Amboy, N.J. 08879
[illegible]	21 [illegible]	So. Amboy, N.J. 08879
E.P. Schubert	21 "	" "
E. Whitaker	21 - 19	
Joseph Kinaff	13-14 Vermeer Dr.	So. Amboy
[illegible]	14 Vermeer Dr	So Amboy NJ 08879
Barbara Pighetti	15-7 Vermeer Dr.	S Amboy, NJ 08879
Patricia Carlson	15-19 Vermeer Drive	" "
[illegible]	16-14 Vermeer Dr	Old Bridge, S Amboy 08879
Jayne Bicday	16-13 Vermeer Dr.	" " "
Ken Be[illegible]	16-5 Vermeer Dr	" " "
Walter V. Daly Jr	16-9 "	" " "
James Bright	17-1 Vermeer Dr	So Amboy, NJ 0887[illegible]
Nick Barbieri	17-3 Vermeer	So Amboy, NJ 088[illegible]
[illegible]	17-13 Vermeer Dr.	So Amboy, NJ 0887[illegible]
[illegible]	7-17 Vermeer Dr	So Amboy NJ 08879

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

	6R PARKWOOD
	6M Parkwood
	9J PARKWOOD
	9G Parkwood Dr.
	9F Parkwood Dr.
	9D Parkwood Dr.
	7E Parkwood Dr.
	7 PARKWOOD
	40
	16S Westminster Blvd
	16K " "
	16L
	15L Parkwood Drive S A
	15M Parkwood
	15M Parkwood
	15N Parkwood Dr.
	15K Westminster Blvd.
	15J Parkwood Dr
	1520 Vermont Dr SA
	15 Vermont Apt. 14
	" " " "
Donald Sulewatch	" " " 8

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

Diane Kinney	4511 Wells Drive, Parlin
Joseph Kinney	" "
Janet M. Sicko	5207 Gornick Drive, Parlin
Paula Vargas	4310 Wells Drive
Cathy McGlynn	4310 Wells Drive
M. McClarran	4306 Wells Drive, Parlin
L Davison	4215 Wells drive
Tony-Jean Fan	4214 Wells Drive Parlin
Teresa Taylor	4212 Gornick Drive Parlin N.J.
Lyon Kadets	5309 Gornick Dr. Parlin, N.J.
Joe Lewis	5315 GORNIK DR PARLIN, NJ
Louis Lee	5317 Gornick Dr Parlin, NJ.
Patricia DeOke	6 Old Rd Apt 17 So Amboy N.J.
Nancy Dubrica	2-7 old Rd So Amboy, N.J.
Nina Hopkins	6 Old Rd #8 South Amboy NJ 08879
Mary C. Pinter	6 Old Rd #6 South Amboy NJ 08879
Ruth Reedy	Bldg 6 Apt 4 South amboy NJ 08879
Grace Reilly	Bldg 6 Apt 4 South amboy NJ
Otini Zamoun Zakis	
Lee Ostrowsky	7-19 Van Dorpt Dr. So Amboy 08859
Cathy Palma	7-3 Van Delft Dr. So Amboy 08879
Tracy Borgo	7-11 Van Delft Dr. So Amboy 08879
Florence Jordan	7-1 Van Delft Dr So Amboy 08879

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition For Epidemiological Study

Jeffrey Kolash	5403 Wells Dr.	Parlin, N.J. 08859
C. Dowd	23-5 VAN DELFT DR	S. Amboy, N.J.
J. Jinks	23-3 VAN DELFT DR	South AMB.
I. Bertolini	23-17 Van Delft Dr.	So. Amboy NJ.
Robert Bertolini	23-17 VAN DELFT DR.	So. Amboy N.J.
RICHARD DIETZ	23-20 VAN DELFT DR	So. Amboy N.J.
Claude Nichols	23 14 Van Delft Dr	" " "
Peggy Mikza	23-4 Van Delft Dr.	So. Amboy NJ
A. Miga	" " "	" " "
? Stypinski	23 Van Delft Dr.	So Amboy N.J.
Ted Mishkin	23 VAN	So Amboy N.J.
Kenneth Taylor	24 Van Delft Dr	S Amboy 08879
Cindy Thomas	24 Van Delft Dr	S. Amboy 08879
[illegible]	14-19 Vermeer Dr.	S. Amboy 08879
[illegible]	14-18 "	" "
Maureen C Downey	14-13 Vermeer Drive	S. amboy 08879
[illegible]	14-4 Vermeer Drive	S amboy 08879
[illegible]	14-6 Vermeer Dr.	So. Amboy 08879
Richard Davis	14-12 Vermeer Dr	So. Amboy 08879
J Chambers	14-13 Vermeer Dr.	S. Amboy 08879
[illegible]	14-20	VERMEER DR. S. Amboy 08879
Cheryl Tarpley	14-20	Vermeer Drive South Amboy 08879
Walter DeStefano	15-18	Vermeer Dr. South Amboy 08879

C.H.E.C.

Citizens Helping Environmental Cleanup

Petition for Epidemiological Study

5013 London Terr. Parlin
Anita Trio - Hersna 5013 London Terr. Parlin
Mary Jamaula Matchaponix Rd Old Bridge
Denise Fiato " " "
Helen Adamec " " "
Arthur Casullo Englishtown Rd Old Bridge
Ralph Trio 1305 Westminster Blvd. Parlin
Laura Raymond Edna B-B-H 2-Old Bridge
Jerich 2-13 VANDELFT. Dr. So Amboy NJ
Kosik 213 Van Delft Dr. So. Amboy, NJ
2-9 VanDelft Dr So Amboy NJ
Curis 1-14 Van Delft Dr. S. Amboy NJ
Van Delft Dr.
3-16 VAN DELFT DR S. AMBOY NJ
3-16 Van Delft Dr S Amboy NJ
3-2 Van Delft Dr. So Amboy N.J.
3-2 Van Delft Dr So Amboy N.J.
2-18 Van Delft Dr S. Amboy NJ 08879
Mr. Joseph A. Durta 2-20 VanDelft Dr. S. Amboy, NJ 08879
5-2 Old Rd So Amboy NJ 08879
5-4 Old Road South Amboy NJ 08879
5-4 Old Rd. South Amboy NJ 08879
5-6 Old Rd. South Amboy N.J.
6-8 " " " "
6-8 Parkwood Drive SouthAmboy 08879
5-8 old Road, So Amboy N.J.
5-14 " " " "
93 Old Road New Amsterdam
6-19 Old Rd, So Amboy, NJ 08879

C.H.E.C.

Citizens Helping Environmental Cleanup
Petition for Epidemiological Study

Hector Guimaraes	4 C Rarwood
Judith Scuttaro	16B Westminster Blvd
Anthony Scuttaro	16B Westminster Blvd
Paul Stein	16 I Westminster Blvd
Tony Stasi	16I Westminster Blvd.
Theresa Rawlins	15-I Parkwood Dr.
Mary Ann Bell	15-6 Parkwood Dr.
Pat Lewis	15 7 Parkwood Dr.
Jean Falls	156 Parkwood Dr
Mary Procaccini	156 Park Wood Dr.
[illegible]	15-H Parkwood Dr.
[illegible]	15A Parkwood Dr.
[illegible]	154 Vermeer Dr. S.A., NJ 08537
Mary Ann Masi	16-6 Vermeer Dr.
Maryann Kusmiec	11-16 Vermeer Dr
Lisa Varnell	12-16 Vermeer Dr.
Ann Marshall	16-18 Vermeer Dr
Gale Ryan	19 Vermeer Dr

C.H.E.C.

Citizens Helping Environmental Cleanup
Petition for Epidemiological Study

17 Kenmore Dr S/Amboy 08879

APPENDIX C

Pamphlet Law 1987, c. 368

nursing homes from discriminating against Medicaid-eligible persons seeking admission as patients, to include recipients of municipal general assistance (GA). The bill also provides that a nursing home shall not deny admission to a GA recipient if the home's Medicaid occupancy level is less than the Statewide occupancy level.

P. L. 1985, c. 303 currently prohibits a skilled nursing or intermediate care facility which accepts Medicaid patients and has a Medicaid occupancy level that is less than the Statewide occupancy level, as determined by the Commissioner of Human Services, from denying admission to a Medicaid-eligible person.

This bill is intended to protect the interests of GA recipients seeking admission to nursing homes who are now included in the antidiscrimination provisions of P. L. 1985, c. 303. According to data supplied by the Department of Human Services, there were 576 GA recipients receiving nursing home care in calendar year 1986 with $2.7 million total expenditures on their behalf (75% by the State and 25% by the municipalities).

This bill is identical to Senate Bill No. 3364 Sca (Jackman) which the committee also reported favorably on this date.

HEALTH AND ENVIRONMENTAL PROTECTION, DEPARTMENTS OF—GLOBAL LANDFILL AND SOMMERS BROTHERS DUMP SITE STUDY

CHAPTER 368

ASSEMBLY NO. 4153

EXPLANATION—Matter enclosed in bold-faced brackets [thus] in the above bill is not enacted and is intended to be omitted in the law.
Matter printed in italics *thus* is new matter.
Matter enclosed in asterisks or stars has been adopted as follows:
***—Assembly committee amendments adopted June 11, 1987.**

AN ACT requiring the Department of Health to conduct a study of the health of the people living near the Global Landfill and the Sommers Brothers dump site, and making an appropriation therefor.

BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey:*

1. The Legislature finds and declares that illegal disposal of sewage sludge and septage contaminated with toxic chemicals and

illegal dumping of toxic chemicals occurred at the Global Landfill; that the failure of a side slope of the landfill has caused odor problems from the release of noxious gases; that the Sommers Brothers dump site, once part of the municipal dump, is contaminated with lead and other hazardous wastes, drums of which remain buried in the fill; that chemicals from both of these locations may have migrated through the soil into ground water and thereby breached the foundations of homes; that scientific evidence suggest a possible link between exposure to these gases and the occurrence *[in the general population]* of a variety of human ailments; and, that, therefore, to insure protection of the public health and safety, it is *[appropriate to undertake an epidemiological study to determine what, if any, relationship may exist between exposure to these toxics, whether air or water borne, and the occurrence of human illnesses, and to guide remedial action that may be deemed necessary or appropriate]* *necessary to determine the extent and magnitude of the resident's exposure to chemicals from the Global Landfill and the Sommer Brothers dump site, in order to determine the appropriate actions to address the residents' health concerns and to develop appropriate remedial solutions*.

2. The Department of Health *in cooperation with the Department of Environmental Protection* shall *[undertake an epidemiological study to determine the nature of any relationship between exposure to the toxics from the Global Landfill and the Sommers Brothers dump site and the occurrence of human illnesses. The study shall be completed within one year]* *review the existing information on the Global Landfill and the Sommers Brothers site and other relevant information and determine the required additional exposure data and any other relevant information which must be collected in order to determine the appropriate action to address the health concerns of the residents, and to develop appropriate remedial solutions*.

3. *[The Department of Health shall, within 30 days of the completion of the study, submit a report of the results thereof, together with any recommendations for legislative or administrative action it deems appropriate, to the Governor and the Legislature.]* **The Department of Environmental Protection, in consultation with the Department of Health, shall determine which of the required additional exposure data could be collected immediately using existing funds and which would require additional funds.*

4. The Department of Health, in cooperation with the Department of Environmental Protection, shall establish an outreach and education program for the residents living near the Global Landfill and Sommers Brothers site. The purpose of this program will be to maintain a close working relationship between the residents and the Departments of Health and Environmental Protection and to provide the residents with information on the hazards of the chemicals identified on the sites and on risk reduction methods.

*5. The Department of Health shall submit a report of the review and needs assessment together with any recommendations and funding request it deems appropriate, to the Governor and the Legislature by October 31, 1987.**

[4.] **6.** There is appropriated from the General Fund to the Department of Health the sum of $75,000.00 to conduct the study required by this act.

[5.] **7.** This act shall take effect immediately.

Approved and effective January 6, 1988.

HAZARDOUS WASTE

Mandates a health study of Global Landfill and Sommers Brothers dump site and appropriates $75,000.

APPENDIX D

Summary of Analytical Results of Ground Water, Surface Water, and Leachate Samples Collected at Global Landfill in October 1987 transmitted by Killam Associates to Mr. Richard Sullivan in a Letter dated December 1, 1987

Elson T. Killam Associates, Inc.

27 Bleeker Street, P.O. Box 1008, Millburn, NJ 07041
Tel. 201/379-3400 | Telex 642-057 | Telecopier 201/376-1072

Environmental and Hydraulic Engineers

December 1, 1987

Mr. Richard J. Sullivan
New Jersey First, Inc.
2490 Pennington Road
Trenton, New Jersey 08638

RE: Global Landfill
ETK Job No. 135101

Dear Mr. Sullivan:

Enclosed please find three tables summarizing the analytical results of groundwater, surface water and leachate samples collected at Global Landfill in October 1987. Also enclosed is a location map for the sampling stations. Please note that these results are preliminary and are subject to confirmation after we complete our review of the quality assurance/quality control (QA/QC) data submitted by U.S. Testing Company, Inc. With respect to Priority Pollutant organic compounds, the summary tables for groundwater and leachate list only the compounds which were detectable in at least one sample. We have also enclosed for your reference a list of all the EPA Priority Pollutant organics for which the samples were analyzed.

A preliminary assessment of the data indicates that leachate quality (based on the analysis of five leachate seeps) is generally typical of solid waste landfills, being characterized by elevated levels of such parameters as BOD, COD, iron, chlorides, ammonia and total dissolved solids and lower levels of various volatile and semivolatile organic compounds. Based on the analysis of ten surface water samples, surface water quality in the vicinity of the landfill is generally in compliance with the NJDEP surface water quality standards for estuarine waters except for fecal coliform bacteria.

The groundwater monitoring data indicate elevated levels of several typical leachate indicator parameters such as total dissolved solids, chlorides, iron, ammonia, COD and BOD, primarily in the shallow wells. It should also be noted that the elevated levels of iron, chlorides and total dissolved solids may also be partially attributed to background conditions in the Old Bridge Sand aquifer and in a typical coastal water table aquifer. Heavy metal concentrations in groundwater are generally below NJDEP groundwater standards and NJPDES permit limitations. Priority Pollutant volatile organic compound concentrations generally comply with NJPDES permit limitations with the exception of wells 6S and 8S. Well 5D exceeded the NJPDES limit for methylene chloride with a concentration of 11 ppb vs. a limit of 5 ppb. However, the validity of this concentration

must be further assessed since methylene chloride was also found in the QA/QC blank samples. Well 5S contained 468 ppb of total semi-volatile Priority Pollutant organic compounds. The NJPDES permit does not specify a limit for Priority Pollutant semivolatile organics. However, an unofficial limit of 100 ppb is often used as a guideline for total Priority Pollutant semivolatile organic compounds with a maximum concentration of 5 ppb for individual compounds.

Although the landfill does appear to be affecting groundwater quality in the immediate vicinity, the level of impact does not, in our opinion, warrant any immediate or emergency remedial actions prior to closure of the landfill. The next round of NJPDES groundwater monitoring is scheduled for January 1988. Our current scope of work calls for the wells to be sampled and analyzed only for the less extensive quarterly list of parameters as specified by the NJPDES permit. This list does not include the Priority Pollutant compounds since the permit only requires their analysis annually. We recommend that the January 1988 monitoring effort be expanded to include another round of Priority Pollutant analyses in order to provide additional data to incorporate into the design of the landfill closure plan.

If you have any questions or require additional information, please feel free to contact us.

Very truly yours,

ELSON T. KILLAM ASSOCIATES, INC.

Donald O. Nusser, P.E.
Associate

DON:jb

cc: Blanche Hoffman, Old Bridge Twp.
William Ding, NJDEP

Priority Pollutants

PURGEABLE ORGANICS (31 COMPOUNDS)

- Acrolein
- Acrylonitrile
- Benzene
- Toluene
- Ethylbenzene
- Carbon tetrachloride
- Chlorobenzene
- 1, 2-Dichloroethane
- 1, 1, 1-Trichloroethane
- 1, 1-Dichloroethane
- 1, 1-Dichloroethylene
- 1, 1, 2-Trichloroethane
- 1, 1, 2, 2-Tetrachloroethane
- Chloroethane
- 2-Chloroethyl vinyl ether
- Chloroform
- 1, 2-Dichloropropane
- 1, 3-Dichloropropene
- Methylene chloride
- Methyl chloride
- Methyl bromide
- Bromoform
- Dichlorobromomethane
- Trichlorofluoromethane
- Dichlorodifluoromethane
- Chlorodibromomethane
- Tetrachloroethylene
- Trichloroethylene
- Vinyl chloride
- 1, 2-trans-Dichloroethylene
- bis (Chloromethyl) ether

BASE/NEUTRAL EXTRACTABLE ORGANICS (46 COMPOUNDS)

- 1, 2-Dichlorobenzene
- 1, 3-Dichlorobenzene
- 1, 4-Dichlorobenzene
- Hexachloroethane
- Hexachlorobutadiene
- Hexachlorobenzene
- 1, 2, 4-Trichlorobenzene
- bis (2-Chloroethoxy) methane
- Naphthalene
- 2-Chloronaphthalene
- Isophorone
- Nitrobenzene
- 2, 4-Dinitrotoluene
- 2, 6-Dinitrotoluene
- 4-Bromophenyl phenyl ether
- bis (2-Ethylhexyl) phthalate
- Di-*n*-octyl phthalate
- Dimethyl phthalate
- Diethyl phthalate
- Di-*n*-butyl phthalate
- Acenaphthylene
- Acenaphthene
- Butyl benzyl phthalate
- Fluorene
- Fluoranthene
- Chrysene
- Pyrene
- Phenanthrene
- Anthracene
- Benzo (a) anthracene
- Benzo (b) fluoranthene
- Benzo (k) fluoranthene
- Benzo (a) pyrene
- Indeno (1, 2, 3-c, d) pyrene
- Dibenzo (a, h) anthracene
- Benzo (g, h, I) perylene
- 4-Chlorophenyl phenyl ether
- 3, 3'-Dichlorobenzidine
- Benzidine
- bis (2-Chloroethyl) ether
- 1, 2-Diphenylhydrazine
- Hexachlorocyclopentadiene
- N-Nitrosodiphenylamine
- N-Nitrosodimethylamine
- N-Nitrosodi-*n*-propylamine
- bis (2-Chloroisopropyl) ether

ACID EXTRACTABLE ORGANICS (11 COMPOUNDS)

- Phenol
- 2-Nitrophenol
- 4-Nitrophenol
- 2, 4-Dinitrophenol
- 4, 6-Dinitro-*o*-cresol
- Pentachlorophenol
- *p*-Chloro-*m*-cresol
- 2-Chlorophenol
- 2, 4-Dichlorophenol
- 2, 4, 6-Trichlorophenol
- 2, 4-Dimethylphenol

PESTICIDES/PCB'S (26 COMPOUNDS)

- α-Endosulfan
- β-Endosulfan
- Endosulfan sulfate
- α-BHC
- β-BHC
- δ-BHC
- γ-BHC LINDANE
- Aldrin
- Dieldrin
- 4, 4'-DDE
- 4, 4'-DDD
- 4, 4'-DDT
- Endrin
- Endrin aldehyde
- Heptachlor
- Heptachlor epoxide
- Chlordane
- Toxaphene
- Aroclor 1016
- Aroclor 1221
- Aroclor 1232
- Aroclor 1242
- Aroclor 1248
- Aroclor 1254
- Aroclor 1260
- 2, 3, 7, 8-Tetrachlorodibenzo-*p*-dioxin (TCDD)

METALS (13 ELEMENTS)

- Antimony
- Arsenic
- Beryllium
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Nickel
- Selenium
- Silver
- Thallium
- Zinc

MISCELLANEOUS (3 ANALYTES)

- ~~Asbestos (fibrous)~~
- Total Cyanides
- Total Phenols

SUMMARY OF LEACHATE SAMPLING RESULTS

GLOBAL LANDFILL, OCTOBER 1987

NARY

Parameter	Sample No. L1	L2	L3	L4	L5
pH (units)	7.3	7.6	7.7	7.7	8.6
Color (CPU)	1000	1000	1000	500	15
TDS	8563	8287	2560	2180	1285
COD	769	2080	7990	2808	752
Cl	5269	3443	1847	1577	1652
NO_3-N	5.4	0.85	<0.5	2.0	46
SO_4	7.6	62	177	78	218
NH_4-N	658	578	297	373	6.0
Phenols	0.064	0.128	0.042	0.037	<0.005
Hardness	742	962	1396	1021	515
BOD	90	120	69	54	30
Total Coliform (MPN/100ml)	≥24,000	≥24,000	≥24,000	≥24,000	4600
Fecal Coliform (MPN/100ml)	11,000	75	750	≥24,000	430
Dissolved Oxygen	7.5	5.3	5.3	3.3	13
Cyanide	<0.01	<0.01	<0.01	<0.01	0.208
Fluoride	<0.5	2.7	1.7	0.84	<0.5
Surfactants	<1.0	<1.0	<1.0	<1.0	<1.0
Hexavalent Chromium	<0.001	<0.001	<0.001	<0.001	<0.001
TOX	2.92	2.76	2.23	1.94	0.480
Arsenic	<0.082	<0.082	<0.082	<0.082	<0.082
Barium	0.912	0.766	1.28	1.34	0.92
Cadmium	0.012	0.0076	<0.0023	<0.0023	<0.0023
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.044	0.025	<0.0085	<0.0085	<0.0085
Iron	60.70	41.8	101.0	69.6	222.0
Lead	0.055	0.015	0.12	0.13	0.121
Manganese	0.259	1.13	1.37	1.41	2.79
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.004	<0.004	<0.004	<0.004	<0.004
Sodium	6,710	2,170	1,390.0	1,240.0	1150.0
Zinc	0.430	0.191	2.82	3.67	0.73

Units are mg/l unless otherwise indicated.
Coliform Units are Most Probable Number /100mls.

