

Health Consultation

Monitor Devices/Intercircuits Inc.

Wall Township, Monmouth County, New Jersey

Cerclis No. NJD980529408

September 19, 1995

Prepared by:

**New Jersey Department of Health
Environmental Health Service**

**Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry**

BACKGROUND AND STATEMENT OF ISSUES

Pursuant to request by the USEPA, the NJDOH has reviewed the EPA RI II-B workplan for Monitor Devices/Intercircuits Inc. (MDI) site (CERCLIS No.: NJD980529408, Wall Township, Monmouth County, New Jersey) to determine if the proposed scope of work is satisfactory to address potential public health concerns related to the site. The NJDOH has performed this review with the intention of insuring that potential pathways of human exposure are addressed within the planned scope of activities.

Monitor Devices is located in Wall Township, Monmouth County (Figure # 1). The site consists of a single building (Building No. 25) and surrounding area of approximately 1/4 acre. The MDI site is situated in an industrial park that is adjacent to the Allaire Airport. The site is currently an active facility, employing 6-8 workers working in the furniture business (Figure # 2).

Wall Township has a population of approximately 20,415 people. The Township is bordered by the Manasquan River to the south and the Shark River to the north. There are no residences within 1 to 1.5 miles from the site.

Contamination at the MDI site occurred from 1977 until 1980 during the manufacture of printed circuit boards. The site was originally inspected by NJDEP in 1980. Electroplating wastes were discharged onto the soil from three pipes ending at the southern side of the building for a period of approximately three years. The effluent included metals, solvents, and acids. Liquid wastes formed an unlined lagoon 15 by 25 feet, having a depth of approximately 0.5 feet. Thirty drums discovered on the site were found to contain acetone, sulfuric acid, fluoroboric acid, muriatic acid, and isopropyl alcohol.

The soil and the groundwater at and near the site are contaminated with volatile organic compounds (VOCs), metals and PCBs. The Remedial Investigation / Feasibility Study (RI/FS) Phase I was conducted in 1987. The Phase I RI report was finalized in 1990. This investigation included sampling and analysis of surface/subsurface soil, groundwater, and air at the site.

Soil samples from 0 to 6 inches (SS1-SS5) and 18 to 24 inches (SD1-SD11) in depth were collected during the Phase I RI/FS (Figure # 3). All samples were collected and analyzed for the presence of volatile and semi-volatile organic compounds, pesticides, polychlorinated biphenyls, and inorganic compounds. Analytical results of the soil samples from 0 to 6 inches in depth showed the presence of the following volatile organic compounds: toluene (5 ppb - max. conc.), and trichloroethene (200 ppb - max. conc.). Higher concentrations of trichloroethene were detected in soil samples from 18 to 24 inches. PCB's and several pesticides were detected in soil samples. The maximum reported concentration of 8300 ppb of PCB Aroclor-1242 was detected in surface soil sample SS-2 at a depth of 0 to 6 inches. Inorganic contamination was characterized by the presence of chromium, lead, and zinc in all surface soil samples. Copper, mercury, selenium, silver, and tin were also detected. The maximum reported concentration of

metals detected in surface soil samples were: chromium 0.17 ppm, lead 0.2 ppm, and mercury 0.0013 ppm.

Analytical results from the Phase I groundwater sampling indicated the presence of elevated levels of volatile organic compounds and metals in the groundwater (Figure 4). Volatile organic compounds detected included trans-1,2 dichloroethane, 1,1-dichloroethene, 1,1-dichloroethane, trichloroethene, and 1,1,1-trichloroethane.

Several aquifers are contained within the unconsolidated formations of the New Jersey Coastal Plain. In this part of Monmouth County, the Cohansey and Kirkwood Formations together form the Kirkwood-Cohansey aquifer system, receiving recharge directly from the ground surface. The groundwater beneath the site is flowing in an east-northeasterly direction. The depth to water at the site has been reported to be 30 to 40 feet. The groundwater beneath the site is flowing in an northeasterly direction.

The RI/FS Phase II A was conducted in November 1992. This investigation included the redevelopment of ten existing on-site monitoring wells installed during Phase I investigation. Groundwater samples were collected from ten monitoring wells during Phase II A Remedial Investigation. Samples were analyzed for volatile organic compounds and inorganic compounds.