SUMMARY OF LEACHATE SAMPLING RESULTS

GLOBAL LANDFILL, OCTOBER 1987
(Continued)

Parameter	Sample No. L1	L2	L3	L4	L5	Trip Blank	Field Blank	Lab Blanks
Volatile Organic Compounds (ppb)								
Methylene Chloride	2	-	-	-	1	1	5	0-3
Acetone	78	65	17	-	38	-	-	16-24
2-Butanone	6	5	-	-	-	-	-	0-2
Tetrachloroethene	2	-	-	-	-	-	-	-
Toluene	1	3	3	-	-	4	-	0-2
Chlorobenzene	2	-	-	5	-	-	-	-
Total Xylenes	16	3	-	10	-	-	-	-
Ethylbenzene	-	3	-	7	-	-	-	-
Benzene	-	-	-	4	-	-	-	-
Semivolatile Compounds (ppb)								
Naphthalene	10	16	4	-	-	-	-	-
2-Methylnaphthalene	6	6	-	-	-	-	-	-
Acenaphthene	12	20	-	-	-	-	-	-
Dibenzofuran	6	12	-	-	-	-	-	-
Pyrene	2	8	40	14	-	-	-	-
bis(2-Ethylhexyl) phthalate	28	24	46	18	-	-	-	-
Phenanthrene	-	20	22	10	-	-	-	-
Fluoranthene	-	8	36	12	-	-	-	-
Dimethylphthalate	-	-	6	-	-	-	-	-
Anthracene	-	-	8	-	-	-	-	-
Benzo (a) Anthracene	-	-	22	8	-	-	-	-
Chrysene	-	-	26	8	-	-	-	-
Benzo (b) Fluoranthene	-	-	28	12	-	-	-	-
Benzo (a) Pyrene	-	-	20	-	-	-	-	-
Indeno (1,2,3-cd) Pyrene	-	-	16	-	-	-	-	-
Benzo (g,hi) Perylene	-	-	16	-	-	-	-	-
Pesticides and PCBs (ppb)	-	-	- NONE DETECTED		-	-	-	-

Priority Pollutant Organic Compounds not listed above were non-detectable in all leachate seep samples.
Table excludes organic compounds detected by library search.

PRELIMINARY

SUMMARY OF RESULTS OF SURFACE WATER SAMPLING

ADJACENT TO GLOBAL LANDFILL, OCTOBER 1987

Parameter	Sample Location 1	2	3	4	5	6	7	8	9	10
BOD_5	<3.0	4.3	3.3	<3.0	6.3	<3.0	<3.0	<3.0	<3.0	<3.0
Cl	34	47	1111	383	443	4927	7329	6004	7472	8069
COD	34	30	87	11	15	194	72	110	72	61
Hardness	103	68	487	153	193	2371	2579	2087	2770	2615
NH_3-N	2.0	7.0	<2.0	<2.0	<2.0	15.0	<2.0	<2.0	<2.0	<2.0
NO_3-N	<0.5	1.18	1.99	0.83	1.22	<0.5	<0.5	<0.5	<0.5	<0.5
pH (units)	6.4	6.5	6.2	6.5	7.0	6.8	6.8	6.6	6.5	6.6
Total Phenols	0.075	0.015	0.012	0.011	0.533	0.005	0.010	0.012	0.011	0.172
Na	24	26	832	227	305	4350	4590	3630	5000	4770
SO_4	18	58	190	65	93	754	995	767	1125	1093
TDS	1240	240	2482	77	1060	3410	16780	13240	17150	16310
TOX	0.047	0.046	0.089	0.045	0.075	0.540	0.080	0.068	0.210	0.067
F. Coli (MPN/100mls)	240	4600	>24000	460	2400	1100	>24000	2400	2400	230
T. Coli (MPN/100mls)	460	>24000	>24000	11000	>24000	2400	>24000	2400	2400	460
DO	9.1	7.1	4.0	8.5	8.9	7.5	8.2	7.8	7.8	8.6
PHC	ND(<1.0)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fe	18.6	2.03	4.21	2.47	2.06	2.45	2.65	6.88	3.77	3.67
Cd	0.0034	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.0053	<0.003
Pb	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cr	0.0045	0.017	<0.004	<0.004	<0.004	<0.004	<0.004	0.289	<0.004	0.020
Ni	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	0.061	<0.010	<0.010
Zn	0.031	0.116	0.255	0.053	0.063	0.027	0.033	0.136	0.068	0.064
PCB's (ug/l)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin/Dieldrin (ug/l)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidene (ug/l)	ND(<50)	ND	ND	ND	ND	ND	ND	ND	ND	ND
DDT (ug/l)	ND	0.12	ND	ND	ND	ND	ND	ND	ND	ND
Endrin (ug/l)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene (ug/l)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PP Pesticides (ug/l)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta BHC (ug/l)	ND	0.27	ND	ND	0.20	ND	ND	0.16	ND	0.10
Gamma BHC (Lindane) (ug/l)	ND	ND	ND	ND	0.13	ND	ND	ND	ND	ND
Color (CPU)	70	30	60	10	15	250	70	20	25	15

Units are mg/l unless indicated otherwise.

PRELIMINARY

SUMMARY OF GROUNDWATER MONITORING DATA

GLOBAL LANDFILL, OCTOBER 1987

	Monitoring Wells														
PARAMETER	1A	2A	2S	3A	4S	4A	5S	5D	6S	6D	7S	7D	8S	8D	9S
pH (units)	3.9	6.5	6.9	6.3	7.0	6.7	6.9	4.2	6.4	5.2	6.0	6.2	6.9	5.7	6.8
Color (CPU)	10	10	500	20	750	15	750	15.0	50	20	5.0	5.0	1000	10	15.0
T.O.S.	521	258	12180	152	10500	250	9848	1600	717	1100	132	1240	4060	1040	860
COD	47420	19	482	30	612	<4.0	692	487	80	3.8	7.6	<4.0	1316	<4.0	3.8
Cl	187	70	5520	58	5590	24	5146	35	245	14.0	11	13	3537	11	11
NO_3-N	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	2.5	0.86	1.3	<0.5	<0.5	0.76
SO_4	44	11	37.0	8.8	149	16	50	21	1.0	3.1	14.	15	17	11	13
NH_4-N	2.0	1.7	93.0	2.0	285	3.0	84	84	27	<2.0	<1.0	<2.0	312	<2.0	<1.0
Phenols	0.019	0.029	0.028	0.025	0.045	0.029	0.070	0.112	0.043	0.021	0.068	0.024	<0.005	<0.005	<0.005
Hardness	121	40	1948	35	1513	161	1694	13.0	298	18.0	27.	16	583	14	20
BOD	9.0	11	42.0	9.0	69	<10	54	<10.0	28	<3.0	<3.0	<10	51	<10	<3.0
Total Coliform (MPN/100ml)	43	23	93	<3.0	460	4.0	<3.0	<3.0	<3.0	<3.0	23.	>24000	90	43	240
Fecal Coliform (MPN/100ml)	43	9.0	93	<3.0	460	<3.0	<3.0	<3.0	<3.0	<3.0	23.	4.0	4.0	<3.0	93
Dissolved Oxygen	6.0	8.0	5.0	4.5	<1.0	7.1	<1.0	2.4	5.0	10	9.5	8.3	3.5	7.2	9.0
Cyanide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride	<0.5	<0.5	<0.5	<0.5	3.7	<0.5	4.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	<0.5
Surfactants	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hexavalent Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TOX	0.043	0.016	0.440	0.056	0.790	0.014	0.610	<0.01	0.170	<0.01	<0.01	<0.01	1.92	<0.01	<0.01
Arsenic	<.0082	<.0082	<.0082	<.0082	<0.0082	<0.082	<.0082	<.082	<.0082	<.0082	<.0082	<.082	<.082	<.082	<.0082
Barium	0.088	<.0039	1.13	0.0310	0.219	0.023	0.790	0.029	0.237	0.035	0.036	0.022	2.01	0.0083	0.033
Cadmium	0.0036	<.0023	0.0029	<.0023	<0.0023	<.0023	<.0023	<.0023	0.012	<.0023	<.0023	<.0023	<.0023	<.0023	<.0023
Chromium^{+6}	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010
Copper	<.0085	<.0085	<.0085	<.0085	0.017	0.011	<.0085	0.012	<.0085	<.0085	0.012	0.012	<.0085	0.011	<.0085
Iron	15.6	2.77	10.2	2.28	1.52	3.89	2.12	8.52	80.5	0.235	0.091	2.76	19.9	5.38	0.511
Lead	<.0050	<.005	<.005	<.0050	0.019	0.0067	<.0050	<.0050	<.0050	<.0050	<.0050	0.016	0.126	<.0050	<.0050
Manganese	2.870	0.0088	0.489	.0049	0.127	0.046	0.610	0.065	0.483	0.0100	0.071	0.061	<.0021	0.023	0.061
Mercury	<.0002	<.0002	<.0002	<.0002	<.002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002
Selenium	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050	<.0050
Silver	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040	<.0040
Sodium	99.5	60.0	2260	66.7	2190	51.0	1870	21.8	133	15.9	9.66	20	2010	11.4	7.74
Zinc	0.235	0.057	0.176	0.310	0.260	0.049	0.218	0.052	0.146	0.133	0.110	0.082	1.18	0.056	0.050

Units are mg/l unless otherwise noted.

PRELIMINARY

SUMMARY OF GROUNDWATER MONITORING DATA

GLOBAL LANDFILL, OCTOBER 1987 (Continued)

PARAMETER	1A	2S	2A	3A	4S	4A	5S	5D	6S	6D	7S	7D	8S	8D	9S	Trip Blank	GW Field Blank	Lab Blanks
Volatile Organic Compounds (ppb)																		
Methylene Chloride	3	3	3	3	3	3	3	11	-	1	1	1	1	2	1	1	530	0-3
Acetone	26	53	33	32	120	36	53	-	120	29	140	14	98	23	28	-	-	16-24
Toluene	2	2	2	3	3	3	3	2	3	-	1	1	4	-	2	4	1	0-2
2-Butanone	-	6	9	11	11	6	8	8	7	7	-	3	6	7	5	-	-	0-2
Benzene	-	-	-	-	-	-	5	-	35	-	-	-	5	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	11	-	270	-	-	-	50	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	2	-	14	-	-	-	8	-	-	-	-	-
Total Xylenes	-	-	-	-	-	-	2	-	60	-	-	-	26	-	-	-	-	-
Trans-1,2-Dichloroethylene	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Semivolatile Compounds (ABNs) (ppb)																		
Napthalene	-	-	-	-	14	-	150	-	-	-	-	-	16	-	-	-	-	-
bis (2-Ethylhexyl) phthalate	-	-	-	-	4	-	84	-	-	-	30	-	28	-	70	-	-	-
2-Methylphenol	-	-	-	-	-	-	58	-	-	-	-	-	-	-	-	-	-	-
Benzoic Acid	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Di-n-butylphthalate	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
Di-n-octylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Pesticides & PCBs (ppb)																		
Heptachlor	-	-	-	-	-	-	71	-	-	-	-	-	-	-	-	-	-	-
Gamma-BHC (Lindane)	-	-	-	-	-	-	-	0.14	-	-	-	-	-	-	-	-	-	-

Priority Pollutant Organics not listed above were non-detectable in all wells.
Table excludes organic compounds detected by library search.

APPENDIX E

Summary of Analytical Results of Ground Water, Surface Water, and Leachate Samples Collected at Global Landfill in October 1987 transmitted by Killam Associates to Mr. Richard Sullivan in a Letter dated April 22, 1988

NEW JERSEY FIRST INCORPORATED
ENVIRONMENTAL MANAGEMENT CONSULTANTS SERVING BUSINESS AND GOVERNMENT

26 April 1988

MEMORANDUM

FROM: Richard J. Sullivan, Closure Administrator

SUBJECT: Monitoring Well Results

Enclosed is a copy of Killam's report on Global landfill monitoring well results.

Enclosure

cc: Ronald P. Heksch, Esq.
David A. Waters, Esq.
Blanche Hoffman
Thomas Sikorski
Robert McCarthy

ROUTE 31 PROFESSIONAL BUILDING • 2490 PENNINGTON ROAD • TRENTON, N.J. 08638 • PHONE: 609/883-3003

D&B Killam
Associates ◻ Consulting Engineers

27 Bleeker Street
P.O. Box 1008
Millburn, NJ 07041
Telephone: 201-379-3400
Fax: 201-376-1072
Telex: 64-2057

April 22, 1988

Mr. Richard J. Sullivan
New Jersey First, Inc.
2490 Pennington Road
Trenton, New Jersey 08638

Re: Global Landfill
ETK Job No. 135101

Dear Mr. Sullivan:

Enclosed please find two tables summarizing the analytical results of groundwater and leachate samples collected at Global Landfill in January 1988. Also enclosed is a location map for the sampling stations. Please note that these results are preliminary and are subject to confirmation after we complete our review of the quality assurance/quality control (QA/QC) data submitted by U.S. Testing Company, Inc. With respect to Priority Pollutant organic compounds, the summary tables list only the compounds which were detectable in at least one sample.

A preliminary assessment of the January 1988 date indicates that both leachate and groundwater quality are similar to that observed in October of 1987. The leachate quality is generally typical of solid waste landfills, being characterized by elevated levels of parameters such as BOD, COD, iron, chlorides, ammonia and total dissolved solids with lower levels of several volatile and semi-volatile organic compounds.

As was previously noted in October 1987, the January 1988 groundwater monitoring data indicate elevated levels of several typical leachate indicator parameters such as total dissolved solids, chlorides, iron, ammonia, COD and BOD, primarily in the shallow wells. Again, it should also be noted that the elevated levels of iron, chlorides and total dissolved solids may also be partially attributed to background conditions in the Old Bridge Sand aquifer and in a typical coastal water table aquifer. Heavy metal concentrations in groundwater are generally below NJDEP groundwater standards and NJPDES permit limitations except for barium, cadmium and lead in well MW-8S. Priority Pollutant volatile organic compound concentrations generally comply with NJPDES permit limitations with the exception of wells 4S, 5S, 6S, and 8S. Wells 5D, 6D and 7D exceeded the NJPDES limit of 5 ppb for methylene chloride. However, the validity of these concentrations must be further assessed since methylene chloride was also found in the QA/QC blank samples. Well 2S contained 146 ppb of total semi-volatile Priority Pollutant organic compounds. The NJPDES permit does not specify a limit for Priority Pollutant semi-volatile organics. However, an unofficial limit of 100 ppb is often used as a guideline for total Priority Pollutant semi-volatile organic compounds with a maximum concentration of 5 ppb for individual compounds.

Killam
Associates · Consulting Engineers

The next round of NJPDES groundwater monitoring is scheduled for the last week in April. In accordance with our scope of work, the wells will be sampled and analyzed only for the less extensive quarterly list of indicator parameters as specified by the NJPDES permit.

If you have any questions or require additional information, please feel free to contact us.

Very truly yours,

KILLAM ASSOCIATES

Robert J. Delatour, Jr., P.E.

RJD:bso

Enc.

PRELIMINARY

SUMMARY OF GROUNDWATER MONITORING DATA

GLOBAL LANDFILL, JANUARY 1988

Parameter (mg/l)	1A	2S	2A	3A	4S	4A	5S	5D	6S	6D	7S	7D	8S	8D	9S	NJPDES Limit
Cyanide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.2
Color, CPU	5	600	10	60	700	5	350	125	15	<5	<5	<5	1250	5	<5	NS
Hardness as $CaCo_3$	36	1710	149	41	1700	64	1590	22	80	13	45	14	1170	32	27	NS
TDS	254	833	553	407	1222	179	10,585	156	685	107	144	65	8,414	164	161	500
Turbidity, NTU	2300	55	225	43	28	63	33	3550	700	55	94	37	150	145	430	NS
COD	<4	579	12	8	321	36.6	413	270	732	25.6	25.6	21.9	1622	<4	<4	NS
Phenol	<0.010	<0.010	<0.010	<.010	0.016	<0.01	0.061	<.010	0.012	<0.01	<0.01	<0.01	0.031	<0.010	<0.010	0.3
BOD	<10	33	<10	<10	24	<10	27	<10	13	<10	<10	<10	76	<10	<10	NS
Ammonia - N	<0.1	156	5.0	1.4	241.5	<0.1	25	0.6	<0.1	<0.1	<0.1	<0.1	819	<0.1 ND	<0.1	0.5
Coliform, mpn/100ml	<2	240	23	<2	23	43	<2	<2	23	<2	<2	4	2400	<2	<2	4
TOX	<0.02	1.389	0.057	0.059	4.217	0.028	0.528	<0.02	0.099	<0.02	0.029	0.022	2.416	0.024	1.221	NS
MBAS (as LAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.001	<0.01	<0.01	<0.01	0.5
pH (units)	3.1	6.9	7.7	10.1	6.85	6.75	6.7	3.8	6.1	5.2	5.6	6.5	7.2	6.6	5.7	5-9
Fluoride	<0.2	<0.2	0.24	<0.2	<0.2	<0.2	<0.2	0.21	<0.2	<0.2	<0.2	<0.2	2.48	<0.20	<0.2	2.0
Chloride	43.11	4606.62	252.27	46.40	6435.86	33.52	524.23	34.26	35.62	14.36	14.44	15.09	464.65	12.05	1304.	250
Br	<0.20	20.14	0.74	0.31	55.42	<0.20	39.96	<0.20	3.59	<0.2	<0.2	<0.2	46.44	<0.2	<0.2	NS
NO_2-N	<0.20	<0.2	4.79	<0.2	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NS
NO_3-N	<0.2	<0.2	<0.2	<0.2	<0.2	0.86	<0.2	<0.2	0.76	2.22	0.73	1.57	0.2	<0.2	<0.56	10
PO_4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NS
SO_4	110.39	83.39	3.59	10.24	163.56	12.51	13.26	36.04	8.66	3.15	43.44	2.45	16.31	11.01	15.18	250
Antimony	<0.021	0.0297	<0.021	<0.021	NA	NA	<0.0269	<0.021	NA	NA	NA	NA	0.0229	<0.021	NA	NS
Arsenic	<0.0082	<0.0082	<0.0082	<0.0082	<0.0082	<0.0082	<0.0082	<0.0082	<0.0082	<0.0086	<0.0082	<0.0082	0.0086	<0.0082	0.0082	0.05
Barium	0.0679	0.824	0.0174	0.0477	0.239	0.0136	0.625	0.0245	0.182	0.0359	0.0674	0.0347	1.201	0.0156	0.0288	1.0
Beryllium	0.0033	<0.0011	0.0033	0.0033	NA	NA	<0.0011	0.0033	NA	NA	NA	NA	0.0011	<0.0017	NA	NS
Cadmium	0.0031	<0.0023	0.0029	0.0030	<0.0023	<0.0023	<0.0023	0.0053	<0.0042	<0.0023	<0.0023	0.0023	0.0164	0.0048	0.0023	0.01
Chromium (total)	<0.0036	0.0231	<0.0036	0.0227	0.0436	<0.0036	0.0046	0.0036	<0.0036	<0.0036	<0.0036	<0.0036	0.165	<0.0036	0.0036	0.05
Chromium (HEX)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0	0.05
Copper	0.0086	<0.0085	0.0111	0.0154	0.0224	0.0139	0.0161	0.0125	<0.0085	0.0132	0.0170	0.0154	0.0699	0.0123	0.0123	1.0
Iron	5.493	6.599	8.323	3.560	1.050	0.933	0.348	12.680	75.81	0.185	2.266	1.073	13.620	2.647	0.444	0.3
Lead	0.0057	<0.005	0.0055	<0.005	<0.005	<0.0050	0.0132	0.0188	<0.005	<0.005	0.0094	<0.005	0.209	<0.005	0.0052	0.05
Manganese	0.578	0.441	0.117	0.0518	0.164	0.0249	0.418	0.0868	0.508	0.0314	0.170	0.0336	0.102	0.052	0.0783	0.05
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.002
Nickel	0.0199	0.0372	0.0121	0.0234	0.0689	0.0292	0.0558	<0.0097	0.0097	0.0098	0.0112	0.0147	0.235	0.01	0.0098	NS
Selenium	<0.005	<0.0050	<0.005	<0.005	<0.005	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01
Silver	<0.004	<0.0040	<0.004	<0.004	<0.004	<0.0040	<0.004	<0.004	<0.0040	<0.004	<0.004	<0.0040	<0.004	<0.004	<0.004	0.05
Sodium	22.58	2780.5	185.10	45.90	3706.	23.71	1428.0	25.55	106.5	7.884	13.99	8.758	1183.5	11.87	7.486	50
Zinc	0.0874	0.0315	0.0461	0.0655	0.0587	0.0749	0.0366	0.0576	0.0446	0.0508	0.0499	0.0374	0.891	0.516	0.0232	5.0
Spec. Cond. (umhos)	604	17,000	1,285	514	18,120	191	17,300	298	1,527	78.5	165	79.0	18,710	116	80.4	NS

NS: No numerical NJPDES limit for this parameter.

PRELIMINARY

SUMMARY OF GROUNDWATER MONITORING DATA
GLOBAL LANDFILL, JANUARY 1988

PARAMETER	NJPDES Limit	1A	2S	2A	3A	4S	4A	5S	5D	6S	6D	7S	7D	8S	8D	9S	Blank	Trip Blank	UST FIELD Blank
Volatile Organic Compounds (ppb)																			
Acetone	NS	26	34	20	29	8	8	15	36	-	-	-	-	21	-	16	18	-	-
Toluene	*	5	-	-	-	-	-	9	-	7	-	-	-	-	-	-	-	-	-
Benzene	5	-	5	-	3	11	-	41	-	30	2	-	-	9	-	-	-	-	-
Chlorobenzene	*	-	16	-	-	13	-	89	-	250	-	-	-	84	-	-	-	-	-
Ethylbenzene	*	-	6	-	-	4	-	22	-	16	-	-	-	28	-	-	-	-	-
Total Xylenes	NS	-	3	-	-	-	-	27	-	36	-	-	-	75	-	-	-	-	-
Trans-1,2-Dichloroethene	*	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2	-	-	-
Carbon Disulfide	NS	-	-	-	-	1	-	2	-	-	-	-	-	-	-	5	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	8	-	110	2	19	-	-	5	2	-	6
Chloroform	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Semivolatile Compounds (ppb)																			
Naphthalene	NS	-	54	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	-	-
Acenaphthene	NS	-	12	-	-	-	-	58	-	-	-	-	-	-	-	-	NA	-	-
Phenanthrene	NS	-	4	-	-	-	-	8	-	-	-	-	-	-	-	-	NA	-	-
Bis (2-Ethylhexyl) Phthalate	NS	-	76	16	46	38	-	-	-	28	-	30	24	58	-	18	NA	-	-
Di - n -Butylphthalate	NS	-	-	-	-	6	-	-	-	-	-	-	-	6	-	-	NA	-	-
2-Methylnaphthalene	NS	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	NA	-	-
Fluorene	NS	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	NA	-	-
Pesticides & PCBs (ppb)																			
Aroclor - 1260	1.0	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	NA	-	-

Priority Pollutant Organics not listed above were non-detectable in all wells.
Table excludes organic compounds detected by library search.