The shallow monitoring zone is between the depths of 40 and 50 feet below grade, the deep zone between 70 and 85 feet below grade. Volatile organic contamination were detected primarily in wells MW-4S, MW-6S, and in the upgradient well, MW-7S. The predominant contaminants detected were volatile organic compounds (VOC's) consisting of tetrachloroethene, DCE, TCE and 1,1,1-trichloroethane. The inorganic analyses of the on-site monitoring well samples showed high concentrations of metals, primarily: chromium, copper, and aluminum.

The analytical results from the Phase II A groundwater sampling indicated the presence of comparable volatile organic compounds and metals but at lower concentrations than the Phase I investigation in 1987. The maximum reported concentrations of VOC's in monitoring wells were: 1,1-dichloroethene 36 ppb, 1,1,1-trichloroethane 77 ppb, trichloroethene 174 ppb, tetrachloroethane 16 ppb, chromium 480 ppb, and copper 4,300 ppb. Monitoring Well MWD-7S, considered to be upgradient background well, showed contamination with 1,1-dichloroethene and trichloroethene. Existing data indicate that the contaminants appear to be confined to the shallow monitoring zone.

Phase II B RI/FS

The RI/FS (Phase II B) will address the delineation of the soil and groundwater contamination from the site. The following activities are included in the Phase II B work plan:

1. An industrial survey will be performed to determine business operations in the surrounding area;

2. Installation of additional monitoring wells to determine the extent of groundwater plume;
3. To determine possible influences of area production wells on groundwater flow;
4. A surface and subsurface soil sampling plan to determine the nature and extent of soil contamination; and
5. An inventory of residential, industrial, and public supply wells will be completed to determine if any wells are within a three-mile radius of the site.

Previous ATSDR Activity

In April 1988, NJDOH conducted a site visit and completed a preliminary health assessment report, which was revised in 1990, which categorized the site as a potential public health concern based on the possibility of human exposure pathways associated with exposure to contaminated groundwater and soil. While no current human exposures were occurring via ingestion pathway above health-based criteria, it was noted the presence of site related contaminants in soils and groundwater. The human exposure pathway of concern identified in the 1990 report was the groundwater. The following recommendations were made:

1. The site should be fenced. Signs marking the site as a Superfund site should be posted. This recommendation does not appear valid in light of current site conditions.
2. Definitive arguments that the groundwater plume from the site has not and will not reach industrial and potable wells at unacceptable levels needs to be presented, or that additional groundwater sampling needs to be conducted. This recommendation is covered in the remedial plan for Phase II B as listed above.
3. The workers in the building need to be aware of the contaminated soil. Recommendations need to be made to the workers that they take precautions to reduce exposure (i.e. not driving on contaminated soil, personal hygiene). This recommendation has been addressed through the efforts of the USEPA and the employer at the MDI site.

Site Visit

On February 3, 1995, James Pasquale and Narendra P. Singh of the New Jersey Department of Health (NJDOH) visited the Monitor Device site accompanied by Arthur Block, Regional Representative of ATSDR and Thomas Porucznick, the USEPA Remedial Project Manager. The site visit included a formal presentation by the USEPA, and a tour of the area surrounding the site. The site remains an active facility. As noted in the site documents, the surrounding area is commercial. Conditions at the site have not changed appreciably since the 1990 preliminary health assessment report by NJDOH. No physical hazards at the site were observed.

DISCUSSION

The original ATSDR preliminary health assessment documented concern regarding possible human exposure pathways associated with dermal contact with on-site soils and off-site sediments, inhalation of contaminated air, and ingestion of off-site groundwater contamination.

ATSDR and NJDOH evaluates the environmental and human components that lead to human exposure. This pathways analysis consists of five elements:(1) a source of contamination;(2) transport through an environmental medium;(3) a point of human exposure;(4) route of human exposure; and (5) an exposed population. NJDOH classifies exposure pathways into three groups: (1) "completed pathways", that is, those in which exposure has occurred, is occurring, or will occur; (2) "potential pathways", that is, those in which exposure might have occurred, may be occurring, or may yet occur; and (3) "eliminated pathways", that is, those that can be eliminated from further analysis because one of the five elements is missing and will never be present, or in which no contaminants of concern can be identified.