NA - Not analyzed
NS - No numerical NJPDES limit for this parameter.
* - The sum total of all parameters with an asterisk cannot exceed 50 ppb.

PRELIMINARY

SUMMARY OF LEACHATE SAMPLING RESULTS

GLOBAL LANDFILL, JANUARY 1988

Parameter (mg/l)	L1	L2	L3	L4	L5	Leachate Field Blank
Cyanide	<0.010	<0.010	<0.010	<.010		
Color, (CPU)	1500	1500	2400	700	125	5
Hardness as $CaCo_3$	1300	1050	360	420	226	<5
TDS	16178	9517	5109	3511	1567	8
Turbidity, NTU	7500	11000	425	1900	1750	6.5
COD	2176	2158	1280	1240	2926	<4
Phenol	0.011	0.018	0.028	0.024	<0.010	.010
BOD	50	53	100	63	118	<10
Ammonia - N	692.8	608.3	499.5	278.9	<0.1	<0.1
Coliform, mpn/100ml	750	240	2100	240	2400	<2
TOX	5.650	2.482	3.430	2.031	0.986	0.035
MBAS as LAS	0.068	0.039	0.092	0.042	<0.01	<0.01
PH	7.2	7.2	7.5	7.2	7.7	6.75
Fluoride	<0.2	2.90	<0.2	0.60	<0.2	<0.20
Chloride	1445.56	2400.0	1639.91	1227.17	514.98	0.81
Br	54.51	22.32	14.96	4.94	3.76	<0.2
NO_2-N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
NO_3-N	<0.2	<0.2	<0.2	<0.2	<0.2	0.29
PO_4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
SO_4	30.12	<0.2	31.40	4.76	1.52	<0.2
Arsenic	0.0155	0.110	0.0160	0.0245	0.0231	<0.0082
Barium	0.927	2.019	0.252	1.082	0.894	<0.0039
Cadmium	0.0085	0.0213	<0.0023	0.011	0.0128	<0.0023
Chromium (total)	0.188	0.496	0.134	0.119	0.202	<0.0036
Chromium (Hex.)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	0.109	0.269	0.185	0.317	0.227	<0.0085
Iron	131.2	395.4	45.01	64.41	255.8	0.097
Lead	0.224	0.576	0.465	5.53	0.538	<0.005
Manganese	0.771	2.954	0.709	1.804	3.377	<0.0021
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.0040	<0.004	<0.004	<0.004	<0.004	<0.004
Sodium	3345	2069	936.7	747.6	358.4	0.481
Zinc	1.073	1.466	0.732	3.098	1.488	0.0166
Nickel	0.177	0.168	0.170	0.118	0.0947	<0.0097
Specific Cond. (umhos)	30,200	17,680	7,720	3,220	9,640	4.9

PRELIMINARY

SUMMARY OF LEACHATE SAMPLING RESULTS
GLOBAL LANDFILL, JANUARY 1988

Parameter	L1	L2	L3	L4	L5	Field Blank	Trip Blank	UST Blanks
Volatile Organic Compounds (ppb)								
Methylene Chloride	8	-	-	-	-	-	2	-
Acetone	53	29	46	35	170	-	18	-
Chloroform	5	-	-	-	-	-	-	-
2-Butanone	33	-	21	-	-	-	1	-
Benzene	15	3	4	-	-	-	-	-
Chlorobenzene	140	13	38	14	-	-	-	-
Ethylbenzene	10	17	18	27	-	-	-	-
Total Xylenes	58	16	37	-	-	-	-	-
Carbon Disulfide	-	2	-	-	-	-	-	-
Vinyl Chloride	-	-	-	-	140	-	-	-
Trans-1, 2-Dichloroethene	-	-	-	-	1200	-	-	-
Tricnloroethene	-	-	-	-	110	-	-	-
Tetrachloroethene	-	-	-	-	15	-	-	-
Semivolatile Compounds (ppb)								
2-Methylphenol	14	-	-	-	-	-	N.A.	-
Naphthalene	28	36	-	-	-	-	N.A	-
Acenaphthene	6	18	-	-	-	-	N.A	-
Dibenzofuran	-	12	-	-	-	-	N.A	-
Fluorene	-	12	-	-	-	-	N.A	-
Phenanthrene	-	16	-	-	-	-	N.A	-
Pesticides and PCBs (ppb)								
Aroclor-1260	-	-	5.2	-	-	-	N.A	

Priority Pollutant Organic Compounds not listed above were non-detectable in all leachate seep samples.
Table excludes organic compounds detected by library search.

N.A. - Not analyzed.

APPENDIX F

Final Report Upon Global Landfill Drum Excavation
Prepared by Killam Associates, May 1988

Killam
Associates Consulting Engineers

N.J. FIRST, INC.
2490 PENNINGTON ROAD
TRENTON, N.J.

FINAL REPORT UPON GLOBAL LANDFILL DRUM EXCAVATION

MAY 1988

PRELIMINARY

KILLAM ASSOCIATES
Consulting Engineers
27 Bleeker Street
Millburn, N.J. 07041
(201) 379-3400

Killam Associates: Consulting Engineers

TABLE OF CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

Global Landfill is located in Old Bridge Township, Middlesex County, New Jersey and was in operation from the late 1960's until 1984. In early 1987, the NJDEP obtained information from eyewitnesses that suggested that drum disposal occurred during the operation of the landfill. Drums were reportedly buried within the landfill and beyond the toe of slope from the foot of the access road to the northwest corner of the landfill.

A first phase geophysical survey was conducted during July 1987 by Killam Associates to determine if buried metal existed below grade between the Transcontinental Gas Pipeline Corporation pipeline and the northwestern property line. The area of the geophysical survey was delineated based on information provided by witnesses. The geophysical survey identified numerous magnetic hot-spots or "anomalies".

The second phase of the project involved the excavation of test pits and trenches to determine if there was a correlation between the magnetic anomalies identified in the Phase 1 survey and buried drums as indicated by the witnesses. The project objectives included:

1. If drums were encountered, remove, sample and overpack for disposal up to 50 drums.

2. Determine if the drum contents were hazardous;

3. Estimate the number of drums;

4. Estimate the horizontal and vertical extent of the drum disposal area.

In addition, evidence gathering was to be performed by Killam and the NJDEP to aid in potential prosecution of responsible parties.

The excavation contract was awarded to Haztech, Inc. of Bordentown in February of 1988 and the project work commenced on March 7. This report details the results of the project's findings.

2.0 FIELD ACTIVITIES

The drum investigation was conducted between March 7, 1988 and March 28, 1988. All work was conducted as specified in the Final Work Plan for Global Landfill Drum Investigation (September 1987) which was prepared by Killam and approved by NJDEP. Work included background air monitoring; contractor mobilization; exploratory excavations; removal of drums for documentation, sampling & analysis; air monitoring during excavation; contractor demobilization; and off-site drum disposal (week of May 16). Strict health and safety procedures as outlined in the Final Work Plan were observed by Killam, Haztech, and the DEP during the excavation and drum handling phase of this project. A brief description of each project phase follows as well as a summary.

2.1 AIR MONITORING

Killam established seven locations (see Site Plan, Figure A-1) around the work site for perimeter air monitoring during contractor mobilization and excavation. Killam also performed air monitoring at the edge of the exclusion zone between the trench area and the residential areas. All air monitoring performed by Killam utilized OVA (Century Systems) and HNU (HNU Systems, Inc.) instruments for monitoring release of organic vapors. Killam's instruments were calibrated daily using calibration gas.

Organic vapors were also monitored at the excavation by Haztech using an HNU. Peak readings, in parts per million (ppm), for each trench are reported on Table 1. Organic vapors were detected only at TR-3 and represent only a local and short term excursion.

Wind direction and speed were monitored at the bluff overlooking the work site using a meteorological tower as shown on Figure A-1. This information is

Killam Associates: Consulting Engineers

TABLE 1

DESCRIPTION OF TRENCHES

LOCATION	DATES	DESCRIPTION OF MATERIAL FOUND (Maximum Depth)	NUMBER OF DRUMS	HNU (PPM)
TR-1	3/10/88-3/11/88	Construction debris and garbage (15)	0	0
TR-2	3/23/88	Construction debris (18)	0	0
TR-3	3/11/88, 3/16/88	Construction debris and garbage (22)	3	12
TR-4	3/14/88, 3/18/88-3/21/88	Garbage and fill (17)	22	0
TR-4A	3/23/88	Construction debris, garbage and fill (14)	14	0
TR-5	3/16/88-3/18/88	Roofing shingles, construction debris, and garbage (13)	18	0
TR-6	3/22/88	Soil (8)	0	0
TR-7	3/22/88	Construction debris (13)	0	0
P1 (1)	-	Not completed		
P2 (1)	-	Not completed		
P3	3/22/88	Soil (8)	0	0
P4	3/22/88	Soil (6)	0	0
P5	3/22/88	Soil (6)	0	0
P6	3/22/88	Soil (6)	0	0
P7	3/22/88	Soil and logs (6)	0	0
P8	3/23/88	Garbage (10)	0	0
P9	3/23/88	Garbage (12)	6	0
		TOTAL:	63	

(1) These pits were not excavated due to access problems.

summarized on Table 2. As shown on Table 2, the predominant wind direction was away from the residential areas. In other words, the wind was predominantly blowing from the northwest to the southeast.

Methane vapors were detected at perimeter air monitoring station number 1, which was located southeast of the excavation area, in a direction opposite of the surrounding residences. Methane was detected at station number 1 both during excavation periods and when excavation was not occurring. This methane was not a result of the excavation activity. Methane is typically emitted from landfills. It is the result of the anaerobic decomposition of the organic fraction of the solid waste in the landfill. The readings outlined in Table 1 are for the HNU air monitoring and are reported in parts per million (ppm). Methane is not detected on an HNU though it is read on the OVA.

Information on organic vapors coupled with the wind direction and speed allowed Killam to assess if organic vapors were released during excavation work and modify the work progress so as to prevent any release in the direction of residential areas.

Astech, Inc. performed airborne asbestos fiber monitoring at three locations around each excavation site during the course of the work. Sampling and analysis were performed according to a method developed by the National Institute of Occupational Safety and Health for measuring airborne fiber levels (NIOSH Method 7400).

During the conduct of the excavation project, a total of 42 samples were collected for airborne fiber analysis. The analysis reports show that no fibers were detected in 38 of the samples, and one fiber was detected in each of four of the samples. In the four samples in which fibers were detected, the maximum measured fiber concentration was 0.0002 fibers per cubic centimeter of air. This is a very low fiber level, on the order of the level occurring naturally in the environment. In conclusion, the fiber monitoring results did not indicate that asbestos fibers were released into the air by the excavation work.

Killam
Associates . Consulting Engineers

TABLE 2

WIND DATA FROM METEOROLOGICAL TOWER

Date	Times (1)	Average Wind Direction	Average Wind Velocity (MPH)
3/07/88	1035 - 1345	N to S	10
3/08/88	1200 - 1530	E to W	4
	1530 - 1730	S to N	10
3/09/88	0800 - 1230	SW to NE	4
	1230 - 1600	N to S	6
	1600 - 1750	S to N	10
3/10/88	0740 - 1730	N to S	10
3/11/88	0725 - 1630	NW to SE	14
3/14/88	0750 - 1645	NW to SE	8
3/15/88	0800 - 1535	NW to SE	10
3/16/88	0735 - 1730	NW to SE	12
3/17/88	0740 - 1725	NW to SE	14
3/18/88	0830 - 1015	NW to SE	6
	1015 - 1705	SW to NE	10
3/21/88	0755 - 1700	NW to SE	10
3/22/88	0720 - 1700	NW to SE	6
3/23/88	0740 - 1350	S to N	10
	1350 - 1700	S to N	15
3/24/88 (2)	0930 - 1015	SW to NE	6

(1) 0800 = 8 AM
1500 = 3 PM

(2) Obtained from Middlesex County

2.2 CONTRACTOR MOBILIZATION

Haztech mobilized for the drum excavation work between March 7 and March 10, 1988. Haztech provided a field command post trailer with power and communications and portable chemical toilets. They constructed a decontamination area, a drum storage area, and a 50,000 gal. pool for groundwater storage. They provided all equipment necessary to perform the task of drum excavation and they performed the work in a neat, workmanlike, and professional manner.

2.3 EXCAVATION

Excavation of exploratory trenches was begun on March 10, 1988 after mobilization and was completed on March 23, 1988. A total of eight (8) trenches and seven (7) pits were excavated in magnetic anomalous areas detected during the geophysical investigation. The locations of the excavations are shown on Figure A-1. A summary of those trenches and what was found is shown on Table 1. Excavation was performed by a backhoe equipped with a blast shield. Drums were removed from the excavations using either the backhoe or grappler. Excavations were completed at a depth where native soil or ground water was encountered. At the end of each day, the excavations were backfilled and covered with bank run sand with the exception of TR-1. TR-1 was left open to serve as a dewatering reinjection trench in accordance with the project's emergency NJPDES permit issued by the NJDEP Division of Water Resources. Photos showing some of the work are attached.

2.4 DRUM REMOVAL

Selected drums were removed from the trenches for evidence gathering, sampling, and analysis. A total of 18 drums were sampled by Killam, overpacked by Haztech and analyzed by Environmental Testing and Certification (ETC) Laboratory, Findlay, Ohio. A description of the 18 drums is shown on Table 3. The sampled drums were then overpacked and placed in a secured storage trailer awaiting waste classification and off-site disposal.

Killam
Associates Consulting Engineers

TABLE 3
SAMPLE SUMMARY

DATE	TIME	LAB SAMPLE #	LOCATION	DESCRIPTION	HNU (PPM)
3/14/88	1515	1351 S4-1	TR 4	White powder from fiber pack	-
3/16/88	1430	0316-TR5-D1	TR 5	Black and gray solids (55g steel drum)	0
3/16/88	1450	0316-TR5-D2	TR 5	Gray and white sludge (55g steel drum)	0
3/17/88	0945	0317-TR5-D3	TR 5	White sludge (55g steel drum)	NR
3/18/88	1000	0318-TR5-D4	TR 5	Tan solid, sawdust texture (55g steel drum)	0
3/18/88	1100	0318-TR5-D5	TR 5	Pink and purple solid (55g steel drum)	0
3/18/88	1445	0318-TR4-D1	TR 4	Liquids (55g steel drum)	4
3/18/88	1500	0318-TR4-D2	TR 4	Dark purple sludge & solids (55g steel drum)	0
3/18/88	1530	0318-TR4-D3	TR 4	Dark purple sludge (55g steel drum)	0
3/18/88	1550	0318-TR4-D4	TR 4	Red, purple, green solids (55g steel drum)	0
3/18/88	1620	0318-TR4-D5	TR 4	Dark sludge (55g steel drum)	1
3/21/88	1225	0321-TR4-D6	TR 4	Purple sludge (55g steel drum)	0
3/21/88	1325	0321-TR4-D7	TR 4	Purple sludge (55g steel drum with plastic liner)	60

Killam Associates Consulting Engineers

TABLE 3

SAMPLE SUMMARY
(Continued)

DATE	TIME	LAB SAMPLE#	LOCATION	DESCRIPTION	HNU (PPM)
3/21/88	1600	0321-TR4-D8	TR 4	Green solid, wax texture (55g steel drum)	0
3/23/88	1010	0323-TR4A-D1	TR 4A	White sludge (55g steel drum)	1
3/24/88	0950	0324-P9-D1	P9	Green & black solid, rubbery texture (55g steel drum)	28
3/24/88	1010	0324-P9-D2	P9	Gray & white solid (55g steel drum)	0.5
3/24/88	1020	0324-P9-D3	P9	Green solid with multi-colored swirls, rubbery texture (55g steel drum)	7
3/28/88	1200	0328-SD-1	Surface Drum	Light blue solid, chalky texture (55g steel drum)	0
3/17/88	1130	0317-GW	Pool	Discharge water	NR
3/22/88	1440	0322-GW	Pool	Discharge water	NR
3/14/88	1545	0314-FBT	Site	Field Blank-Trowel	NR
3/16/88	1630	0316-FBT	Site	Field Blank-Trowel	NR
3/17/88	1500	0317-FBT	Site	Field Blank-Trowel	NR
3/17/88	1130	0317-FBGW	Site	Field Blank-Groundwater	NR

Sample Totals

19 - Waste Samples
18 - Drums
2 - NJPDES - DGW
4 - Field Blanks

Notes: NR = No reading taken.
0800 = 8 AM
1500 = 3 PM

Killam Associates Consulting Engineers

PRELIMINARY

TABLE 4

RESULTS OF PRIORITY POLLUTANT ANALYSIS

SAMPLE LOCATION	CONCENTRATION MG/KG (PPM)
TR5 - D1	
Metals	
Arsenic	133
Cadmium	7.47
Chromium	7.94
Copper	11.60
Lead	2.64
Nickel	154
Thallium	1.49
Zinc	12.3
TR5 - D2	
Base/Neutrals	
Bis (2-ethylhexyl) - phthalate	133
Metals	
Arsenic	4.12
Chromium	9.54
Copper	6.64
Nickel	2.75
Zinc	1.11
TR5 - D3	
Volatile Organics	
Carbon Tetrachloride	113
Metals	
Arsenic	31.9
Cadmium	1.97
Chromium	150
Copper	148
Lead	1,040
Nickel	102
Zinc	164

Killam Associates Consulting Engineers

PRELIMINARY

TABLE 4

RESULTS OF PRIORITY POLLUTANT ANALYSIS
(Continued)

SAMPLE LOCATION	CONCENTRATION MG/KG (PPM)
TR4 - D5	
Volatile Organics	
Chlorobenzene	135
1,3 Dichlorobenzene	49.2
Ethylbenzene	463
Toluene	188
Xylenes	1,170
Base/Neutrals	
Bis (2-ethylhexyl)-phthalate	332
Naphthalene	1,440
Metals	
Arsenic	23.5
Chromium	762
Copper	1,150
Lead	6,150
Zinc	846
TR4 - D2	
Volatile Organics	
Toluene	552
Base/Neutrals	
Bis (2-ethylhexyl) - phthalate	8,610
Dimethylphthalate	251
Metals	
Arsenic	98.1
Chromium	5,270
Copper	1310
Lead	28,300
Zinc	1,160

Killam Associates Consulting Engineers

PRELIMINARY

TABLE 4

RESULTS OF PRIORITY POLLUTANT ANALYSIS
(Continued)

SAMPLE LOCATION	CONCENTRATION MG/KG (PPM)
TR5 - D5	
Volatile Organics	
Carbon Tetrachloride	72.0
Ethylbenzene	1,250
Toluene	410
Xylenes	4,380
Base/Neutrals	
Naphthalene	137
Metals	
Arsenic	146
Cadmium	2.06
Chromium	2,040
Copper	40.3
Lead	42,600
Mercury	14.8
Nickel	26.0
Thallium	6.21
Zinc	11,600
TR5 - D4	
Volatile Organics	
Chlorobenzene	204
Methylene Chloride	207
Tetrachloroetylene	126
Trichloroethylene	510
Xylenes	113
Metals	
Arsenic	2.80
Chromium	26.5
Copper	7.01
Lead	6.13
Nickel	1.90
Zinc	210

TABLE 4

RESULTS OF PRIORITY POLLUTANT ANALYSIS
(Continued)

SAMPLE LOCATION	CONCENTRATION MG/KG (PPM)
TR4 - D3	
Volatile Organics	
Xylenes	112
Base/Neutrals	
Bis (2-ethylhexyl)-phthalate	33,900
Di-n-butylphthalate	175
Metals	
Arsenic	66.7
Chromium	3,640
Copper	21,700
Lead	18,300
Nickel	1.21
Zinc	11,000
TR4 - D1	
Base/Neutrals	
Naphthalene	80.0
Metals	
Arsenic	0.32
Chromium	0.28
Copper	0.92
Lead	1.57
Nickel	0.22
Zinc	7.45
TR4 - D4	
Volatile Organics	
Trichloroethylene	138
Toluene	421
Base/Neutrals	
Bis(2-ethylhexyl)-phthalate	25,700
Di-n-butylphthalate	126

Killam Associates Consulting Engineers

PRELIMINARY

TABLE 4

RESULTS OF PRIORITY POLLUTANT ANALYSIS
(Continued)

SAMPLE LOCATION	CONCENTRATION MG/KG (PPM)
Metals	
Arsenic	135
Chromium	7,530
Copper	15,100
Lead	37,400
Mercury	0.26
Zinc	4,990
TR4 - D6	
Base/Neutrals	
Bis(2-ethylhexyl)-phthalate	1,440
Metals	
Arsenic	2.09
Chromium	25.4
Copper	145
Lead	136
Mercury	0.54
Zinc	40.4
TR4 - D7	
Volatile Organics	
Toluene	142
Base/Neutrals	
Bis(2-ethylhexyl)-phthalate	36,900
Metals	
Arsenic	6.52
Chromium	203
Copper	80.0
Lead	1,580
Nickel	5.56
Zinc	118

TABLE 4

RESULTS OF PRIORITY POLLUTANT ANALYSIS
(Continued)

SAMPLE LOCATION	CONCENTRATION MG/KG (PPM)
TR4 -D8	
Metals	
Arsenic	6.04
Chromium	9.18
Copper	44.2
Lead	17.8
Nickel	17.2
Zinc	152
P9 - D1	
Volatile Organics	
Ethylbenzene	948
Tetrachloroethylene	343
Trichloroethylene	389
Toluene	457
Xylenes	4,890
Base/Neutrals	
Naphthalene	263
Metals	
Arsenic	17.5
Chromium	1,310
Copper	89.4
Lead	4,900
Nickel	11.0
Zinc	171
P9 - D2	
Volatile Organics	
Ethylbenzene	105
Metals	
Arsenic	84.1
Chromium	170
Copper	137
Lead	26,300
Nickel	13
Zinc	224

Killam Associates Consulting Engineers

PRELIMINARY

TABLE 4

RESULTS OF PRIORITY POLLUTANT ANALYSIS
(Continued)

SAMPLE LOCATION	CONCENTRATION MG/KG (PPM)
P9 - D3	
Metals	
Arsenic	119
Cadmium	1.23
Chromium	650
Copper	214
Lead	28,400
Nickel	21.3
Zinc	492
TR4A - D1	
Volatile Organics	
Toluene	182
Base/Neutrals	
Di-n-butylphthalate	3,830
Metals	
Arsenic	1.56
Chromium	6.63
Copper	119
Lead	39.1
Nickel	1.04
Zinc	40.7
SD - 1	
Metals	
Lead	18.3
Zinc	16.2
TR - 4 S1 (White Powder)	
Volatile Organics	
Carbon Tetrachloride	4,940
Ethylbenzene	192
Toluene	185
Xylenes	785

TABLE 4

RESULTS OF PRIORITY POLLUTANT ANALYSIS
(Continued)

SAMPLE LOCATION	CONCENTRATION MG/KG (PPM)
Base/Neutrals	
Bis (2-Ethylhexyl) Phthalate	70,900
Metals	
Arsenic	2.12
Chromium	5.45
Copper	24.6
Lead	51.4
Nickel	3.11
Thallium	1.18
Zinc	46.9
FB 0314T (Field Blank)	
Metals	
Zinc	0.05
FB 0316 T (Field Blank)	
Metals	
Zinc	0.04
FB 0317 T (Field Blank)	
Volatile Organics	
Trichlorofluoromethane	6.86
Metals	
Zinc	0.01
FBGW 0317 (Field Blank)	
Volatile Organics	
Trichlorofluoromethane	2.79
Metals	
Zinc	0.01

Note: All laboratory analyses are preliminary and are subject to QA/QC review.