Dermal Contact

Dermal contact with on-site soil contamination at levels of public concern by workers at the MDI site does not appear to be a valid potential human exposure pathway in light of current site data and information. Employees of the MDI site do not frequent outside areas to the degree necessary for a significant exposure to site contaminants. The one "hot spot" of Aroclor 1242 is associated with a telephone pole (suggesting leakage from a old transformer) and is not indicative of general site conditions. Additional soil sampling data conducted under Phase II B will be reviewed by the NJDOH/ATSDR for public health significance upon availability.

Dermal contact with contaminated surface water or sediments does not appear to be a valid potential human exposure pathway in light of current site data and information. There are no permanent surface water features associated with the MDI site. The closest surface water feature is Wreck Pond Brook, which is approximately 2500 feet to the east of the site. There is no evidence that this Brook has been impacted in any way by the MDI site.

Inhalation Pathway

Inhalation of air contaminated by either fugitive dust or organic vapor is not a valid potential human exposure pathway in light of current site data and information.

Ingestion Pathway

The primary potential human exposure pathway associated with the MDI site pertains to possible groundwater contamination of any existing private potable wells downgradient of the site.

Ninety percent of the Wall Township's population obtains its water from the municipal water supply. There is no indication of previous or current contamination of the public water supply. The municipal wells are not within the immediate area of the site. Periodic sampling of the public supply wells indicate contaminants have not been found in the public supply wells that serve Wall Township. The remaining ten percent of the population obtain their water from private groundwater wells. The majority of these households are located to the north of the site. There are no community concerns regarding possible well contamination at this time.

Although the groundwater plume has not been fully delineated, existing data indicate the migration of a contaminant plume advancing from the site toward the east and northeast. There are no data or information available indicating a threat or adverse impact to the private wells at this time.

The RI/FS workplan for Phase II B will include a definitive delineation of groundwater contamination. In addition a survey of all residential, industrial, and industrial supply wells within 3 miles of the MDI site will be conducted.

CONCLUSIONS

On the basis of the information reviewed, the current RI/FS workplan for Phase II B addresses all remaining concerns for potential human exposure pathways at the MDI site. Specifically, the planned groundwater investigation will serve to identify any private, municipal or commercial wells which exist and determine what risk, if any, is associated with these wells.

Other potential human exposure pathways documented in the preliminary health assessment for the MDI site are not valid under current site conditions and in light of current data and information. Specifically the pathways of dermal contact with on-site soils and off-site sediments, and the inhalation of fugitive dusts and organic vapors are unsubstantiated.

Activities specified in the proposed work plan, when implemented, are sufficient to address remaining concerns of the ATSDR, the NJDOH, and the community regarding the site and are consistent with protection of the public health.

RECOMMENDATIONS

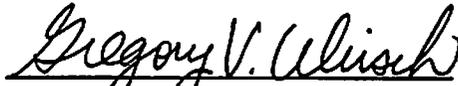
The remedial workplan for Phase II B should be conducted according to the schedule of the USEPA.

Data from the Phase II B RI/FS should be reviewed by the NJDOH/ATSDR for public health significance when available.

Should additional data or information become available regarding this site, it will be evaluated within the context of potential public health implications.

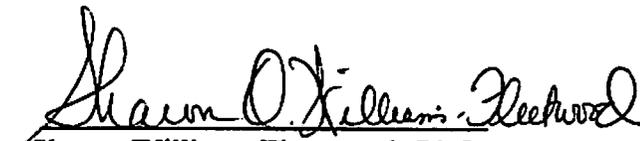
CERTIFICATION

This Health Consultation was prepared by the New Jersey Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.



Gregory V. Ulirsch, M.S.
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ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation, and concurs with its findings.



Sharon Williams-Fleetwood, Ph.D.
Chief, SSAB, DHAC, ATSDR

DOCUMENTS REVIEWED

1. CDM Federal Programs Corporation, Remedial Investigation/Feasibility Study (Draft Work Plan), Phase II B, for the Monitor Devices Site, Wall Township, Monmouth County, New Jersey. USEPA. December 1994.
2. CDM Federal Programs Corporation, Remedial Investigation/Feasibility Study (Revised Data Presentation Report), Phase II A, for the Monitor Devices Site, Wall Township, Monmouth County, New Jersey. USEPA. April 1993.
3. Remedial Investigation/Feasibility Study (Phase I), for the Monitor Devices Site, Wall Township, Monmouth County, New Jersey. NJDEP. 1990.
4. Preliminary Health Assessment for the Monitor Device Site, Wall Township, Monmouth County, New Jersey. NJDOH. 1990.
5. Hazardous Waste Site Investigation, for the Monitor Devices Site, Wall Township, Monmouth County, New Jersey. NJDEP. 1980.