Killam Associates Consulting Engineers

PRELIMINARY

TABLE 5

SUMMARY OF DEWATERING DISCHARGE WATER QUALITY

PP & HSL VOLATILE ORGANICS (PPB)	GWD 0317	GWD 0322
Benzene	19.2	<2
Carbon Tetrachloride	5.05	<2
Chlorobenzene	80.3	3.07
1,2 Dichlorobenzene	2.82	<2
1,3 Dichlorobenzene	3.01	<2
1,1 Dichloroethylene	5.07	<2
Ethylbenzene	23.9	<2
Tetrachloroethylene	13.5	<2
1,1,1 Trichloroethane	56.4	<2
Trichloroethylene	2.07	<2
Trichlorofluoromethane	2.19	2.63
Toluene	63.3	2.87
Xylenes	85.9	3.48
Ethyl Ether	13.7	<2
Tetrahydrofuran	74.7	<2
PP & HSL ABN'S (PPB)		
Bis (2-ethylhexyl) phthalate	65.5	30.4
Naphthalene	17.5	<10
Phenol	<10	236
4-Methylphenol	<10	53.5
PEST/PCB'S (PPB)		
Endrin Aldehyde	4.92	0.40
METALS & MISC. (PPM)		
Copper	0.13	0.03
Lead	0.68	0.07
Nickel	0.03	0.03
Zinc	1.44	0.17
Phenols	0.21	0.46

Note: All laboratory results are preliminary and are subject to QA/QC review.

In addition to the steel drums which were overpacked, a number of fiber packs were also encountered. However, the nature of the excavation resulted in the crushing of the fiber packs. A white powder was observed in many of these fiber packs. A sample was obtained of this powder as outlined in Table 3. A preliminary summary of the analytical results for all drum and powder samples is found in Table 4. The final laboratory report will be submitted to the NJDEP after completion of the QA/QC review.

2.5 REMOVAL OF GROUNDWATER

High water tables were encountered in 3 trenches and 5 pits. Groundwater was removed from 2 trenches and stored in a pool before being discharged into TR-1. This discharge was in conformance with the emergency NJPDES discharge to groundwater permit (#NJ0051870). This permit required analysis of Priority Pollutants for the groundwater discharge and daily field and trip blanks. Preliminary reports are summarized on Table 5. The detailed laboratory results will be submitted to NJDEP after completion of the QA/QC review.

2.6 CONTRACTOR DEMOBILIZATION

Following completion of trench excavation on March 23, 1988, Haztech demobilized the work site. Demobilization included decontamination of machinery and equipment, and removal of all equipment with the exception of Haztech's command post trailer and the drum storage area. Demobilization was completed by March 28, 1988.

2.7 DRUM DISPOSAL

Based on the waste analyses performed by ETC Laboratory and summarized on Table 6 and 7, the drums will be disposed by Haztech out-of-state during the week of May 16: After the drums are removed from the site, Haztech will remove the drum storage area and their command post trailer.

PRELIMINARY

TABLE 6

RESULTS OF DRUM CLASSIFICATION LABORATORY ANALYSES

CONSTITUENT	CONC.(PPM)(1)	TR5-D1	TR5-D2	TR5-D3	TR4-D5	TR4-D2	TR5-D5	TR5-D4	TR4-D3	TR4-D1	TR4-D4
PCBs	50 ppm	BDL	5-23	BDL	BDL	BDL	BDL	BDL	3.08	BDL	BDL
PHC	30,000 ppm	47,400	60,700	59,800	593,000	401,000	49,200	27,300	26,800	3,560	14,600
Cyanide Reactivity	100 ppm	LT100	LT100	LT100	LT100	LT100	LT100	LT100	LT100	LT100	LT100
Sulfide Reactivity	100	LT100	LT100	LT100	LT100	LT100	LT100	LT100	LT100	LT100	LT100
Flash Point	60°C	GT60°	GT60°	GT60°	GT60°	GT60°	GT60°	GT60°	GT60°	GT60°	GT60°
pH	<2,>12.5	7	7	7	7	7	7	7	7	6	7
EP Tox:											
As	5 ppm	BDL	BDL	BDL	BDL	BDL	0.123	BDL	BDL	BDL	BDL
Ba	100	BDL	0.110	0.162	0.815	0.615	0.121	BDL	0.203	0.148	0.842
Cd	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cr	5	BDL	BDL	BDL	BDL	0.121	BDL	BDL	BDL	BDL	BDL
Pb	5	BDL	BDL	BDL	BDL	2.09	29.8	BDL	0.120	BDL	0.453
Hg	0.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Se	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ag	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Endrin	0.02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lindane	0.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methoxychlor	10	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toxaphene	0.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4D	10	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5TP	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOTAL VOC	100	BDL	BDL	113	2,005.2	552	6112	1160	112	BDL	559

LT = Less Than
GT = Greater Than

PRELIMINARY

TABLE 6 CONTINUED

RESULTS OF DRUM CLASSIFICATION LABORATORY ANALYSES

CONSTITUENT	CONC.(PPM)(1)	TR4-D6	TR4-D7	TR4-D8	P9-D1	P9-D2	P9-D3	TR4A-D1	SD-1
PCBs	50 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
PHC	30,000 ppm	29,000	54,000	63,400	50,400	512	BDL	BDL	BDL
Cyanide Reactivity	100 ppm	LT100	LT100	LT100	LT100	LT100	LT100	LT100	LT100
Sulfide Reactivity	100 ppm	LT100	LT100	LT100	LT100	LT100	LT100	LT100	LT100
Flash Point	600°C	GT60°	GT60°	GT60°	GT60°	GT60°	GT60°	GT60°	GT60°
pH	<2,>12.5	8	6	7	7	8	8	6	7
EP Tox:									
As	5 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ba	100 ppm	BDL	0.227	BDL	0.555	0.303	0.380	0.476	BDL
Cd	1 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cr	5 ppm	BDL	BDL	BDL	0.244	BDL	BDL	BDL	BDL
Pb	5 ppm	0.217	2.71	BDL	4.25	BDL	BDL	BDL	BDL
Hg	0.2 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Se	1 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ag	5 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Endrin	0.02 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lindane	0.4 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methoxyclor	10 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toxaphene	0.5 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4D	10 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5TP	1 ppm	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TOTAL VOC	100 ppm	BDL	142	BDL	7,027	105	BDL	182	BDL

(1) Concentration beyond which a sample is classified hazardous under USEPA RCRA guidelines.

Note: All laboratory results are preliminary and are subject to QA/QC review.

Killam Associates Consulting Engineers

TABLE 7

DRUM CLASSIFICATION

SAMPLE	CLASSIFICATION	PARAMETER FAILED
0316 - TR 5 - D1	Hazardous	PHC
0316 - TR 5 - D2	Hazardous	PHC
0317 - TR 5 - D3	Hazardous	PHC, Total VOC
0318 - TR 5 - D4	Hazardous	Total VOC
0318 - TR 5 - D5	Hazardous	PHC, Total VOC, Pb
0318 - TR 4 - D1	ID - 27	NA
0318 - TR 4 - D2	Hazardous	PHC, Total VOC
0318 - TR 4 - D3	Hazardous	Total Voc
0318 - TR 4 - D4	Hazardous	Total VOC
0318 - TR 4 - D5	Hazardous	PHC, Total VOC
0321 - TR 4 - D6	ID - 27	NA
0321 - TR 4 - D7	Hazardous	PHC, Total VOC
0321 - TR 4 - D8	Hazardous	PHC
0323 - TR4A - D1	Hazardous	Total VOC
0324 - P9 - D1	Hazardous	PHC, Total VOC
0324 - P9 - D2	Hazardous	Total VOC
0324 - P9 - D3	ID - 27	NA
0328 - SD - 1	ID - 27	NA

ID-27 - NJDEP Non-Hazardous Industrial Waste Classification.

Killam
Associates Consulting Engineers

3.0 SUMMARY OF DAILY ACTIVITIES

March 7 - Activities at the site included mobilization by Haztech. Killam located perimeter air monitoring stations and performed background air monitoring. Killam surveyed the trench locations prior to the start of excavation. The site was inspected by the Cheesequake Fire Department, the Old Bridge Civil Defense Department, and the Old Bridge Police Department. No excavation occurred.

March 8 - Mobilization activities continued at the work site. Perimeter air was monitored to establish background air quality. The site was inspected by the Middlesex County Emergency Response Specialist. No excavation occurred.

March 9 - Mobilization activities continued at the work site. Perimeter air was monitored. The site was inspected by the Old Bridge Health Department. No excavation occurred.

March 10 - Mobilization activities were completed at the site. A health and safety meeting was held between Killam and Haztech to discuss excavation activities and associated safety procedures. Following the meeting, excavation started at TR-1. Air was monitored at the site perimeter, edge of exclusion zone and trench. The site was inspected by Old Bridge Emergency Management personnel.

March 11 - Excavation was completed at TR-1. No drums were encountered. TR-3 was excavated and completed. Three drums were encountered, but no samples were taken. Air was monitored at the site perimeter, edge of exclusion zone and the trench. The site was inspected by the Old Bridge Civil Defense Department. Wind direction was away from residential areas.

March 14 - Excavation was begun at TR-4. Air was monitored at the site perimeter, edge of exclusion zone and trench. The site was inspected by the Old Bridge Health Department. A white powder was encountered in ruptured fiber pack drums and one sample was taken. Wind direction was away from residential areas.

March 15 - Haztech partially re-excavated TR-3 to increase its depth. TR-4 was partially excavated. No drums were encountered. Air was monitored at the site perimeter, edge of exclusion zone and trench. Wind direction was away from residential areas.

March 16 - The re-excavation of TR-3 was completed to 22 feet deep. No drums were encountered. Excavation began at TR-5. Nine drums were encountered. Two drums were removed, sampled and overpacked. Air was monitored at the site perimeter, edge of exclusion zone and trench. Wind direction was away from residential areas.Work was temporarily halted for safety reasons because the command post telephone was out-of-service. The site was inspected by the Old Bridge Environmental Commission.

March 17 - Excavation continued at TR-5. Two drums were encountered. One drum was removed, sampled and overpacked. Air was monitored at the site perimeter, the edge of the exclusion zone and trench. Wind direction was away from residential areas.

March 18 - Excavation was completed at TR-5. Seven drums were encountered. Two drums were removed, sampled and overpacked. Excavation continued at TR-4 were it had been stopped on March 14. Nine drums were encountered. Five drums were removed, sampled and overpacked. The air was monitored at the site perimeter, the edge of the exclusion zone and the trench. Wind direction was away from residential areas.

March 21 - Excavation was completed at TR-4. Thirteen drums were encountered. Three drums were removed, sampled and overpacked. Air was monitored at the site perimeter, the edge of the exclusion zone and the trench. Wind direction was away from residential areas.

March 22 - Excavation was completed at TR-6 and TR-7 and pits P3, P4, P5, P6 and P7. No drums were encountered. Air was monitored at the site perimeter, the edge of the exclusion zone and the trench. Wind direction was away from residential areas.

March 23 - Excavation was completed at TR-4A, which intersected TR-4 at the point of drum concentration. Fourteen drums were encountered. One drum was removed, sampled and overpacked. TR-2 was excavated. No drums were encountered. P8 and P9 were excavated. Pit P8 encountered no drums. Six drums were encountered in Pit P9. Three drums were removed and overpacked but were not sampled because of adverse wind conditions. Air was monitored at the site perimeter, edge of exclusion zone and trench.

March 24 - Demobilization of the site was begun. Three drums were sampled that had been excavated from P9 the previous day. Wind direction was away from residential areas.

March 25 - Demobilization continued at the work site.

March 28 - Demobilization was completed. One on-site surface drum was overpacked and sampled.

4.0 CONCLUSIONS

The Global Landfill Drum Excavation Project was substantially successful. At the start of the project, the goals that were established included:

1. Determine if the magnetic anomalies identified in the Phase 1 Geophysical Survey could be correlated to buried drums;
2. Determine if drums present were hazardous;
3. Estimate as best as possible the number of buried drums, and;
4. Determine as best as possible the depth of buried drums.

Obviously, the establishment of these project goals was done absent any specific underground site information. Based on the complexities encountered in the field, it was not possible to achieve all of the above-referenced goals. A more detailed discussion follows:

A. The Phase 1 Geophysical Survey identified buried magnetic material. As was stated numerous times throughout the public presentations prior to the start of the excavation field work, the anomalies might have been caused by refuse, refrigerators, or anything else magnetic - but not necessarily drums. In fact, the actual excavation encountered a wide range of buried magnetic material. In TR-5, for example, a large area of densely packed wide sheet metal bands was encountered just below the surface. This was in the area that had previously received a "lift" of solid waste. In this trench, no drums were found to the maximum depth that the trench was excavated. In P-8, for example, we encountered garbage with steel machinery, a bike frame and a water heater. In P-9, we encountered garbage with a water heater, a lawn mower, and 5 steel drums. These buried objects affected the magnetometer survey results.

In the western section of the work site, magnetometer readings were recorded on July 1, 1987, the first day of the geophysical investigation. When excavated, these single point or linear anomalies yielded no buried metallic objects or drums. The lack of correlation between magnetic anomalies and metallic objects, and the character of the anomalies, suggests that the magnetometer was reacting to a preview of a magnetic storm. Magnetic storms are usually associated with sunspot activity and cannot be predicted. The magnetic storm was obvious at the magnetometer base station the following days and was confirmed by the NJDEP-Geological Survey. Data collection was resumed when the magnetic storm had abated.

It is clear from the work that although there is a fair correlation between anomalies and buried magnetic material, there is a poor correlation between the magnetic anomalies and buried drums. If the site was a farmfield with no previous site activity (except drum burial), the magnetic survey would be more definitive. In any case, the magnetic survey was still a good initial screening step in delineating areas which deserved additional subsurface investigation. However, the data must be used within the limits of its accuracy and reliability.

B. Seventeen drums were removed from the excavation and one surface drum was removed, sampled, and overpacked. The samples were analyzed for Priority Pollutants plus 40 peaks, and the parameters needed to determine whether or not the drums contained a "hazardous" waste or substance. Tables 4 and 6 summarize the results of the laboratory analyses.

The results of the investigation revealed that 14 of the 18 drum samples were judged by Killam to be hazardous based on NJDEP standards.

Four of the drums that were analyzed proved to be non-hazardous based on Killam's interpretation of the data to date. Additional review of the data will be completed and the NJDEP will be sent all data for their review.

C. The issue concerning the number of drums present on the property cannot be resolved based on the results of this project. There was no apparent correlation between magnetic anomalies and buried drums. In areas where the witnesses told us we would find large numbers of drums, none were encountered. In some instances, the problem in finding the buried drums may have been the result of the 12 foot lift of solid waste that was found over most of the site. This complicated the search in that at least 12 feet of solid waste had to be excavated through before virgin ground was encountered. In some of the trenches, we encountered uncontrollable groundwater at the interface between the waste material and the underlying strata. This made digging below the groundwater table both dangerous and difficult. See attached photos.

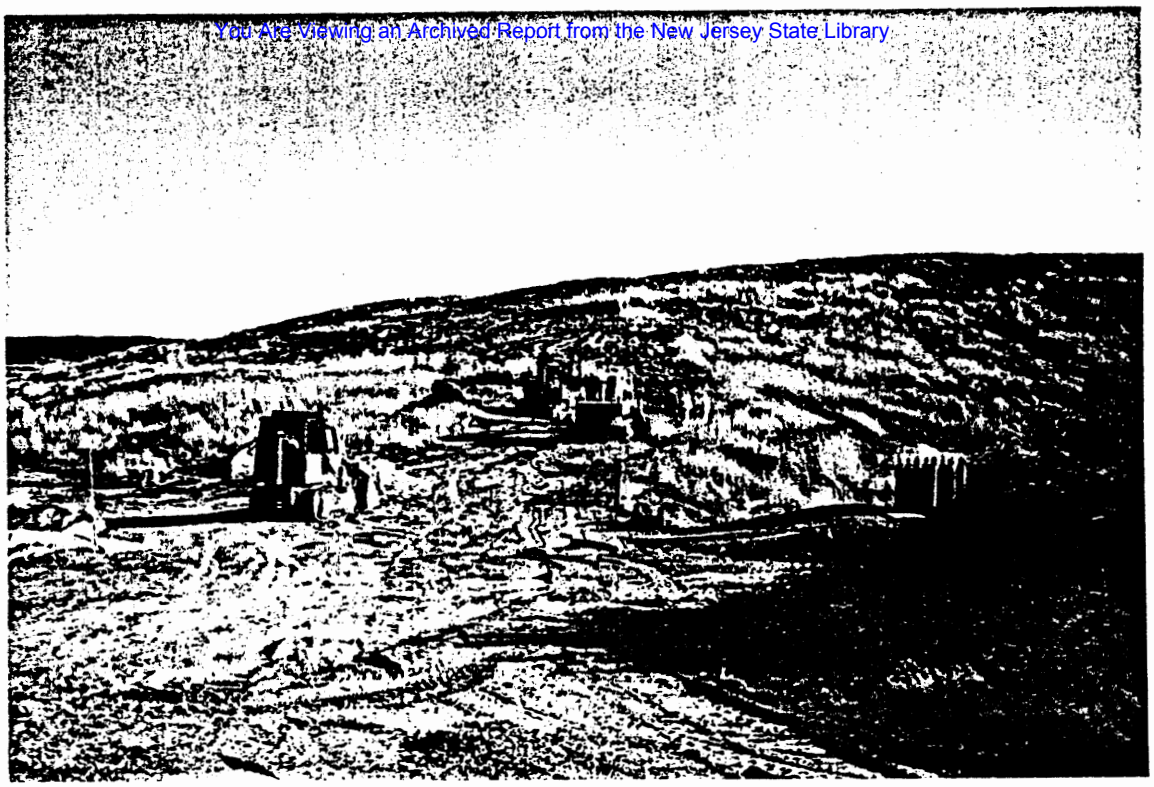
There is no question that the site contains drums. We encountered at least 63 during the course of the project. Trenches TR-4 and Pit P9 had a dense pack of drums while at TR-2, for example, we encountered no drums. We were not able to establish any pattern to the drum disposal. It is our opinion that there are more drums buried at the site but that their exact location is uncertain and the prospects of finding them are poor unless a regional excavation occurs whereby the entire site is excavated.

D. The issue of the depth of the drums is also difficult to resolve. All of the drums excavated had been backfilled along with garbage and construction debris and were found at depths of 2 to 10 feet. Shallow groundwater made observation and excavation of drums difficult. In trench TR-6, groundwater was just below the surface.

In trenches TR-5 and TR-2, groundwater ran into the excavation uncontrollably through the voids in the garbage fill. A more substantial groundwater dewatering program might allow deeper excavation. Such a program was not, however, within the scope of this project. In TR-1, the excavation was carried to 22 feet deep where groundwater was not a problem.

Conclusions

- The project has confirmed that there are buried drums at the site and that 14 out of 18 drums that were excavated and sampled contained hazardous waste.
- The magnetic anomalies defined the horizontal extent of the drums found in TR-4, TR-4A, TR-5, and P9. The vertical limit of drum disposal seems correlated to the depth of the garbage lift. In the areas where we excavated, the garbage did not exceed one lift (12 feet) in height.
- There is a fair correlation between the magnetic survey and the presence of buried metal but there is a weak correlation between the magnetic survey and the presence of buried drums.



#1 Start of Excavation at Trench TR-1. Equipment on-site includes backhoe, drum grappler and front-end loader. Personnel are in fully encapsulated suits.

#2 During Excavation of TR-1. Personnel within the excavation area are in encapsulated suits and carry supplied air (Level B).

#3 Excavating TR-4. White "powder-like" substance at base of trench collected for laboratory analysis (sample no.TR4-S1).

#4 Drum is pulled from trench TR-4 while worker in Level B continuously monitors the drum with an HNV "air monitor".

#5 Shallow groundwater hinders excavation in some areas (P-6 shown).

#6 After excavation, trenches are backfilled in accordance with NJDEP requirements.

APPENDIX G

June 21, 1988 EPA Region II Press Release Announcing the Proposed Inclusion of 10 New Hazardous Waste Sites in New Jersey on the National Priorities List

United States
Environmental Protection Agency
Region 2: New Jersey New York Puerto Rico, Virgin Islands
26 Federal Plaza, NY, NY 10278

NEWS

88(57) Rich Cahill (212) 264-2515

EMBARGOED FOR RELEASE: 11:00 AM, June 21, 1988

EPA ANNOUNCES TEN NEW PRIORITY SUPERFUND SITES IN NEW JERSEY

NEW YORK, NY -- U.S. Environmental Protection Agency (EPA) Regional Administrator Christopher J. Daggett today announced that ten new hazardous waste sites in New Jersey have been proposed for inclusion on the Superfund National Priorities List (NPL). These are among the 229 new sites nationwide proposed in Washington, D.C. today.

New Jersey already has 100 sites on the NPL and will still rank first among states in the number of Superfund sites with 110. Pennsylvania (97) is second, California (88) third, Michigan (81) fourth and New York (76) fifth. New Jersey also ranks first among the States in Superfund dollars obligated for FY 1988, (10/1/87-9/30/88) toward the task of long-term cleanup, with a total of $245 million.

According to Mr. Daggett, "The high number of Superfund sites listed in New Jersey reflects the state's aggressive program to identify and classify such sites. We look forward to continuing the cooperative effort that now exists between the federal and State governments in New Jersey to correct the harm done by past improper handling of hazardous wastes."

Mr. Daggett pointed out that today's announcement "means the new sites have been selected for priority action from among

Mr. Daggett pointed out that today's announcement "means the new sites have been selected for priority action from among thousands of potential sites nationwide. But it does not mean a quick fix for these complex problems. Before we begin, we must thoroughly assess each site and devise the alternative that will best protect public health and the environment in a cost-effective manner."

The newly proposed sites in New Jersey, as well as those in the rest of the country, will be subject to public comment before final addition to the NPL.

In addition to New Jersey's 110 sites and New York's 76, there are nine in Puerto Rico and none in the U.S. Virgin Islands. These are the four areas of the country that comprise EPA Region II's jurisdiction, where almost $404 million has been spent toward the cleanup of Superfund designated sites. This amount represents about 26% of the national total.

"Superfund" is the nickname for the trust fund under the Superfund Amendment and Reauthorization Act (SARA), signed into law on December 11, 1980 and reauthorized on October 21, 1986. Prior to this proposed update there were 951 sites listed on the NPL. The Act provides funds from industry and the federal government to clean up hazardous waste sites where responsible parties cannot be identified or cannot afford to pay for cleanups, or are unwilling to pay for cleanups, pending court action.

Once a site is selected for inclusion on the NPL, detailed plans for cleanups can be worked out in conjunction with the states. Cleanup can occur through direct federal contracts; cooperative agreements under which states take the lead, or private cleanups through voluntary or court-ordered actions.

###

See Attachment

NEW JERSEY SITES
PROPOSED ON NPL UPDATE # 7

Brook Industrial Park
100 West Main Street
Bound Brook, Somerset County

Garden State Cleaners Co.
Summer Road
Minotola, Atlantic County

Global Landfill
Ernston Road
Old Bridge, Middlesex County

Higgins Disposal
121 Laurel Avenue
Kingston, Somerset County

Higgins Farm
Route 518
Franklin Township, Somerset County

Industrial Latex
350 Mt. Pleasant Avenue
Wallington, Bergen County

Kauffman & Minteer, Inc.
Monmouth Road (Route 537)
Springfield Township (Jobstown)
Burlington County

Pohatcong Valley Ground Water
Contamination
Route 643 to Route 31
Washington Township
Franklin Township, Warren County

South Jersey Clothing Co.
1 Central Avenue
Minotola, Atlantic County

Witco Chemical (Oakland Plant)
100 Bauer Drive
Oakland, Bergen County

APPENDIX H

Preliminary Evaluation of Temporary Cover Alternatives for Global Landfill Prepared by Killam Associates for Mr. Richard Sullivan, March 11, 1988

E Killam
Associates - Consulting Engineers

27 Bleeker Street
P.O. Box 1005
Millburn NJ 07041
Telephone: 201-379-3400
Fax: 201-376-1072
Telex: 64-2057

March 11, 1988

Mr. Richard J. Sullivan
New Jersey First, Inc.
2490 Pennington Road
Trenton, New Jersey 08638

RE: Global Landfill
ETK Job No. 135101

Dear Mr. Sullivan:

We have completed our preliminary evaluation of temporary cover alternatives for Global Landfill. The purpose of the investigation was to determine the design and cost of a capping system for Global Landfill that would serve as an interim cover and provide temporary gas and odor control. If Global is listed as a Superfund site, the capping system could be constructed and maintained while a permanent remedial plan is developed through the Superfund process. Our findings are presented below and incorporate the discussions from our March 2 meeting on this subject.

Initial Surface Preparation

At present, the surface of the Global Landfill (hereinafter referred to as Global) is best described as uneven, eroded, and highly variable with respect to material. In some areas, the final earthen cover is intact and has vegetation growing on it. In other areas, various wastes are exposed and the cover material is thin or missing, presumably washed to the bottom of the side slope. It does not appear that there is enough cover material available on-site to prepare a smooth earthen surface.

For any cover system, it is essential that a relatively planar surface be prepared in order to provide a sufficiently firm base for the placement and construction of the impermeable cap. Thus, the entire site will need grading and roughly half the site will need 6 inches of fill to supplement the existing final cover. It is assumed that the resulting final earthen cover will be a minimum of 12 inches thick. Based on the size of the site (51 acres), it has been assumed that a large bulldozer could do this work in approximately 4 weeks.

Cap System

General

Four alternative cap systems have been conceptually designed and costed. A cost summary is presented in Table 1. Options one and two include a geomembrane cap and a top layer of topsoil with vegetation. These options come the closest to meeting NJDEP regulations. The remaining two options (three and four) have an exposed surface of geomembrane material. Options one and two utilize an impermeable 20 mil PVC geomembrane while options three and four utilize an exposed impermeable geomembrane of 40 mil High Density Polyethylene (HDPE). This material is highly u-v resistant and is presently being used successfully in many exposed applications.

All of the four alternative cap systems include a gas transmission layer beneath the impermeable geomembrane. Two types of gas transmission layers are proposed. The first is a 6 inch stone layer over the entire surface of the landfill. The second is a system of gravel filled trenches which is described in more detail under Cap System-Option Two.

Cap System - Option One

This cap system consists of (from bottom to top): a 6 inch stone layer; 10 oz. geotextile; 20 mil PVC, geonet drainage layer; 4 oz. geotextile for separation; 12 inches of topsoil; and vegetative cover. This cap system is shown in Figure 1.

This cover system includes the previously described inch stone layer over the entire surface of the landfill for gas transmission.

Covering the PVC geomembrane, a synthetic geonet drainage layer has been included because, when combined with the necessary geotextile layer, it is cheaper and easier to install than a stone drainage layer. We feel the minimum depth of topsoil needed to support vegetation is 12 inches. This option comes the closest to complying with NJDEP landfill closure regulations. However, current NJDEP regulation prohibit the use of geomembrane caps on slopes greater than 7% and the ability of the PVC to support the overlying layers on the sideslope would require further study during the design phase.

Cap System - Option Two

This cap system consists of (from bottom to top): gravel filled trenches; 10 oz. geotextile, 20 mil PVC geomembrane; geonet drainage layer; 4 oz. geotextile for separation; 12 inches of topsoil; and vegetative cover. This cap system is shown in Figure 2.

This cap option is identical to option one except that as an alternative to the 6 inch gravel layer, this system utilizes 2'x 3' gravel filled trenches which start at the base of the sideslope and extend straight up the sideslope. For gas transmission, a 6-inch perforated polyethylene pipe would lie in the base of each trench. There would be 26 trenches around the landfill, at the base of the sideslope there would be no more than 200 feet between trenches. This distance would significantly decrease toward the top of the landfill. It is assumed that the gas would migrate laterally to these trenches. It is certain that the 10 oz geotextile would assist in this migration, although to what extent has not been determined. If necessary, the number of trenches could be doubled while still maintaining a significant cost advantage over a 6 inch stone layer. The constraints noted previously for option one regarding placement of a geomembrane on a sideslope would also apply to option two.

Cap System - Option Three

This cap system consists of (from bottom to top): a 6 inch stone layer; 10 oz. geotextile; 40 mil HDPE geomembrane; and 5 rings of 1'x3', stone-filled gabions. This capping system is shown in Figure 3.

The stone-filled gabions would serve to anchor the cap system and to reduce runoff velocity. They would be placed on excavated terraces, the terraces would loop around the sideslopes of the landfill at intervals of 20 feet of vertical elevation change. To create a stable terrace for the gabions would entail either cutting into the final graded surface or terracing the stone layer.

Cap System - Option Four

This cap system consists of (from bottom to top): gravel filled trenches; 10 oz. geotextile, 40 mil HDPE geomembrane, and strands of tires strung on 1/2 inch steel cable. This capping system is shown in Figure 4.

As a gas transmission system, this option utilizes gravel filled trenches as described in option two.

The exposed 40 mil geomembrane would be anchored with an overlying system of strings of used tires threaded on steel cable. These strings of tires would be spirally wound around the landfill and would be anchored at top and bottom. This would reduce runoff velocities while at the same time allowing the exposed geomembrane to expand or contract as one continuous sheet. Anchoring the strings of tires on the sideslope itself should be avoided so as to minimize penetrations of the impermeable cap. This system is attractive due to the low cost of cable and the ready availability of free, used tires. The costly element of this design is the labor involved in punching the tires and stringing and anchoring the cable strings. For the purposes of this cost estimate 52 strings of tires were provided for, with an equal density of strings on the top of the landfill. This provides for a maximum distance of 100 feet between strings of tires (at the bottom of the sideslopes).

Surface Leachate Collection System

This component of the capping system would serve as a means of collecting and conveying leachate which is seeping out of the sideslopes of the landfill. It would be located at the perimeter of the capped area, directly under the leading edge of the impermeable cap. It would consist of a 2'x3' gravel filled trench in which would lie 6-inch perforated polyethylene pipe. The trench would be lined with a filtering geotextile prior to being filled with gravel. The entire system would be sloped to some as-of-yet unchosen collection point, where it would be pumped into a tanker trailer and periodically removed for treatment and disposal.

Surface Runoff Control System

Conceptual designs and costs have been developed for two systems for controlling runoff from the surface of the capped landfill.

System One - System one is for cap alternatives one and two, which both utilize earthen topsoil caps with vegetative cover. The goal of this system is to prevent erosion of the final topsoil layer. Erosion would result in exposure of the drainage layer and geomembrane as well as cause sediment transport into the adjacent wetlands. This system includes: shredded mulch hay; rings of staked hay bales; a sedimentation barrier; diversion berms; downspouts, energy dissipation channels; and a stone lined swale. This system is similar to the plan previously proposed by JCA Associates in May, 1985.

To control erosion the exposed topsoil must be protected and the flow and the velocity of the runoff must be minimized. The shredded mulch hay would anchor and protect the exposed topsoil from wind and rain until the vegetative cover had established itself. It would also reduce the velocity of any water running down the sideslopes. To further reduce this velocity, and also to retain any sediment the runoff might carry, three and a half circumferential rings of hay bales would be staked to the sideslopes. As a final sedimentation barrier, an imbedded, staked fence of woven geotextile would be placed around the perimeter of the base of the sideslope. To retain the runoff from the top of the landfill (with the purpose of preventing it from running down the sideslopes) diversion berms would be constructed around the perimeter of the top of the landfill. These diversion berms would direct the top runoff toward three corrugated half-pipe downspouts. Each downspout would convey the runoff down the sideslope to the toe of the slope, whereupon the runoff would pass through a rip-rap energy dissipation channel. The stone-lined swale would be located at the toe of the slope on the N-NW side of the landfill to direct the runoff offsite.

System Two - System two is for cap alternatives three and four, which both utilize exposed geomembrane surfaces. The goal of this system is to reduce the

velocity of the runoff as it reaches the toe of the sideslopes. Excess runoff velocity would cause the base of the landfill at the toe of the sideslope to erode. This could result in the destruction of the perimeter road and sediment transport into the adjacent wetlands. This system includes: rip-rap; diversion berms; downspouts; energy dissipation channels; and a stone lined swale.

To reduce the volume of runoff flowing down the sideslopes, the same system of diversion berms and downspouts described in system one would be used to control runoff from the top of the landfill. Despite the gabion rings of cap alternative three, and the strings of tires in cap alternative four, it is probable that there could be high velocity sheet flow at the toe of the sideslopes due to the smooth, exposed geomembrane surface. Therefore a 10 foot wide, 18 inch thick layer of rip-rap has been included around the perimeter of the toe of the sideslope. The sole purpose of this ring of rip-rap is to dissipate the energy of the runoff by reducing its velocity. The runoff will then follow its natural course to the adjacent wetlands. System two includes the same stone-lined swale on the N-NW side of the property described in system one.

Gas Recovery and Flaring System

We expect that any landfill gas emanating from the sideslopes of the landfill will migrate to the top of the sideslopes due to natural forces without collecting and bulging the geomembrane. The costs of the 'under-cap' gas transmission layer, for both the sideslopes and the top area of the landfill, have been included in the cost of each alternative cover system. Once the gas has emanated from, or has reached the top of the landfill, it will be collected using an exposed piping system.

The cost of the gas recovery and flaring system includes: surface piping; flaring units; blowers; concrete pad; and fencing. The cost of providing electricity to the top of the landfill is not included. It is conceivable that electricity could be brought to the top of the landfill via a buried cable beneath the cap.

The number and type of enclosed flaring units and their associated cost is entirely dependent upon the quantity and quality of gas produced. It is preliminarily estimated that gas production at Global will be in the vicinity of 1700 cfm, and that the methane concetration of this gas will be approximately 55%. It has been assumed that three flaring units will be needed, each with a capacity of 750 cfm, for a combined capacity of 2250 cfm.

Flaring equipment is low-maintenance and virtually trouble-free. With the intent of eliminating all odor, the cost of some emission control equipment, such as flame analyzers and automated air modulation controls, has been included in this cost estimate.

Killam

Site Security

In this conceptual design it is intended to secure the entire covered area of the landfill. The cost of a highway guardrail and industrial chain link fence with barbed wire around the entire perimeter of the covered area have been included for all alternative cap designs.

In conclusion, we have developed four conceptual capping systems for consideration as a temporary cover for Global Landfill. Costs range from approximately $2.3 million to $4.6 million depending on the design configuration. None of the alternatives comply strictly with the NJDEP requirements for final cover on landfills. However, these alternatives are designed to serve only as a temporary cover while a final remedial plan is developed under Superfund.

If you have any questions concerning this report, please contact us.

Very truly yours,

Killam Associates

Robert J. Delatour Jr., P.E.

RJD/jp

cc: D. Nusser, KA

Killam Associates Consulting Engineers

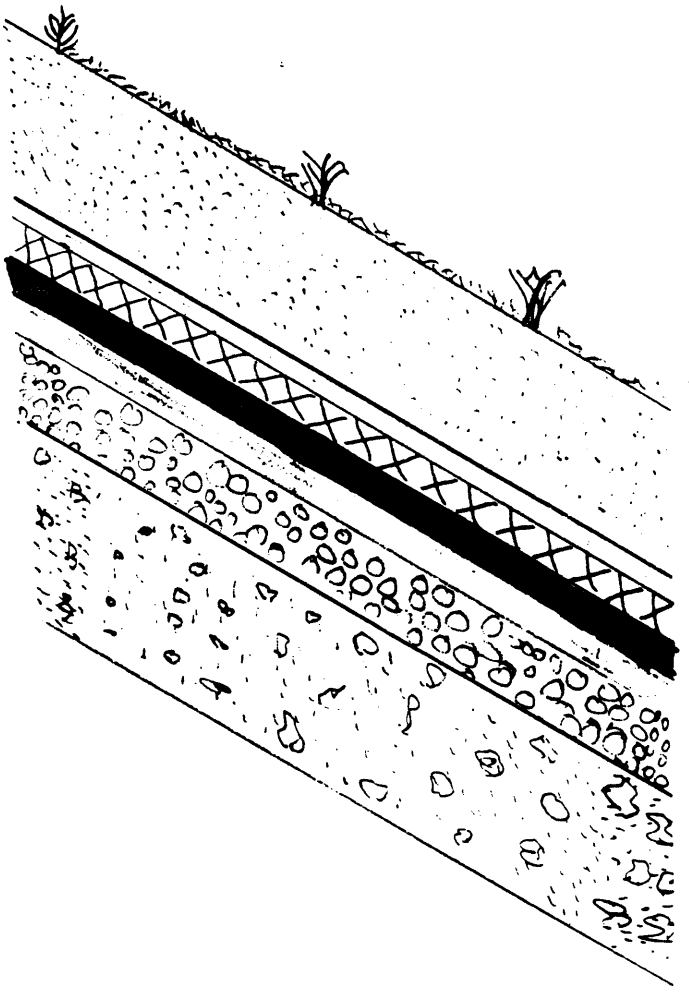
TABLE 1
GLOBAL LANDFILL

Cover System Cost Summary

Description	Option One	Option Two	Option Three	Option Four
INITIAL SURFACE PREPARATION				
Equipment, Labor	$32,000	$32,000	$32,000	$32,000
Labor	$155,000	$155,000	$155,000	$155,000
subtotal	$187,000	$187,000	$187,000	$187,000
CAP SYSTEM				
Gas Transmission:				
stone layer	$1,170,000	*	$1,170,000	*
trenches	*	$133,000	*	$133,000
Geotextile, Geomembrane	$711,000	$711,000	$1,266,000	$1,266,000
Geonet,Geotext,Tops.,Veg.	$1,887,000	$1,887,000	*	*
Gabions	*	*	$258,000	*
Tires and Cable	*	*	*	$42,000
subtotal	$3,768,000	$2,731,000	$2,694,000	$1,441,000
SURFACE RUNOFF CONTROL SYSTEM				
System One	$182,000	$182,000	*	*
System Two	*	*	$220,000	$220,000
subtotal	$182,000	$182,000	$220,000	$220,000
LEACHATE UNDERDRAIN				
Equipment, Labor	$10,000	$10,000	$10,000	$10,000
Materials	$42,000	$42,000	$42,000	$42,000
subtotal	$52,000	$52,000	$52,000	$52,000
GAS RECOVERY AND FLARING				
Flaring units,Blowers,Pipe	$118,000	$118,000	$118,000	$118,000
Concrete Slab,Fencing	$4,000	$4,000	$4,000	$4,000
subtotal	$122,000	$122,000	$122,000	$122,000
SECURITY				
Fence	$107,000	$107,000	$107,000	$107,000
Guardrail	$133,000	$133,000	$133,000	$133,000
subtotal	$240,000	$240,000	$240,000	$240,000
TOTAL COST	$4,551,000	$3,514,000	$3,515,000	$2,262,000

Note: 1. The symbol * indicates that item is not included in design
2. Engineering, contingencies, operation, and maintenance costs are not included

OPTION ONE



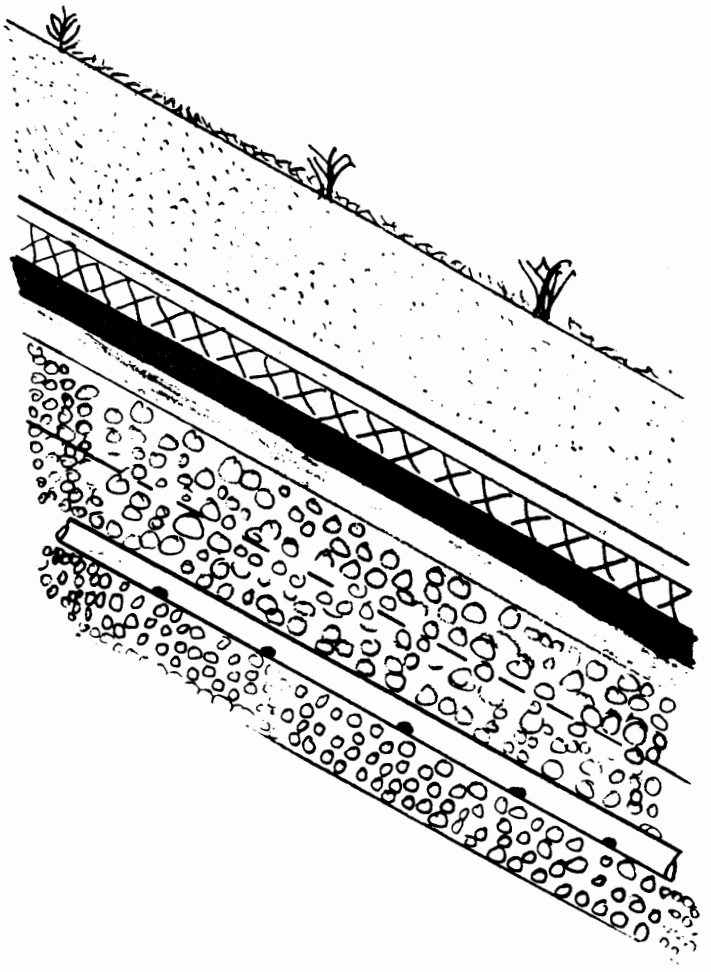
GLOBAL LANDFILL

CAP SYSTEM
CROSS SECTION

FIGURE 1

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

OPTION TWO



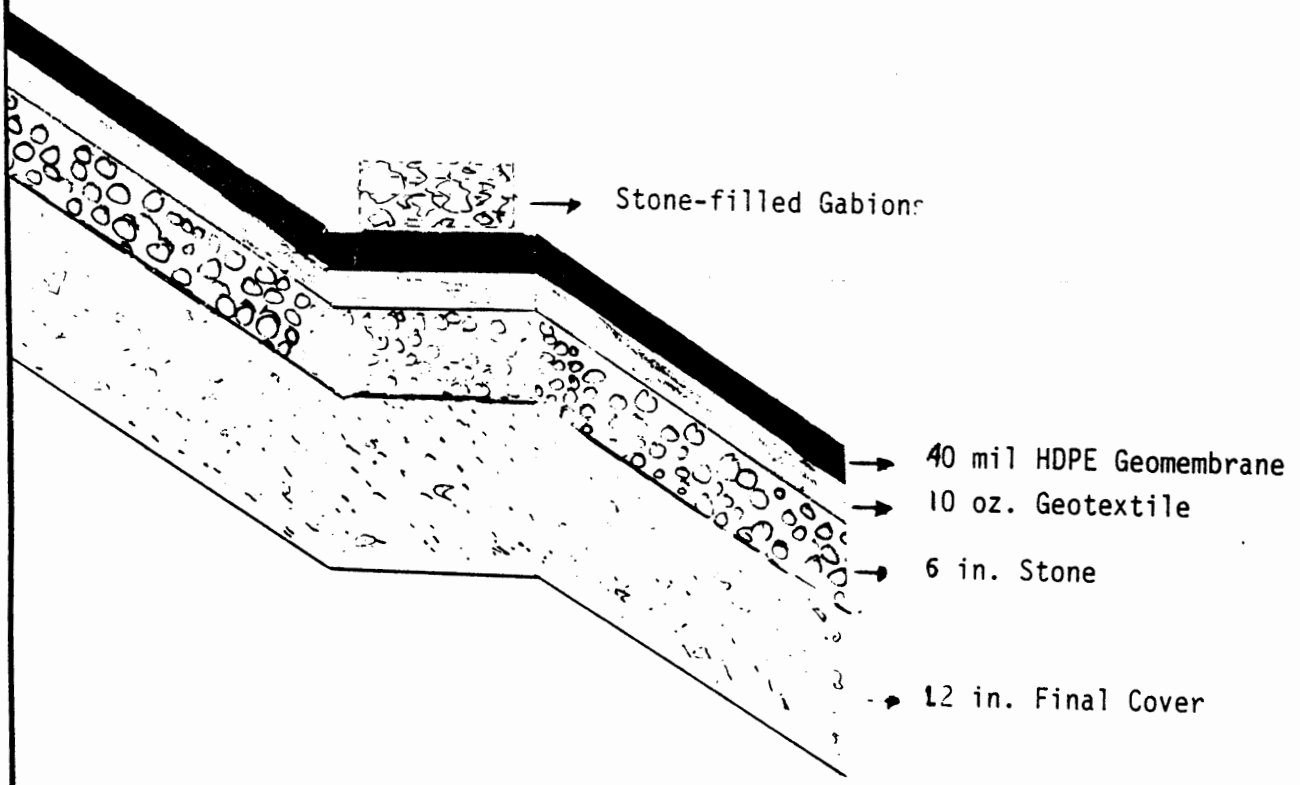
GLOBAL LANDFILL

CAP SYSTEM
CROSS SECTION

FIGURE 2

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

OPTION THREE



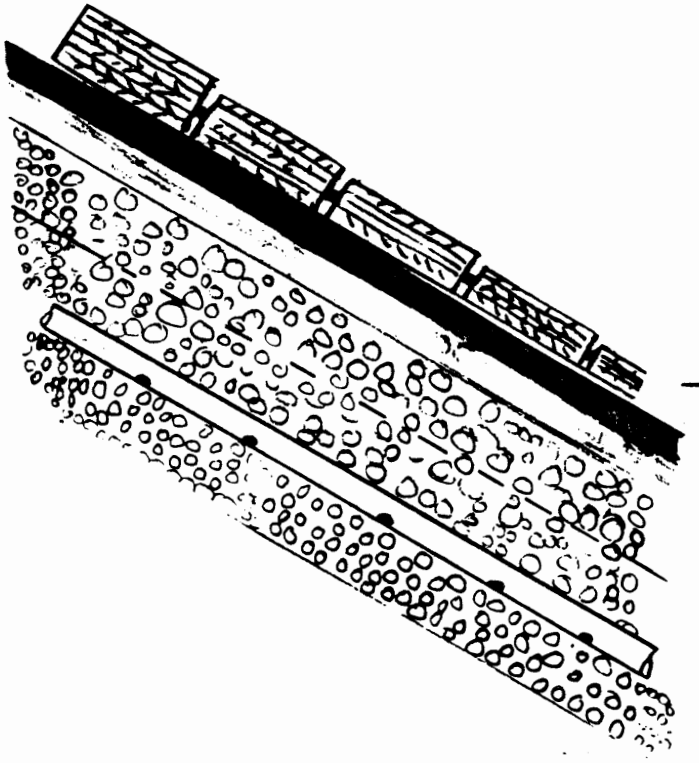
GLOBAL LANDFILL

CAP SYSTEM
CROSS SECTION

FIGURE 3

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

OPTION FOUR



GLOBAL LANDFILL

CAP SYSTEM
CROSS SECTION

FIGURE 4

Elson T. Killam Associates, Inc.
Environmental and Hydraulic Engineers
27 Bleeker Street Millburn New Jersey 07041

APPENDIX I

Health Service Contract with the Old Bridge Health Department

State of New Jersey
DEPARTMENT OF HEALTH
CN 360, TRENTON, N.J. 08625-0360

MOLLY JOEL COYE, M.D., M.P.H.
COMMISSIONER

May 24, 1988

Thomas Sikorski, Health Officer
Old Bridge Health Department
1 Old Bridge Plaza
Old Bridge, N.J. 08857

Reference: Health Service Grant No. 88-606-OH-00

Dear Mr. Sikorski:

Enclosed is the Notice of Grant Award for Health Service Grant No. 88-606-OH-00, to provide financial support to your agency for the provision of Global Landfill Task Group Community Investigation.

Jacqueline Solomon is the Program Officer and responsible for the programmatic monitoring of the Notice of Award. Correspondence concerning the technical aspects of the grant should be directed to the Program Officer with a copy to the Grant Management Officer.

Jacqueline Solomon Grant Management Officer, has been assigned the business management responsibilities for your grant. All correspondence regarding business aspects of the grant should be addressed to the Grant Management Officer, with a copy to the Program Officer. Additionally, all requests which require prior approval of the Grant Management Officer (rebudgeting, contracting, etc.) must bear the signature of the responsible official of the business office as well as the originator of the request, if different.

The following are the complete addresses of the persons referenced in this letter:

Name: Jacqueline Solomon
Address: Division of Occupational Health
CN 360
Trenton, N.J. 08625
Telephone No: 609-633-2043

Name:
Address:

Telephone No:

This grant will be reimbursed on the following basis:

1. ☒ An Advanced Payment/Reimbursement basis

See enclosed Schedule of Payments Form (FGS-16) indicating the approved monthly advance payment. Payment is made by the Department of Treasury, and through special arrangements, the invoice will be processed so that the check should arrive within 7-10 days of the release date indicated.

2. ☐ Cost-Reimbursement basis

Also enclosed are copies of the following forms that will be required during the grant period:

1. Cash Status Report; Form FGS-48 (If applicable)
2. Invoices for Payment; Form AR50/54
3. Report of Grant Expenditures; Form FGS-20A
4. Budget Revision Request; Form FGS-57
5. Statement of Program Income; Form FGS-63 (If applicable)
6. Grant Progress Report; Form FGS-45

Please refer to the Grant to determine when each is due.

Please include the Grant Number indicated above in all correspondence, reports and payments related to this grant.

Should you have any questions regarding the above, please feel free to contact the Program Officer or Grant Management Officer.

Sincerely yours,

Maria T. Usas

Maria T. Usas
Contract Administrator I
Grant Evaluation & Review Unit
Office of Financial & General Services

cc: Program Officer
.Grant Management Officer

NEW JERSEY STATE
DEPARTMENT OF HEALTH

PART 1
GRANT WORKSHEET

Grantee Name	Approved Spending Plan No.
Old Bridge Department of Health	SP 88-71-OH
Address	**Contact Telephone No.**
1 Old Bridge Plaza, Old Bridge, New Jersey 08857	201-679-4800

Granting Agency

NJ State Department of Health

Proposed Grant Period

From: May 15, 1988 To: May 15, 1989

Name of Local Health Officer

Tom Sikorski, Health Officer

Address

1 Old Bridge Plaza Old Bridge, New Jersey 08857

Type of Award

- ☐ Competitive
- ☒ New
- ☐ Modification
- ☒ Non-Competitive
- ☐ Continuation: Yr. 2 _____ Yr. 3 _____
- ☐ Renewal: Grant No. _____

Source of Funds

	Account No.		Account No.
☐ State	4235-100-111420-63(170)	☐ Other	
☐ Federal			

Approvals

	Approved Yes	Approved No (See Comments)	Date	Signature
Program Officer	☐	☐		
Grant Management Officer	☒	☐	5/12/88	
Program Coordinator	☒	☐	5/12/88	
Service Director	☒	☐	5/12/88	
Assistant Commissioner/ Division Director	☒	☐	5/12/88	
Grant Evaluation and Review/FGS	☒	☐	6/2/88	

Comments

One time only request. Funds available for specific community through appropriation of New Jersey State Legislature under P.L. 1987,c. 368.

FGS-51
APR 86

DISTRIBUTION: White—N.J.S.D.H. FGSIGER
Canary & Pink—Granting Agency
Goldenrod—Granting Agency—Follow up Copy

PS058

1. Date Issued

2. Supersedes Award Notice Dated

NEW JERSEY STATE
DEPARTMENT OF HEALTH
NOTICE OF GRANT AWARD

3. Health Service Grant Award No.
   a.
   b. Mod. No

4. Title of Grant Award

Global Landfill Task Group Community Investigation

5. Grantee
   a. Name Old Bridge Health Department
   b. Street 1 Old Bridge Plaza
   c. City Old Bridge
   d. State New Jersey e. Zip Code 08857

6. Vendor I.D. No.
   V-226002057 99

7. Budget Period Mo./Day/Yr.
   From May 15, 1988 Through May 15, 1989

8. Project Period Mo./Day/Yr.
   From May 15, 1988 Through May 15, 1989

9. Approved Budget
   a. ☒ Grant Funds Only
   b. ☐ Total project costs including grant funds and all other financial participation

10. Funding Authorization Number(s)
    46-03000

11. Source of Funds

a. Grant Award	$ 75,000.00
b. Non-State Share*	$ -0-
Total Award	$ 75,000.00

* Must meet all matching or cost participation requirements. Subject to adjustment in accordance with DOH policy.

12. Award Computation for Grant

a. Amount of Financial Assistance	$ 75,000.00
b. Less Unobligated Balance From Prior Budget Periods	$ -0-
c. Less Cumulative Prior Award(s) This Budget Period	$ -0-
d. AMOUNT OF THIS ACTION	$ 75,000.00

13. This Grant Is Subject To The Terms And Conditions Incorporated Either Directly Or By Reference In The Following:
    a. Attachment A—Additional Grant Provisions
    b. Attachment B—Approved Budget
    c. Attachment C—Program Specifications

The Grantee's Terms and Conditions for Administration of Health Service Grant is referenced in this grant.

Acceptance of the grant terms and conditions is acknowledged by the grantee when funds are obtained from the grant payment system.

14. Remarks (Other Terms & Conditions Attached ☐ Yes ☒ No)

15. New Jersey State Department of Health Official Signature

Grant Approval Officer

FOR NJSDH USE ONLY (To Be Completed By Funding Program)

FISCAL YEAR	ACCOUNT NUMBER(S)	AMOUNT
88	4235-100-111420-63(170)	$75,000.00

DISTRIBUTION: White—Grantee; Green—N.J.S.D.H. FGS/GER; Canary—Granting Agency; Pink—N.J.S.D.H. Audit Unit; Goldenrod—State Treasury

FGS-41

A GRANT BETWEEN

STATE OF NEW JERSEY DEPARTMENT OF HEALTH

AND

Old Bridge Health Department
(Grantee)

Grant Number _____

ADDITIONAL GRANT PROVISIONS

Attachment A is hereby annexed to and provides for additional grant provisions and conditions between the State of New Jersey, Department of Health and Old Bridge Health Dept. (Grantee/Organization) as detailed below.

I. The Grantee's Terms and Conditions for Administration of Health Service Grants are hereby made a part of this award and contain the following requirements:

(a) Administrative Requirements
(b) Compliance Requirements
(c) Audit Requirements

II. BUDGET REVISION AND MODIFICATION

A. All budget revisions and modifications must be approved, in writing by

Jacqueline Solomon (Name), Coordinator, Community Investigations (Title),

hereby designated by the Department as Grant Management Officer.

B. For all grants refer to Subpart K of the Grantee's Terms and Conditions for specific requirements when a Budget Revision or Modification is necessary.

The budget variance request must be submitted in writing by the Grantee and must include an explanation of the reasons for the variance request.

Since the grantee is not to incur expenditures over and above the limits set for budget variances, it is incumbent of the grantee to request variance approval whenever it is anticipated that spending will exceed the limits.

III. PROGRAM INCOME

Other program income defined in Subpart E of the Grantee's Terms and Conditions shall be treated by the Grantee in the following manner:

☐ Added to funds committed to the project by the Department and be used to further eligible program objectives; or

☐ Added to funds committed to the project, up to _____ dollars, and be used to further eligible program objectives.

☐ Deducted from the total project costs for the purpose of determining the net costs on which the Department grant payments shall be based.

☒ Not applicable.

A GRANT BETWEEN THE STATE OF NEW JERSEY
DEPARTMENT OF HEALTH AND

ATTACHMENT A

old Bridge Health Department (Grantee) Grant Number _____ (Continued)

IV. METHOD OF PAYMENT

This grant will be reimbursed on the following basis:

A. ☒ On an advanced payment/reimbursement basis.

B. ☐ Progress payments shall be made by the Department on a _____ basis upon submission of an expenditure report.
Advanced payments are not authorized under this grant.

At the Department's discretion a final payment may be withheld pending receipt of final reports. If applicable, this payment is not to exceed five (5) percent of the total grant amount.

V. FINANCIAL AND PERFORMANCE REPORTING

A. Interim expenditure reports shall be submitted on a quarterly basis. These reports, certified by the Grantee's Chief Financial Officer, shall be submitted no later than ten (10) days immediately following the end of the 3 month (quarterly) period.

B. Performance reports shall be submitted on a quarterly basis. These reports shall be submitted no later than 10 days after the end of each reporting period.

C. A final report shall be submitted by the Grantee no later than sixty (60) days after completion of the grant period or termination of the grant.

D. The agency's financial reports shall be prepared, ~~in a manner consistent with the grantee's normal accounting records, which is~~ on a:

☒ Cash Basis ☐ Accrual Basis ☐ Other (Specify) _____

VI. INTEREST

A. Charges for Unresolved Audit Findings—An interest charge on unallowable costs that are not repaid by the Grantee shall begin to accrue 30 days from the date the Grantee is notified of the debt. The interest shall continue to accrue while any appeal of the audit findings is underway. In the event the Grantee is successful in its appeal, the accrued interest will be eliminated. The interest rate applied shall be prescribed by the Department of Treasury at the date the penalty is assessed.

B. Interest Earned on Advanced Payments—In accordance with the Terms and Conditions of the award, interest earned on advanced payments shall be reported. If the amount exceed $100.00 in a Grantee's fiscal year, the interest will be paid to the Department of Health.

VII. OTHER GRANT PROVISIONS

A. It is the Department's understanding that the Grantee's fiscal year ends on December 31, 1988. Any changes in the fiscal year must be reported immediately to the Department.

B. Other:

FGS-41-a
APR 86

P8053

A GRANT BETWEEN

STATE OF NEW JERSEY

DEPARTMENT OF HEALTH

and

Old Bridge Health Department

(Grantee)

Grant Number _____

APPROVED OPERATING BUDGET			
Budget Categories	Grant Funds	Other Funds	Total Budget
A. Personnel			
Salaries	-0-	-0-	-0-
Fringe Benefits	-0-	-0-	-0-
B. Consultants	$ 52,805.00	-0-	$ 52,805.00
C. Other Cost Categories (Specify)			
Equipment	8,079.00	-0-	8,079.00
Medical Laboratory Tests	8,800.00	-0-	8,800.00
Expendable Medical Supplies	1,721.00	-0-	1,721.00
Educational Materials	2,735.00	-0-	2,735.00
Mailing/Telephones	860.00	-0-	860.00
TOTAL DIRECT COST	$ 75,000.00	-0-	$ 75,000.00
LESS PROGRAM INCOME	-0-	-0-	-0-
NET TOTAL DIRECT COST	75,000.00	-0-	75,000.00
INDIRECT COST	-0-	-0-	-0-
NET TOTAL COST	75,000.00	-0-	75,000.00

A GRANT BETWEEN

STATE OF NEW JERSEY

DEPARTMENT OF HEALTH

and

Old Bridge Health Department
(Grantee)

Grant Number _____

PROGRAM SPECIFICATIONS

The following program and administrative specifications are required by the Grantee as a condition of this award.

1. Collection and analysis of soil gases.

a. Collect samples of soil gases utilizing a grid approach to determine locations. Grid will cover area in and around the following neighborhood residences:

	Le Heir (condos)	
London Terrace	Harbor Club (condos)	
Nieuw Amsterdam	Sky Top*	*control samples
Parkwood Village	Oak Tree Village	
Central Park & Anchor Park		

b. Soil gas samples shall be analyzed by gas chromatagraph for volatile organic compounds, including, halogenated hydrocarbon solvents, methane, methylene chloride, perchloroethylene, benzene, and toluene.

c. The maximum number of samples shall not exceed 20 per day.

d. The total number of soil gas samples shall be determined by NJ Department of Health with input from the Global Landfill Task Group.

e. The cost of analysis shall not exceed $155/sample.

f. Selection of contractor shall be subject to approval by the NJ State Department of Health with input from the Global Landfill Task Group.

g. The NJ State Department of Health shall receive a report from the contractor postmarked no later than fifteen days following completion of the sampling and analysis of the soil gases. The report shall include an outline and explanation of methods, results, discussion and recommendations for soil boring locations.

Total cost for Task #1 shall not exceed $ 12,425.00.

2. Collection of soil borings.

a. The locations (specific sites) for each bore sample shall be determined in conjunction with findings and recommendations from the soil gas contractor and input from the Task Group.

b. The number of soil borings shall not exceed six (6) and each shall be taken to a depth of 40 feet. One (1) shall function as a control sample, the location of which shall be determined by NJ Department of Health with input from the Global Landfill Task Group.

-continued-

c. Soil samples are to be collected at the first six (6) inches, at five (5) feet and at five (5) foot increments to a maximum of forty (40) feet.

d. The decision regarding selection of contractor shall be subject to approval by NJ Department of Health with input from the Task Group.

e. Upon completion of this task, the contractor for soil borings shall provide a report to the NJ Department of Health including methods used, results, discussion and any relevant recommendations. This report shall be postmarked no more than 15 days from the completion of the borings.

Soil borings shall not exceed a total cost of $ 5,000.00.

3. **Laboratory Analysis of Soil Borings.**

a. Soil borings shall be analyzed for all 129 (plus 40) priority pollutants utilizing the EPA-approved method, SW 846. This analysis (by gas chromatography with additional peaks by mass spectrography), shall commence as immediate as is feasible and appropriate to include analysis of:

- volatile organics;
- pesticides and PCBs;
- base/neutral extractable organics;
- acid extractable organics;
- metals and miscellaneous analytes.

b. Findings of the analysis of the samples from the first 6-inches, and the analysis of the samples at 15 foot depths, shall determine the need to do further laboratory analysis, as appropriate or reasonable based upon the shelf-life of the samples and detectability of specific chemicals. The decision to analyze additional soil boring samples shall be determined by the NJ Department of Health with the involvement of the Global Landfill Task Group.

c. The selection of the contractor for laboratory analysis of the soil borings shall be based upon verification of certification by NJ Dept. of Environmental Protection, and subject to approval by the Global Landfill Task Group.

d. The contractor responsible for the analysis shall store the samples in appropriate containers, including all samples not yet tested. The contractor shall label each container, including information regarding the boring site and depths. At the completion of the project tasks, all such remaining samples shall be transported to the NJ Department of Health in appropriate containers for storage.

e. The laboratory contractor (for soil boring analysis) shall provide a report to the NJ Department of Health detailing methods of analysis utilized, results, discussion and any relevant recommendations. This report shall be postmarked no later than 15 days from the end of the 7-day laboratory analysis of the soil extraction. The cost shall not exceed $ 19,080.00.

All samples and analysis, shall be property of NJ Dept. of Health.

4. **Community demographic profile development and analysis.**

a. The Old Bridge Health Department shall hire at least three (3) part time individuals to be trained by staff of the NJ State Department of Health to conduct interviews to determine demographics of the population near the Global Landfill and Sommers Brothers dump site.

Attachment C continued

b. These interviews shall take place prior to the scheduling of the pediatric health care service, and will be done at times appropriate to reach the adult residents of the specified community.

c. Old Bridge Health Department shall purchase specified equipment for the purpose of inputing, tabulating and analyzing community profile demographic data and other information related to this project. This computer equipment shall be the property of the NJ Department of Health. Old Bridge Health Department shall be responsible for data inputting.

d. The questionnaire and the randomization of residences shall be developed by NJ DOH, and the NJ DOH is to provide technical assistance in training interviewers. The follow numbers shall represent totals and minimum acceptable sample size:

Require a sample of 30% = 1,184 units in minimum size sample;
Old Bridge Twnshp. Health Department to hire three (3) CONSULTANT INTERVIEWERS;
Each interviewer to screen 395 units each @ $2/interview;
Total not to exceed $ 2,400.00 for maximum of 1,200 sample units.

e. Any and all information collected shall be the property of the NJ DOH. Community Profiles not to exceed $ 10,479.00.

5. Pediatric Health Care Service.

a. Based on information collected from the community sample interviews as described in TASK #4, a pediatric health care service shall be shall be established at the Old Bridge Health Department.

b. Screenings shall be conducted at Old Bridge Health Department following a time lag sufficient for provision of substantial "access to care" information and outreach, to the appropriate target population. Ideally, this service will commence at a time appropriate to facilitate access by the target population. The Pediatric Health Care Service shall provide examinations and brief visit follow-up checks (as needed) to a self-referred community within limitations imposed by funding parameters.

c. Old Bridge Health Department shall establish an Agreement with appropriate clinicians, subject to approval by the NJ Department of Health with input from the Global Landfill Task Group to perform pediatric examinations and provide appropriate brief visit follow-ups and "as needed" referral information. Medical malpractice insurance shall not be provided by the NJ Department of Health. Responsibility for provision of malpractice insurance shall be specified in an Agreement between the Old Bridge Health Department and contracting clinicians. Nursing and support staff shall be provided in the same manner as above.

d. Health services provided shall be documented on forms developed and provided by the NJ Department of Health. As available, appropriately qualified (trained and licenced) NJ Department of Health staff may assist in conducting the activities identified in this Task.

e. The number of examinations shall be take into account potential pediatric community residents as projected in the community profile as being likely to utilize the health care service. To the extent made possible by available funds, all self-referred pediatric residents shall be provided a routine physical examination and, if needed, a brief visit follow-up and referral information as appropriate.

Attachment C continued

f. Monies, not to exceed $1,721 for expendable medical supplies to be used in routine pediatric physical exams shall be provided to Old Bridge Health Department.

g. Initial pediatric health care examinations shall include, but not necessarily be limited to routine laboratory tests to be specified by the New Jersey Department of Health. Tests shall be specified after results from the community demographic survey have been analyzed. Under specific circumstances to be determined by parameters set by the NJ Department of Health, certain additional tests may be ordered. Limited or extensive follow-up care shall not be provided, however, appropriate referral information shall be offered and documented.

h. Every attempt shall be made to provide anticipatory guidance and recommendations to encourage continuing main-stream health care services to each client.

i. Health examination information shall be provided to Old Bridge Health Department as well as documentation of relevant health care information. Total cost projected at $24,421.00

TASKS #4 and 5: Total cost projection: $ 34,900.00

6. Develop an education and outreach program for the community in the vicinity of Global Landfill/Sommers Brothers site.

a. The New Jersey Department of Health with the involvement of the Task Group shall determine the aspects of the previous tasks which require development of educational strategies, and what materials shall contribute to the implementation of those strategies.

b. New Jersey Department of Health shall conduct training and implement a community outreach effort, such as the community demographic survey. This shall include development of objectives, outcome criteria and associated protocols.

c. NJ DOH shall develop materials for dissemination during the community demographic survey. Specifically, fact sheets describing aspects of this grant program, as detailed by a sub-committee of the Task Group.

d. The Old Bridge Health Department shall mmake available local resource information for referral purposes. Information shall include, but not be limited to, child health topics and agencies, financial aide resources and referral information for follow up. The New Jersey Department of Health shall establish criteria for agencies or resources which are to be included in referrals.

e. Information regarding access to the Pediatric Health Care Service to be conducted at the Old Bridge Health Department shall be targeted appropriately and disseminated.

Total costs not to exceed $ 3,595.00.

Attachment C continued

(1) TRANSACTION CODE	S/C	(2) BATCH NUMBER	(3) NEW/ MATCH
45	0		

STATE OF NEW JERSEY
Department of the Treasury
Accounting Bureau

(4) FISCAL YEAR	(5) TRANSACTION DATE	(6) DOC TYP	(7) DOCUMENT NUMBER	(8) REJECT INDICATOR
88	051588			

AGENCY CONTRACT OBLIGATION

(9) VENDOR STATUS

BLANK = NO CHANGE
1 = NEW VENDOR
2 = ADDRESS CHANGE
3 = LOCATION CODE
4 = NEW VENDOR AND LOCATION
5 = VENDOR NO. CORRECTION

(10) ACCOUNT NUMBER				(11)	(12)	(13)	(14) TOTAL AMOUNT		(15)	(16) OBLIGATION NUMBER
ORGANIZATION	FUND	PROGRAM	OBJECT	COST CENTER	PROJECT ACTIVITY	EXTENDED NUMBER				
4235	100	111420	63	170			$75,000	00	C	

(17) CONTRACTOR NAME, STREET, CITY, STATE, ZIP CODE

Old Bridge Township Treas
RD 1
Box 70 C
Old Bridge, NJ 08857

DEPARTMENT/AGENCY

New Jersey State Department of Health
Financial & General Services
CN 360
Trenton, NJ 08625

(18) OBLIG CODE *	(19)	(20) VENDOR IDENTIFICATION NUMBER		(21) BOND CODE *	(22) COMMODITY CODE	(23) BUYER CODE	(24) PROC. CODE	ACCOUNTING USE ONLY (25) ERROR SUSPENSE NUMBER	ACCOUNTING USE ONLY (26) DEL REPL
4	V	226002057	99	1	99995	99	7		

FOLD MARK

IT IS REQUESTED THAT FUNDS IN THE TOTAL AMOUNT OF $ 75,000.00 BE OBLIGATED IN THE ABOVE LISTED ACCOUNT FOR THE CONTRACT DATED, May 15, 1988 (DATE) BETWEEN THIS AGENCY AND Old Bridge Health Department (NAME OF CONTRACTOR)

DESCRIPTION OF CONTRACT

Financial support to Old Bridge Health Department to carry out the mandate of State Legislation, P-L. 1987,c. 368, to address concerns of residents in the vicinity of Global Landfill and the Sommers Brothers Dump Site.

(COPY OF FORMAL CONTRACT MUST BE ATTACHED)

DEPARTMENT/AGENCY APPROVAL

DIVISION OF BUDGET AND ACCOUNTING APPROVAL

* INSTRUCTIONS

(ALSO SEE PROCEDURES MANUAL)

FIELD #18 OBLIGATION CODE
4 = CONTRACT
6 = AGENCY CONTRACT AUTHORIZATION

FIELD #21 BOND CODE
1 = NOT REQUIRED
2 = REQUIRED AND RECEIVED
3 = REQUIRED AND NOT RECEIVED

AR 45 (1/80)

NEW JERSEY DEPARTMENT OF HEALTH
A BETTER STATE OF HEALTH

MEMO

TO: Financial and General Services

FROM: Terry Shehata, Ph.D.
Director, Environmental Health Services

SUBJECT: Health Services Grant from Old Bridge Health Department

DATE: May 11, 1988

Attached is a Schedule of Payments, Health Services Grant submitted by the Old Bridge Health Department. The purpose of the grant is to carry out the mandate of State legislation, P.L. 1987, c. 368, for the NJ Department of Health to collect information to address health concerns of the residents near the Global Landfill and Sommers Brothers dump site. The first few tasks must be completed and the results analyzed in order to adaquately plan and implement the subsequent activities. In specific, the soil gas sampling and analysis is required in order to select sites and begin the soil boring analysis. These activities will direct the selection of particular indicators for health interviews and health screenings. The community demographic profiles must be completed and the data analyzed in order to plan and implement the pediatric health care services. These health care services must be implemented during or before the fall season. The sequencing and timely completion of these tasks is critical to the success of this effort. Advance payments to Old Bridge Health Department is therefore necessary and on this schedule.

Your consideration and attention to this matter is greatly appreciated.

New Jersey Department of Health
Financial & General Services

SCHEDULE OF PAYMENTS
HEALTH SERVICES GRANT

Funding Source *(in sequence of use)*

1. Acct. 4235-100-111420-63(170)
2. Acct.
3. Acct.
4. Acct.

Grantee Name: Old Bridge Health Department

Grant No.:

Grantee Address: 1 Old Bridge Plaza, Old Bridge, New Jersey 08857

Advance Payments will be made in the amount of	Grant Amount	Grant Period
$ 40,000.00/$35,000.00	$75,000.00	May 15, 1988-May 15, 1989

ADVANCE PAYMENT SCHEDULE	RECOMMENDED PAYMENT SCHEDULE	*DATE FORWARDED TO TREASURY	AMOUNT PAID	CUMULATIVE PAYMENT
Advance Payment #1	5/15/88	5/25/88	$ 40,000.00	$ 40,000.00
Advance Payment #2	11/15/88	11/25/88	$ 35,000.00	$ 75,000.00
Advance Payment #3				
Advance Payment #4				
Cash Status Report	8/15/88			
Advance Payment #6				
Advance Payment #7				
Cash Status Report	11/15/88			
Advance Payment #9				
Advance Payment #10				
Cash Status Report	2/15/89			
Advance Payment #12				
Final Expenditure Report	7/15/89			

NOTE: If delay in processing advance payment occurs, Financial & General Services will notify the Program and Grantee. If the Cash Status Report is not received when due payments will be suspended.

*Your check should be received within 7-10 days from this date.

FGS-16
MAY 86

DISTRIBUTION: White-Acct. & Proc.
Canary-Granting Agency
Pink-Grantee

P8151

New Jersey State Department of Health

FOR STATE USE

Spending Plan No. SP 88-71-OH

Funding Authorization No.(s) 46-03000

APPLICATION FOR HEALTH SERVICE GRANT

(TYPE OR PRINT ALL DATA)

1. Name of Applicant
Old Bridge Township Health Department

2. Street Address: 1 Old Bridge Plaza | City: Old Bridge | County: Middlesex | State: New Jersey | Zip Code: 08857

3. Name and Title of Fiscal Contact: Robert T. Shrekgast, Director of Finance | Telephone No.: 201-721-5600

Street Address: 1 Old Bridge Plaza | City: Old Bridge | County: Middlesex | State: New Jersey | Zip Code: 08857

4. Name and Title of Principal Contact: Thomas Sikorski, Health Officer | Telephone No.: 201-679-4800

5. Employer ID No.: V 22-6002057 99

6. Certificate of Need Project No. (If Applicable): N/A ☐ PENDING ☐ NOT REQUIRED

7. Proposed Grant Title: Global Landfill Task Group Community Investigation

8. Location of Proposed Project (Include County): 1 Old Bridge Plaza, Old Bridge, NJ Middlesex

9. Site Locations: N/A Number: Attach Additional Sheet

10. a. Will any member of the Board of Directors/Trustees receive any direct or indirect personal or monetary gain from the funding of this grant? ☐ Yes ☒ No

b. Will any member of the Board of Directors/Trustees serve on any board, council, commission, committee or a task force of the State of New Jersey? If yes, please specify the member and the board, council, commission, committee or task force. ☐ Yes ☒ No

Member _____ Board, Council, etc. _____

11. Type of Agency (Check X one)
☐ Private Non-Profit ☒ Government
☐ Private for Profit ☐ Other (Specify) _____

12. Licensure Requirement
☐ Yes ☐ No ☐ Pending ☒ N/A
(Attach Copy)

13. Agency Fiscal Year Ends: December 31, 1988

14. Agency Accounting System:
☒ Cash Basis ☐ Other-Specify below
☐ Accrual Basis

15. Type of Request
☒ New ☐ Renewal of Grant Number:
☐ Multi Year Grant ☐ Modification to Grant Number:

16. a. Budget Period Mo./Day/Yr. From May 15, 1988 Through May 15, 1989
b. Project Period Mo./Day/Yr. From May 15, 1988 Through May 15, 1989

17. If political subdivision, covered by N.J. Civil Service Merit System?
☒ YES ☐ NO

18. Affirmative Action Plan
☒ Yes
☐ No

19. If grant awarded, will funds be used to replace other funds which would be available in absence of award?
☐ YES ☒ No

COST OF THE PROJECT

20a. Total Funds Needed	1	b. Funds Requested from State	2	c. Funds from Other Sources	3
$75,000.00		$75,000.00		-0-	

21. If applicable enter name & granting agency of State Health Department representative contacted re: application
Name: Terry Shehata, Ph.D.
Program: New Jersey Department of Health-Environment Health Se

22. **CERTIFICATION**—The applicant certifies that to the best of his/her knowledge and belief all data supplied in this application and attachments are true and correct, the document has been duly authorized by the governing body of the applicant and further understands and agrees that any grant received as a result of this application shall be subject to the grant conditions, and other policies, regulations and rules issued by the New Jersey State Department of Health for the administration of health service grants which include provisions described in the health service grant application instructions.

Name and Title of Applicant (Certifying Representative)	Signature of Applicant	Date of Application
Thomas Sikorski	Thomas A. Sikorski	5/12/88

FGS-40 APR 86

DISTRUBTION: White N.J.S.D.H. FGS/GER; Green N.J.S.D.H. Audit Unit; Pink & Canary—Granting Agency; Goldenrod—Grantee

H3206

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

STATEMENT OF LOCAL HEALTH OFFICER

To be completed by Local Health Officer in primary jurisdiction of applicant.

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Health Department	Global Landfill Task Group Community Investigation	5/6/88

I have reviewed and/or discussed the above proposed grant application with the Named Applicant and make the following statement:

☒ I am in support of this application and will work to integrate this health service with others in this community, county and/or region in the following manner:

As consistent with New Jersey State Law, P.L.1987,c368, this partnership of sta and local agencies and an organized community group carries out mandated activities.

☐ I am not in support of this application for the following reasons:

Name, Title & Address of Local Health Officer	Signature of Local Health Officer	Date
T. Sikorski 1 Oldbridge Plaza Old Bridge, NJ	Thomas A. Sikorski	5/12/88

H3206

FGS-40
APR 86

APPLICATION FOR HEALTH SERVICE GRANT

NEED(S) AND OBJECTIVE(S) OF PROJECT

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Health Department	Global Landfill Task Group Community Investigation	5/6/88

ASSESSMENT OF NEED(S)-List the need(s) which illustrate the reason for the project.

Consistent with the mandate of Pamphlet Law 1987, c. 368, there is a need to obtain certain information and provide specific services to the community near the Global Landfill and Sommers Brothers property. The New Jersey Legislature has appropriated $75,000.00 to be used to cover expenses used to carry out this one-time spending request. The NJ State Departments of Health and Environmental Protection are directed to cooperate to collect and review relevant information in order to address the community's health concerns.

The Old Bridge Township Health Department is capable of conducting mandated activities of this legislation on a local level. This is particularly attractive due to the special characteristics and needs of the target population.

☐ Check here if continued on separate sheet

OBJECTIVE(S) OF PROJECT-List what will be done to alleviate need(s) described above.

OBJECTIVE 1:

To collect information as identified in P.L. 1987, c. 368 on exposure to chemical contaminants by residents near the Global Landfill and Sommers Brothers dump sites.

Objective 1-a: To determine whether the residences in the immediate vicinity are built on top of a former sanitary landfill.

Objective 1-b: To identify the composition of the soil, including contaminants present, at strategic locations and in the technique specified in the METHODS section (to follow).

OBJECTIVE 2:

To collect and review relevant information to identify appropriate actions to address health concerns of the residents near the Global Landfill and Sommers Brothers site.

Objective 2-a: To compile a community profile of the demographics of target group by surveying a representative sample of the families.

Objective 2-b: To provide health care services such as pediatric health examinations, and any appropriate referral information as a service to families in this community.

OBJECTIVE 3:

To implement an education and outreach program to address residents' health concerns.

☐ Check here if continued on separate sheet

APPLICATION FOR HEALTH SERVICE GRANT

METHOD(S) AND EVALUATION OF PROJECT

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Health Department	Global Landfill Task Group Community Investigation	5/6/88

METHOD(S)-List the method(s) to be used to attain objectives described above and estimated completion date.

Objective # 1 Soil Sample collection and Analysis

TASK #1: Collection and analysis of soil gases.

a. Collect samples of soil gases utilizing a grid approach to determine locations. Grid will cover area in and around the following neighborhood residences:

	Le Meir (condos)
London Terrace	Harbor Club (condos)
Nieuw Amsterdam	Sky Top*
Parkwood Village	Oak Tree Village
Central Park & Anchor Park	

*control samples

b. Soil gas samples shall be analyzed by gas chromatagraph for volatile organic compounds, including, halogenated hydrocarbon solvents, methane, methylene chloride, perchloroethylene, benzene, and toluene.

c. The maximum number of samples shall not exceed 20 per day.

d. The total number of soil gas samples shall be determined by NJ Department of Health with input from the Global Landfill Task Group.

e. The cost of analysis shall not exceed $155/sample.

☒ Check here if continued on separate sheet

EVALUATION-Describe how the project is to be self-evaluated.

Quarterly progress reports shall be prepared and submitted by Old Bridge Health Department, detailing actions taken and specifying activities which involved community participation and community representatives agreement.

☐ Check here if continued on separate sheet

f. Selection of contractor shall be subject to approval by the NJ State Department of Health with input from the Global Landfill Task Group.
g. The NJ State Department of Health shall receive a report from the contractor postmarked no later than fifteen days following completion of the sampling and analysis of the soil gases. The report shall include an outline and explanation of methods, results, discussion and recommendations for soil boring locations.

Total cost for Task #1 shall not exceed $ 12,425.00.

TASK # 2: Collection of soil borings

a. The locations (specific sites) for each bore sample shall be determined in conjunction with findings and recommendations from the soil gas contractor and input from the Task Group.
b. The number of soil borings shall not exceed six (6) and each shall be taken to a depth of 40 feet. One (1) shall function as a control sample, the location of which shall be determined by NJ Department of Health with input from the Global Landfill Task Group.
c. Soil samples are to be collected at the first six (6) inches, at five (5) feet and at five (5) foot increments to a maximum of forty (40) feet.
d. The decision regarding selection of contractor shall be subject to approval by NJ Department of Health with input from the Task Group.
e. Upon completion of this task, the contractor for soil borings shall provide a report to the NJ Department of Health including methods used, results, discussion and any relevant recommendations. This report shall be postmarked no more than 15 days from the completion of the borings.

Soil borings shall not exceed a total cost of $ 5,000.00.

TASK #3: Laboratory Analysis of Soil Borings

a. Soil borings shall be analyzed for all 129 (plus 40) priority pollutants utilizing the EPA-approved method, SW 846. This analysis (by gas chromatography with additional peaks by mass spectrography), shall commence as immediate as is feasible and appropriate to include analysis of:

- volatile organics;
- pesticides and PCBs;
- base/neutral extractable organics;
- acid extractable organics;
- metals and miscellaneous analytes.

Priority Pollutants

PURGEABLE ORGANICS (31 COMPOUNDS)

Acrolein
Acrylonitrile
Benzene
Toluene
Ethylbenzene
Carbon tetrachloride
Chlorobenzene
1, 2-Dichloroethane
1, 1, 1-Trichloroethane
1, 1-Dichloroethane
1, 1-Dichloroethylene
1, 1, 2-Trichloroethane
1, 1, 2, 2-Tetrachloroethane
Chloroethane
2-Chloroethyl vinyl ether
Chloroform
1, 2-Dichloropropane
1, 3-Dichloropropene
Methylene chloride
Methyl chloride
Methyl bromide
Bromoform
Dichlorobromomethane
Trichlorofluoromethane
Dichlorodifluoromethane
Chlorodibromomethane
Tetrachloroethylene
Trichloroethylene
Vinyl chloride
1, 2-trans-Dichloroethylene
bis (Chloromethyl) ether

BASE/NEUTRAL EXTRACTABLE ORGANICS (46 COMPOUNDS)

1, 2-Dichlorobenzene
1, 3-Dichlorobenzene
1, 4-Dichlorobenzene
Hexachloroethane
Hexachlorobutadiene
Hexachlorobenzene
1, 2, 4-Trichlorobenzene
bis (2-Chloroethoxy) methane
Naphthalene
2-Chloronaphthalene
Isophorone
Nitrobenzene
2, 4-Dinitrotoluene
2, 6-Dinitrotoluene
4-Bromophenyl phenyl ether
bis (2-Ethylhexyl) phthalate
Di-*n*-octyl phthalate
Dimethyl phthalate
Diethyl phthalate
Di-*n*-butyl phthalate
Acenaphthylene
Acenaphthene
Butyl benzyl phthalate
Fluorene
Fluoranthene
Chrysene
Pyrene
Phenanthrene
Anthracene
Benzo (a) anthracene
Benzo (b) fluoranthene
Benzo (k) fluoranthene
Benzo (a) pyrene
Indeno (1, 2, 3-c, d) pyrene
Dibenzo (a, h) anthracene
Benzo (g, h, I) perylene
4-Chlorophenyl phenyl ether
3, 3'-Dichlorobenzidine
Benzidine
bis (2-Chloroethyl) ether
1, 2-Diphenylhydrazine
Hexachlorocyclopentadiene
N-Nitrosodiphenylamine
N-Nitrosodimethylamine
N-Nitrosodi-*n*-propylamine
bis (2-Chloroisopropyl) ether

ACID EXTRACTABLE ORGANICS (11 COMPOUNDS)

Phenol
2-Nitrophenol
4-Nitrophenol
2, 4-Dinitrophenol
4, 6-Dinitro-*o*-cresol
Pentachlorophenol
p-Chloro-*m*-cresol
2-Chlorophenol
2, 4-Dichlorophenol
2, 4, 6-Trichlorophenol
2, 4-Dimethylphenol

PESTICIDES/PCB'S (26 COMPOUNDS)

α-Endosulfan
β-Endosulfan
Endosulfan sulfate
α-BHC
β-BHC
δ-BHC
γ-BHC LINDANE
Aldrin
Dieldrin
4, 4'-DDE
4, 4'-DDD
4, 4'-DDT
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide
Chlordane
Toxaphene
Arocior 1016
Arocior 1221
Arocior 1232
Arocior 1242
Arocior 1248
Arocior 1254
Arocior 1260
2, 3, 7, 8-Tetrachlorodibenzo-*p*-dioxin (TCDD)

METALS (13 ELEMENTS)

Antimony
Arsenic
Beryllium
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Selenium
Silver
Thallium
Zinc

MISCELLANEOUS (3 ANALYTES)

~~Asbestos (fibrous)~~
Total Cyanides
Total Phenols

b. Findings of the analysis of the samples from the first 6-inches, and the analysis of the samples at 15 foot depths, shall determine the need to do further laboratory analysis, as appropriate or reasonable based upon the shelf-life of the samples and detectability of specific chemicals. The decision to analyze additional soil boring samples shall be determined by the NJ Department of Health with the involvement of the Global Landfill Task Group.
c. The selection of the contractor for laboratory analysis of the soil borings shall be based upon verification of certification by NJ Dept. of Environmental Protection, and subject to approval by the Global Landfill Task Group.
d. The contractor responsible for the analysis shall store the samples in appropriate containers, including all samples not yet tested. The contractor shall label each container, including information regarding the boring site and depths. At the completion of the project tasks, all such remaining samples shall be transported to the NJ Department of Health in appropriate containers for storage.
e. The laboratory contractor (for soil boring analysis) shall provide a report to the NJ Department of Health detailing methods of analysis utilized, results, discussion and any relevant recommendations. This report shall be postmarked no longer than 15 days from the end of the 7 day laboratory analysis of the soil extraction.

The cost of the laboratory analysis shall not exceed $ 19,080.00.

All data, samples, analysis, etcetera shall be property of NJ Department of Health.

TASKS 1, 2, 3 shall not exceed $ 36,505.00.

Objective # 2 Community Demographic Profile and Pediatric Health Services.

TASK #4: Community demographic profile:
a. The Old Bridge Health Department shall hire at least three (3) part time individuals to be trained by staff of the NJ State Department of Health to conduct interviews to determine demographics of the population near the Global Landfill and Sommers Brothers dump site.
b. These interviews shall take place prior to the scheduling of the pediatric health care service, and will be done at times appropriate to reach the adult residents of the specified community.

c. Old Bridge Health Department shall purchase specified equipment for the purpose of inputing, tabulating and analyzing community profile demographic data and other information related to this project. This computer equipment shall be the property of the NJ Department of Health. Old Bridge Health Department shall be responsible for data inputting.

Equipment not to exceed $8,079.00.

c. The questionnaire and the randomization of residences shall be developed by NJ DOH, and the NJ DOH is to provide technical assistance in training interviewers. The follow numbers shall represent totals and minimum acceptable sample size:

Assume the total number of units = 3,945.
Require a sample of 30% = 1,184 units in minimum size sample;
Old Bridge Twnshp. Health Department to hire 3 PART TIME INTERVIEWERS;
Each interviewer to screen 395 units each @ $2/interview;
Total not to exceed $ 2,400.00 for maximum of 1,200 sample units.

d. Any and all information collected shall be the property of the NJ DOH.

Task #4: Community Profiles not to exceed $ 10,479.00

TASK # 5: Pediatric Health Care Service

a. Based on information collected from the community sample interviews as described in TASK #4, a pediatric health care service shall be shall be established at the Old Bridge Health Department.

b. Screenings shall be conducted at Old Bridge Health Department following a time lag sufficient for provision of substantial "access to care" information and outreach, to the appropriate target population. Ideally, this service will commence at a time appropriate to facilitate access by the target population. The Pediatric Health Care Service shall provide examinations and brief visit follow-up checks (as needed) to a self-referred community within limitations imposed by funding parameters.

c. Old Bridge Health Department shall establish an Agreement with appropriate clinicians, subject to approval by the NJ Department of Health with input from the Global Landfill Task Group to perform pediatric examinations and provide appropriate brief visit follow-ups and "as needed" referral information. Medical malpractice insurance not be provided by the NJ Department of Health. Responsibility for provision of malpractice insurance shall be deliniated in the Agreement between the Old Bridge Health Department and contracting clinicians. Nursing and support staff shall be provided in the same manner as above.

d. Health services provided shall be documented on forms developed and provided by the NJ Department of Health. As available, appropriately qualified (trained and licenced) NJ Department of Health staff may assist in conducting the activities identified in this Task.

e. The number of examinations shall be take into account potential pediatric community residents as projected in the community profile as being likely to utilize the health care service. To the extent made possible by available funds, all self-referred pediatric residents shall be provided a routine physical examination and, if needed, a brief visit follow-up and referral information as appropriate.

f. Monies, not to exceed $1,721 for expendable medical supplies to be used in routine pediatric physical exams shall be provided to Old Bridge Health Department.

g. Initial pediatric health care examinations shall include, but not necessarily be limited to routine laboratory tests to be specified by the New Jersey Department of Health. Tests shall be specified after results from the community demographic survey have been analyzed. Under specific circumstances to be determined by parameters set by the NJ Department of Health, certain additional tests may be ordered. Limited or extensive follow-up care shall not be provided, however, appropriate referral information shall be offered and documented.

h. Every attempt shall be made to provide anticipatory guidance and recommendations to encourage continuing main-stream health care services to each client.

i. Health examination information shall be provided to Old Bridge Health Department as well as documentation of relevant health care information.

TASK #5: Total cost projected at $24,421.00

TASKS #4 and 5: Total cost projection: $ 34,900.00

Objective # 3: Education and Outreach

Task #6: Develop an education and outreach program for the community in the vicinity of Global Landfill/Sommers Brothers site.

a. The New Jersey Department of Health with the involvement of the Task Group shall determine the aspects of the previous tasks which require development of educational strategies, and what materials shall contribute to the implementation of those strategies.
b. New Jersey Department of Health shall conduct training and implement a community outreach effort. (i.e. community demographic profiles). This shall include development of objectives, outcome criteria and associated protocols.
c. Materials shall be developed for dissemination during the community demographic survey. Specifically, fact sheets describing aspects of this grant program, as detailed by a sub-committee of the Task Group.
d. The Old Bridge Health Department shall make available local resource information for referral purposes. Information shall include, but not be limited to, child health topics and agencies, financial aide resources and referral information for follow up sub-specialist medical care. The New Jersey Department of Health shall establish criteria for agencies or resources which are to be included in referrals.
e. Information regarding access to the Pediatric Health Care Service to be conducted at the Old Bridge Health Department shall be targeted appropriately and disseminated.

TASK #6 costs shall not exceed $ 3,595.00

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

STATEMENT OF ADEQUACY OF ACCOUNTING SYSTEM

If applicant is a private agency and/or Hospital complete Section A. If applicant is a governmental agency, complete Section B.

Section A: Private Agency and/or Hospital

I am a certified public accountant (or a duly licensed public accountant) and have been engaged to examine the financial accounts of _____ (Name of Applicant) which will be maintained for _____ (Title of Proposed Grant).

In my opinion, the accounting system and internal controls ☐ in use, or ☐ to be established on _____ (Date)

for this proposed grant ☐ are, or ☐ will be adequate to: _____

1. Provide for accurate identification of the receipts and expenditures of New Jersey State Department of Health funds by approved budget cost categories,

2. Provide for documentation supporting each book entry, filed in such a way that it can be easily located, and

3. Provide accurate and current financial reporting information.

Signature of Accountant	Name of Accountant (Print or Type)	Date

Section B: Governmental Agency

I am the Director of Finance (Title of Chief Financial Officer) of Township of Old Bridge (Name of Applicant) and, in this capacity,

I will be responsible for establishing and maintaining the financial accounts for Global Land Fill Task Group Community Investigations (Title of Proposed Grant)

The accounting system that will be established and maintained for the purpose of this proposed grant will be adequate to:

1. Provide for accurate identification of the receipts and expenditures of New Jersey State Department of Health funds by approved budget cost categories,

2. Provide for documentation supporting each book entry, filed in such a way that it can be easily located,

3. Provide accurate and current financial reporting information,

4. Be integrated with a strong system of internal control, and

5. Will conform to any and all requirements or guidelines that New Jersey State Department of Health may issue.

Signature of Chief Financial Officer	Name of Chief Financial Officer (Print or Type)	Date
Robert T. Shrekgast	Robert T. Shrekgast	5/12/88

FGS-40
APR 86

H3206

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

COST SUMMARY

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Health Department	Global Landfill Task Group Community Investigation	5/6/88

For Cost Categories A through C, a SCHEDULE SHEET and JUSTIFICATION SHEET must be completed and submitted.

Cost Category	Total Funds Needed	Funds Requested from State	Funds from Other Sources	STATE USE ONLY
A. Personnel				
B. Consultant Services	52,805.00	52,805.00		
C. Other Cost Categories (Specify)				
Equipment	8,079.00	8,079.00		
Medical Laboratory Tests	8,800.00	8,800.00		
Expendable Medical Supplies	1,721.00	1,721.00		
Educational Materials	2,735.00	2,735.00		
Mailing/telephones	860.00	860.00		
Total Direct Cost	75,000.00	75,000.00		
Less Program Income				
Net Total Direct Cost	$75,000.00	$75.000.00		
Indirect Cost See Note below				
Net Total Cost	1 $75,000.00	2 $75,000.00	3	

1-3: Figures in these areas to be entered in corresponding numbered areas on PAGE 1 of application.

NOTE: An indirect cost allowance may be awarded to any applicant provided that state or federal legislation does not prohibit it and that the applicant has an established indirect cost rate. Do you have an established indirect cost rate? ☐ Yes ☐ No If yes, attach a letter from the Federal cognizant agency stating approved rate, period of time, base to which rate is applied, and enter above amount of indirect cost requested for proposed grant.

223

H3206

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

FUNDS AND PROGRAM INCOME FROM OTHER SOURCES RELATED TO THIS APPLICATION

Name of Applicant	Prposed Grant Title	Date of Application
Old Bridge Township Health Department	Global Landfill Task Group Community Investigation	5/6/88

Code all listed fund sources as either (F) Federal Government, (S) State Government, (L) Local City/County Government, (LP) Local Private/Charity Agency, (TP) Third Party Payor or (PI) Program Income.

ATTACH ADDITIONAL SHEETS IF NEEDED

Name of Fund Source	Code	Funds Estimated Grant Period		Funds Received Preceding Grant Period	
		FROM (Mo/Yr)	TO (Mo/Yr)	FROM (Mo/Yr)	TO (Mo/Yr)
N/A					
TOTAL FUNDS FROM OTHER SOURCES RELATED TO THIS APPLICATION ONLY					

*Should agree with GRAND TOTAL of "Funds From Other Sources" listed on COST SUMMARY SHEET.

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE A
PERSONNEL COSTS

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Health Department	Global Landfill Task Group Community Investigation	5/6/88

List all full and part-time paid staff, including fringe benefits. Justify fringe benefit costs on a separate sheet.

Std. Weekly Work Hrs./Empl.

ATTACH ADDITIONAL SHEETS IF NEEDED

Position Title	Incumbent Name, Vacant, or New Position	Annual Salary	Weekly Hours on Project	% of Weekly Work Time on Project	Total Funds Needed	Funds Requested From State	Funds From Other Sources
N/A							
Sub-Totals							
_____ % Fringe Benefit							
TOTAL PERSONNEL COSTS							

225

FGS-40-a
APR 86

H3206

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE A
PERSONNEL JUSTIFICATION

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Health Department	Global Landfill Task Group Community Investigation	5/6/88

List, justify and submit curriculum vitaes for each position title, excluding clerical and manual positions, in same order as listed on SCHEDULE A: PERSONNEL COSTS. Briefly describe the agency's personnel policy for salary increases on a separate sheet.

ATTACH ADDITIONAL SHEETS IF NEEDED

Position Title	Minimum Qualifications (Education and Experience)
N/A	

226

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE B
CONSULTANT SERVICES COSTS

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Health Department	Global Landfill Task Group Community Investigation	5/6/88

List services which provide for program or client benefit and are contracted for on a cost per client, percentage of time, or number of hours basis. Examples of consultant services: accounting, medical, psychological, psychiatric and other professional services. A copy of individual agreements will be required if an award is made.

ATTACH ADDITIONAL SHEETS IF NEEDED

Nature of Consultant Service	Basis for Cost Estimate (Rate X Time)	Total funds Needed	Funds requested from State	Funds from other Sources	STATE USE ONLY
Soil Gas Contaminant Investigation Service	$2,485.00 /day x5	$12,425.00	$12,425.00	-0-	
Collection of Soil Borings	6 soil borings @ 40 ft. each x $833.33	5,000.00	5,000.00	-0-	
Analysis of Soil Borings 129 priority pollutants + 40 add.	129 pp=$14,280.00 40 additional peaks = 4,800.00	19,080.00	19,080.00	-0-	
Interviewers	2/interview x 1200 interviews	2,400.00	2,400.00	-0-	
Pediatric Clinician	$500/day x 20 days	10,000.00	10,000.00	-0-	
Nursing Clinical Team	2-3 Nurses $3,900 total for 20 days	3,900.00	3,900.00	-0-	
TOTAL CONSULTANT SERVICES COSTS		$52,805.00	$52,805.00	-0-	

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE B
CONSULTANT SERVICES JUSTIFICATION

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Township Health Department	Global Landfill Task Group Community Investigation	5/6/88

List and justify each consultant service in same order as on SCHEDULE B: CONSULTANT SERVICES COSTS.

Nature of Consultant Service	Responsibilities and/or Duties	Minimum Qualifications (Education and Experience)
Soil Gas Contaminant Analysis Services	Collection and analysis of soil gases. a. Collect samples of soil gases utilizing a grid approach to determine locations. Grid will cover area in and around the following neighborhood residences: London Terrace Nieuw Amsterdam Parkwood Village Central Park & Anchor Park LeMeir (condos) Harbor Club condos) Sky Top* Oak Tree Village *control samples b. Soil gas samples shall be analyzed by gas chromatagraph for volatile organic compound including, halogenated hydrocarbon solvents, methane methylene chloride, perchloroethylene, benzene, and toluene. c. The maximum number of samples shall not exceed 20 per day. d. The total number of soil gas samples shall be determined by NJ Department of Health with input from the Global Landfill Task Group. e. The cost of analysis shall not exceed $155/samples. f. Selection of contractor shall be subject to approval by the NJ State Department of Health with input from the Global Landfill Task Group. g. The NJ State Department of Health shall receive a report from the contractor postmarked no later than fifteen days following completion of the sampling and analysis of the soil gases. The report shall include an outline and explanation of methods, results, discussion and recommendations for soil boring locations.	Certified by NJ DEP

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE B
CONSULTANT SERVICES JUSTIFICATION CONTINUES (2)

ne of Applicant	Proposed Grant Title	Date of Application
Old Bridge Township Health Department	Glbbal Landfill Task Group Community Invesitgation	5/6/88

List and justify each consultant service in same order as on SCHEDULE B: CONSULTANT SERVICES COSTS.

Nature of Consultant Service	Responsibilities and/or Duties	Minimum Qualifications (Education and Experience)
Contract for Collection of Soil Borings	a. The locations (specific sites) for each bore sample shall be determined in conjunction with findings and recommendations from the soil gas contractor and input from the Task Group. b. The number of soil borings shall not exceed (6) and each shall be taken to a depth of 40 feet. One (1) shall function as a control sample, the location of which shall be determined by NJ Department of Health with input from the Golbal Landfill Task Group. c. Soil samples are to be collected at the first six (6) inches, at five (5) feet and at five (5) foot increments to a maximum of forty (40) feet. d. The decision regarding selection of contractor shall be subject to approval by NJ Department of Health with input from the Task Group. e. Upon completion of this task, the contractor for soil borings shall provide a report to the NJ Department of Health including methods used, results, discussion and any relevant recommendations. This report shall be postmarked no more than 15 days from the completion of the borings.	NJ DEP Certification
Laboratory Analysis of	a. Soil borings shall be analyzed for all 129(plus 40) priority pollutants utilizing the EPA-approved method, SW 846. This analysis (by gas chromatography with additional peaks by mass spectrography), shall commence as immediate as is feasible and appropriate to include analysis of :	NJ DEP Certification

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE B
CONSULTANT SERVICES JUSTIFICATION CONTINUE (3)

ne of Applicant	Proposed Grant Title	Date of Application
Old Bridge Township Health Department	Global Landfill Task Group Community Investigation	5/6/88

List and justify each consultant service in same order as on SCHEDULE B: CONSULTANT SERVICES COSTS.

Nature of Consultant Service	Responsibilities and/or Duties	Minimum Qualifications (Education and Experience)
Laboratory Analysis of Soil Borings	- volatile organics; - pesticides and PCBs; - base/neutral extractable organics; - acid extractable organics; - metals and miscellaneous analytes. b. Findings of the analysis of the samples from the first 6-inches, and the analysis of the samples at 15, foot depths, shall determine the need to do further laboratory analysis as appropriate or reasonable based upon the shelf-life of the samples and detectability of specific chemicals. The decision to analyze additional soil boring Global Landfill Task Group. c. The selection of the contractor for laboratory analysis of the soil borings shall be based upon verification of certification by NJ Dept. of Environmental Protection, and subject to approval by the Global Landfill Task Group. d. The contractor responsible for the analysis shall store the samples in appropriate containers, including all samples not yet tested. The contractor shall label each container, including informaton regarding the boring site and depths. At the completion of the project tasks, all such remaining samples shall be transported to the NJ Department of Health in appropriate containers for storage. e. The laboratory contractor (for soil boring analysis) shall provide a report to the NJ Department of Health detailing methods of analysis utilized, results, discussion and any relevant recommendations. This report shall be postmarked no	NJ DEP Certification

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE B
CONSULTANT SERVICES JUSTIFICATION CONT (4)

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Township Health Department	Global Landfill Task Group Community Investigation	5/6/88

List and justify each consultant service in same order as on SCHEDULE B: CONSULTANT SERVICES COSTS.

Nature of Consultant Service	Responsibilities and/or Duties	Minimum Qualifications (Education and Experience)
	e. longer than 15 days from the end of the 7 day laboratory analysis of the soil extraction.	
Interviewers	a. Recruitment to be conducted by Old Bridge Dept. of Health to include at least 3 interviewers. b. Completion of training by NJ Dept. of Health. c. Utilization of tool prepared & provided by NJ DOH. d. Each interviewer to screen as pre-identified random sample of units at $2.00 for each interview.	Selection by Old Bridge Dept. of Health & Completio of Training by NJ DOH.
Pediatric Clinician	Routine pediatric examination including ordering of appropriate laboratory tests and provisions of brief visit follow-ups, information & referral services.	M.D. Pediatricians or Supervision of Board Certified M.D. Pediatrician
Nursing	Selected by Old Bridge Health Dept. to provide per diem support for pediatric examinations.	NJ Board of Nursing Registered Nurses or LPN's

231

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE C
OTHER COST CATEGORIES

List other cost categories applicable to grant proposal.
Such as travel, supplies, equipment and other direct expenses.

Other Cost Categories (Specify)	Basis for Estimate	Total Funds Needed	Funds Requested from State	Funds From Other Sources
A. Specific Equipment	(please see attached computer Equipment break-down)	$8,079.00	$8,079.00	
B. Medical Laboratory Tests	Routine Pediatric Laboratory testing	$ 8,800.00	$ 8,800.00	
C. Medical Supplies	Expendable medical supplies including disposables to be utilized in routine pediatric health screenings	1,721.00	1,721.00	
D. Educational Materials	Fact Sheets and other educational materials production	2,735.00	2,735.00	
E. Mailing/Telephones	Routine dissemination of material & information through mailings or telephone referral.	860.00	860.00	
TOTAL COSTS		22,195.00	22,195.00	

SPECIFIED EQUIPMENT

Compaq Deskpro 286 Model 40	$3,350
360K Floppy Drives (5 1/4")	195
1.44MB Floppy Drive (3 1/2")	212
Compaq Fixed Disk Drive Backup 40MB	695
Intel Math Co-processor 80287-8	329
TOTAL SYSTEM PRICE	**$4,781**
COMPAQ VGA COLOR MONITOR	599
VIDEO GRAPHICS CONTROLLER BOARD	449
MASTERPIECE PLUS SURGE SUPPRESSOR	130*
IBM PROPRINTER XL W/CABLE	650*
DBASE III PLUS	400*
DISPLAYWRITE 4	400*
HAYES 1200/2400 BAUD EXTERNAL MODERN W/CABLE (25 PIN)	550*
9 TO 25 PIN SERIAL CABLE ADAPTER	25*
COMPAQ DOS 3.31	95
	$8,079

* (APPROXIMATE PRICE)

New Jersey State Department of Health

APPLICATION FOR HEALTH SERVICE GRANT

SCHEDULE C
OTHER COSTS JUSTIFICATION

Name of Applicant	Proposed Grant Title	Date of Application
Old Bridge Health Department	Global Landfill Task Group Community Investigation	5/6/88

ATTACH ADDITIONAL SHEETS IF NEEDED

Justify below all items or services which are listed in SCHEDULE C: OTHER COSTS. Justify the items or services in the same order as they are listed on the schedule. Attach copy of lease agreement when requesting funds for rent. The cost allocation method should be included in the justification if a cost category is distributed among multiple funding services.

A.	Specific Equipment:	Computer equipment necessary for storage, analysis and evaluation of data. Communication capability with State system for technical assistance a must. *Please refer to attached specifications for Community Demographic Profile, Pediatric Health Care Service and Educational Component.
B.	Medical Laboratory Tests:	To be consistant with quality medical practices; provision of routine laboratory tests in pediatric health care service.
C.	Medical Supplies:	To provide routine screenings & health examinations.
D.	Educational Materials:	To be provided to the community at large, includes fact sheet production and other educational materials.
E.	Mailing/telephones:	To disseminate informaton to community members; and facilitate access to services offered at the Old Bridge Health Department and locally as a result of this program.

APPENDIX J

April 11, 1988 Memorandum from Dr. Jorge H. Berkowitz to Dr. Terry Shehata on the Cost Estimates for Several Ambient Air Monitoring Program Options

Let's protect our earth

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
CN 027, TRENTON, N.J. 08625

JORGE H. BERKOWITZ, Ph.D.
DIRECTOR

(609) 292-5383

MEMORANDUM

TO: Terry Shehata, Ph.D., Director
Environmental Health Services, Department of Health

FROM: Jorge H. Berkowitz, Ph.D., Director
Division of Environmental Quality,
Department of Environmental Protection

DATE: April 11, 1988

SUBJECT: Revised Air Sampling Options For Global Landfill Study

Air Monitoring options were presented to the Global Landfill Citizens Task Group at the meeting of March 16, 1988. The Task Group expressed interest in an option which would include air dispersion modeling and an ambient air monitoring program in order to assess the exposure of the nearby residential community to toxic air contaminants. Therefore, my staff has prepared the attached document which may be included in your report to the state legislature, as required by Assembly bill number 4153.

Attachment

c: Herbert Wortriech
John Elston
Charles Pietarinen
Joseph Laznow
Joann Held
Andy Opperman
Steve Quan

Ambient Air Quality Assessment in the Vicinity of Global Landfill Old Bridge Township, New Jersey

The following program is designed to address some of the concerns of the residents within the vicinity of the Global Landfill and the Sommers Brothers property. The details are specified with the understanding that the tasks are to be accomplished through a contract with an independent consulting firm.

Phase I. Air Dispersion Modeling

The initial assessment shall consider a modeling effort to identify the impact on air quality and, therefore, community exposure resulting from the combination of point, area, and mobile sources. The UNAMAP series of models are recommended for application to this task, e.g. the PAl (point/area/line source) model might be appropriate. The use of local meteorological data is desirable. In its absence, meteorological data is available from Newark Airport and possibly Cook College, Rutgers University. Most qualified consultants will possess both the meteorological data and the models.

The development of the emission inventory of neighboring sources will be instrumental in the success of this task. NJDEP can provide information on point sources through the Air Pollution Enforcement Data System. An emission inventory for area and mobile sources is under development for NJDEP by an independent consulting firm and is expected to be completed by September 1988. The composite of this data may be sufficient for this effort.

The application of the models will depend on the objective of the exposure assessment. Short-term concentrations can be calculated to identify the expected maximum exposure levels. Annual average concentrations are calculated for cancer risk assessments. The design of a monitoring network (phase II) is generally based upon the dispersion modeling effort.

The modeling effort should encompass all sources found within a one-mile radius of the residential area-Global Landfill interface. Phase I should require three to six months to complete and cost approximately $50,000. A final report should make recommendations for a series of ambient monitoring sites to optimize assessment of community exposure in addition to documenting the procedures, assumptions, and limitations of the analysis.

PHASE II. AMBIENT AIR MONITORING NETWORK

Ambient air monitoring stations will be established at various points of maximum impact determined from phase I. Aside from the points of maximum impact, fence-line monitoring stations should also be established at the landfill boundary to monitor the emission levels from the landfill.

The following monitoring parameters are recommended for inclusion in the network:

- Real time volatile hydrocarbon sampling. This will provide instantaneous measurement of the hydrocarbon levels to which the public is being exposed.
- Routine ambient air sampling for volatile organic compounds by canister or solid absorbents at the interval of once every three days. This will provide more specific information on the type and quantity of volatile contaminants to which the public is being exposed.
- Particulate sampling for particulate and metal concentrations at an interval of once every three days.
- Sampling for site specific contaminants such as PCBs and dioxins. The compounds to be monitored will be determined by phase I.
- Meteorological data collection such as wind speed, wind direction, and temperature.

A minimum of three to six months of monitoring is required to obtain a sufficient database to assess public exposure. The estimated cost for operating the above ambient air monitoring network can range from $200,000 to $500,000.

Also, because of to the suspicion that several apartment complexes were built on top of an old landfill, indoor air sampling for both particulate and volatile organic compounds should also be considered.