INTERVIEWS/PERSONAL COMMUNICATIONS:

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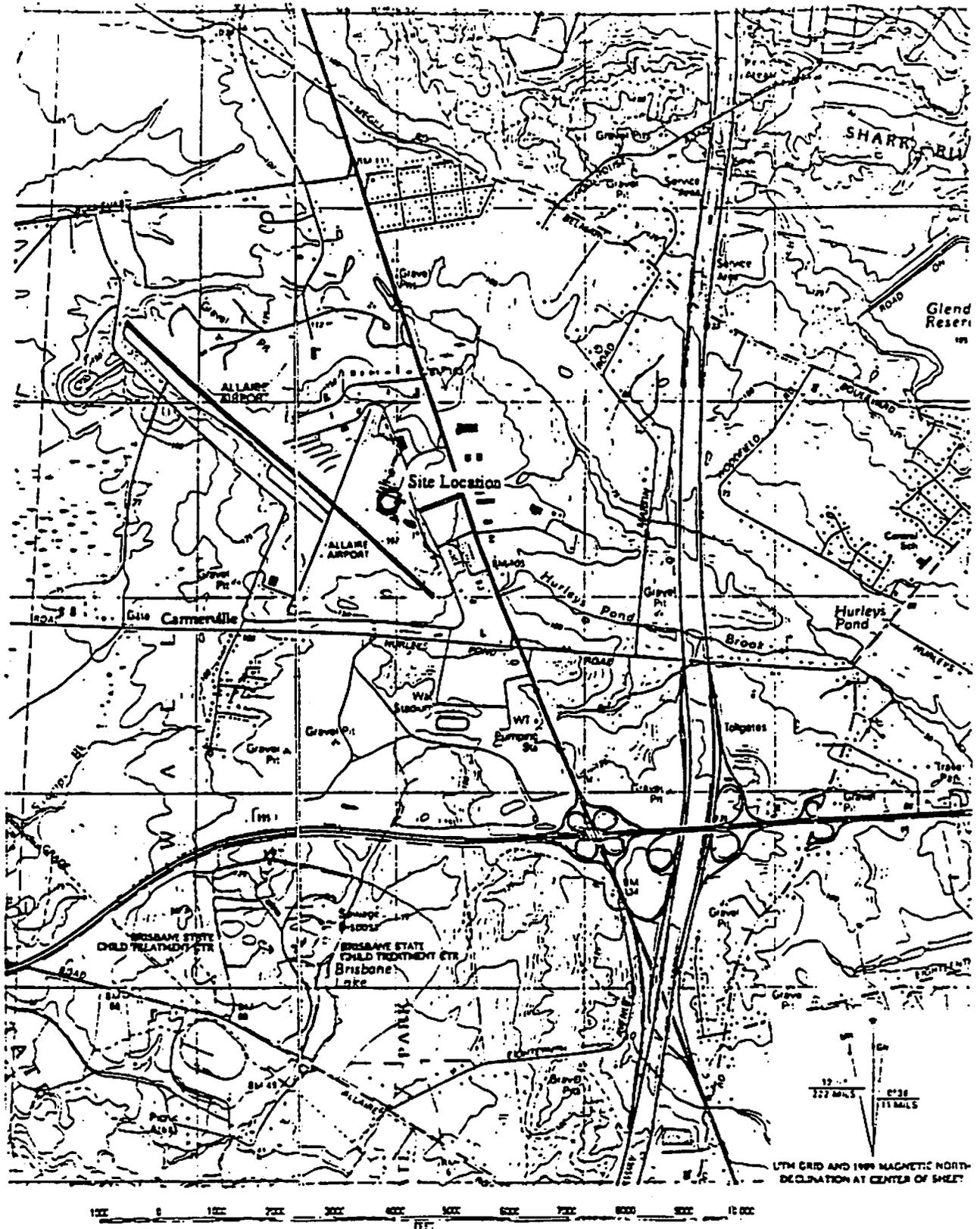
Any questions concerning this document should be directed to:

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APPENDICES

Figures

1. Monitor Devices Site Location Map
2. Monitor Devices Site Map
3. Surface Soil Sample Locations
4. Monitoring Wells Locations

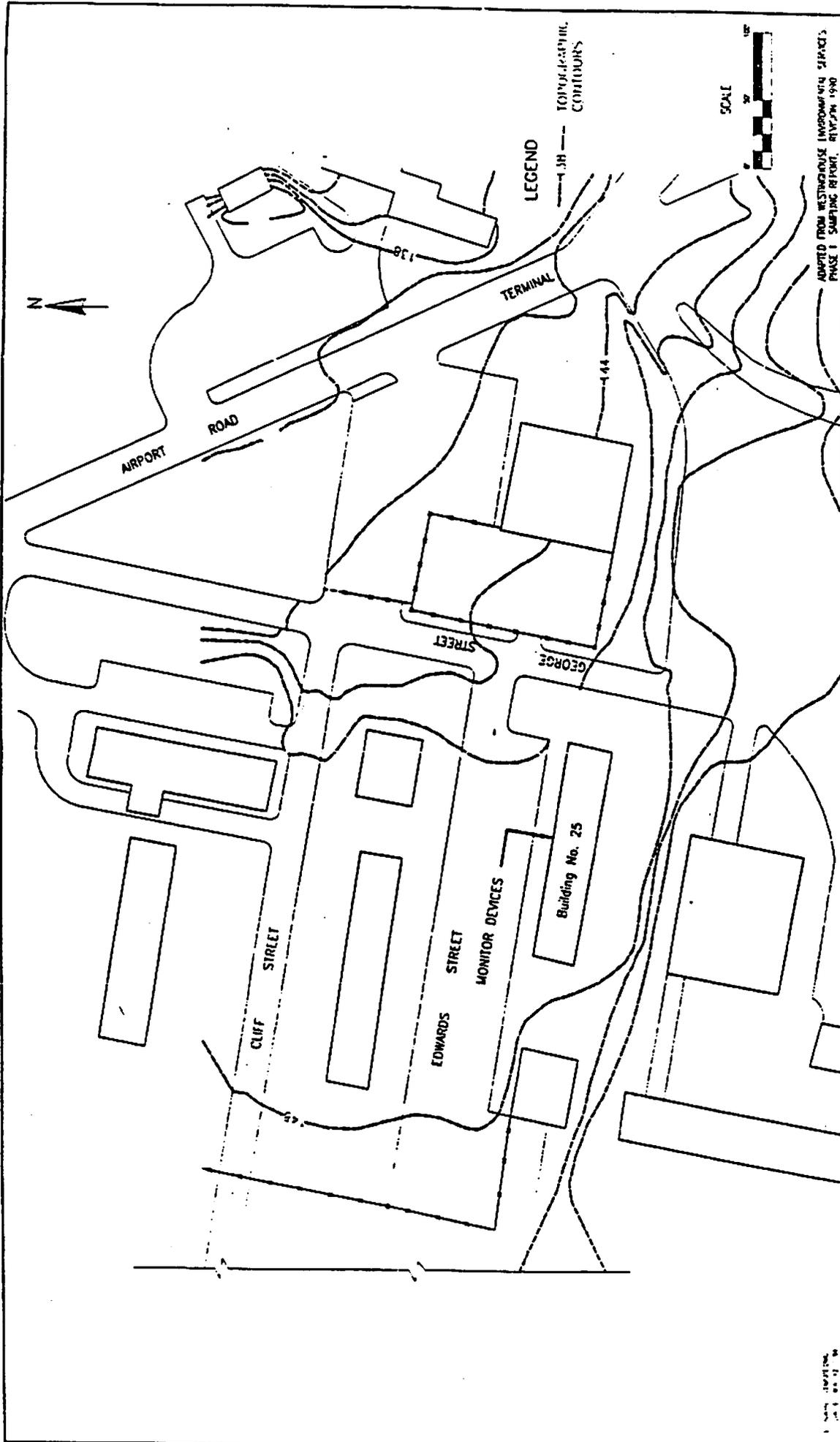


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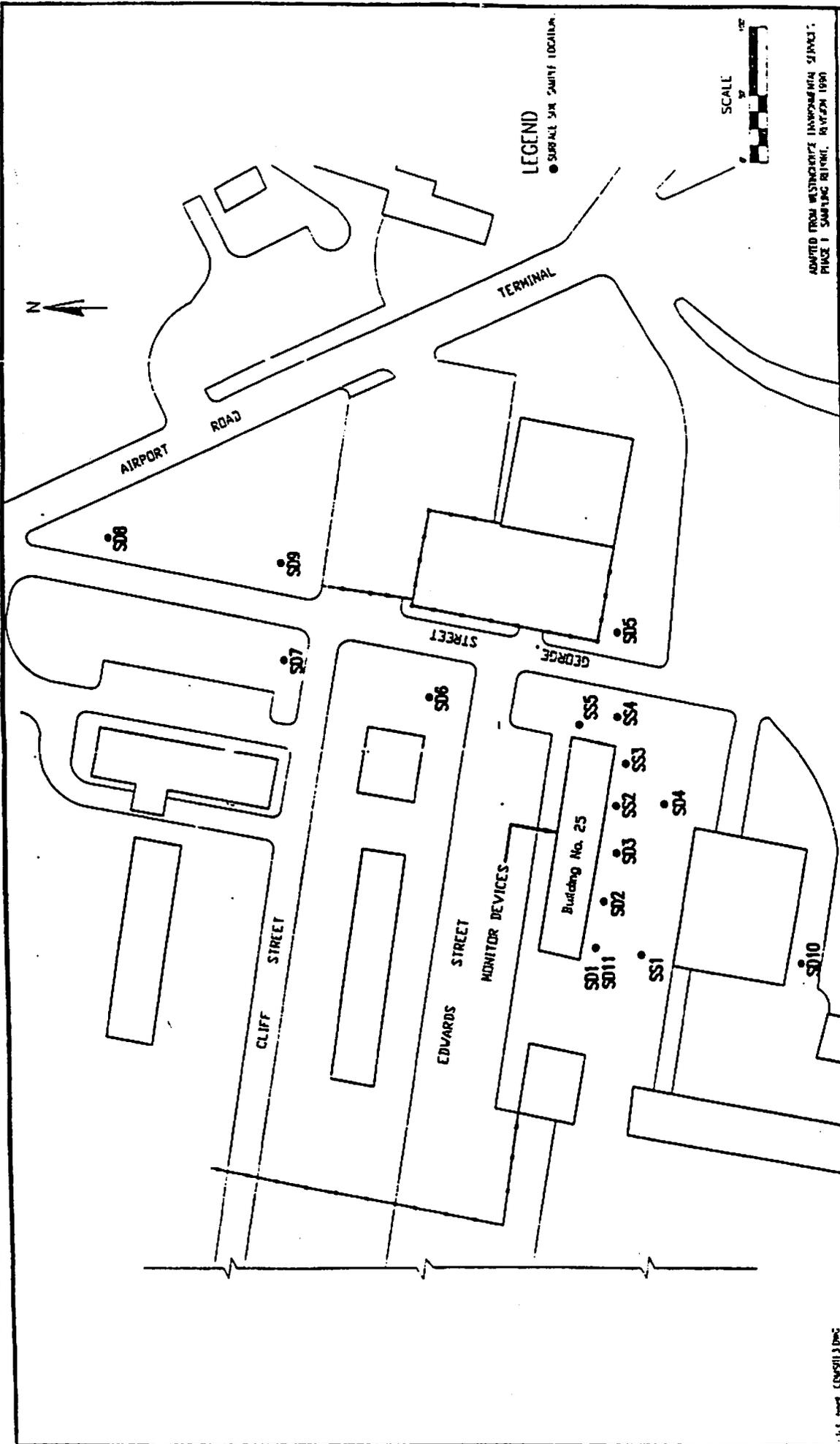
SOURCE: U.S. Geological Survey
 Asbury Park, N.J. and
 Farmingdale, N.J. Quadrangles

MONITOR DEVICES SITE WALL TOWNSHIP, NEW JERSEY SITE LOCATION MAP

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MONITOR DEVICES SITE
 WALL TOWNSHIP, NEW JERSEY
 SITE MAP



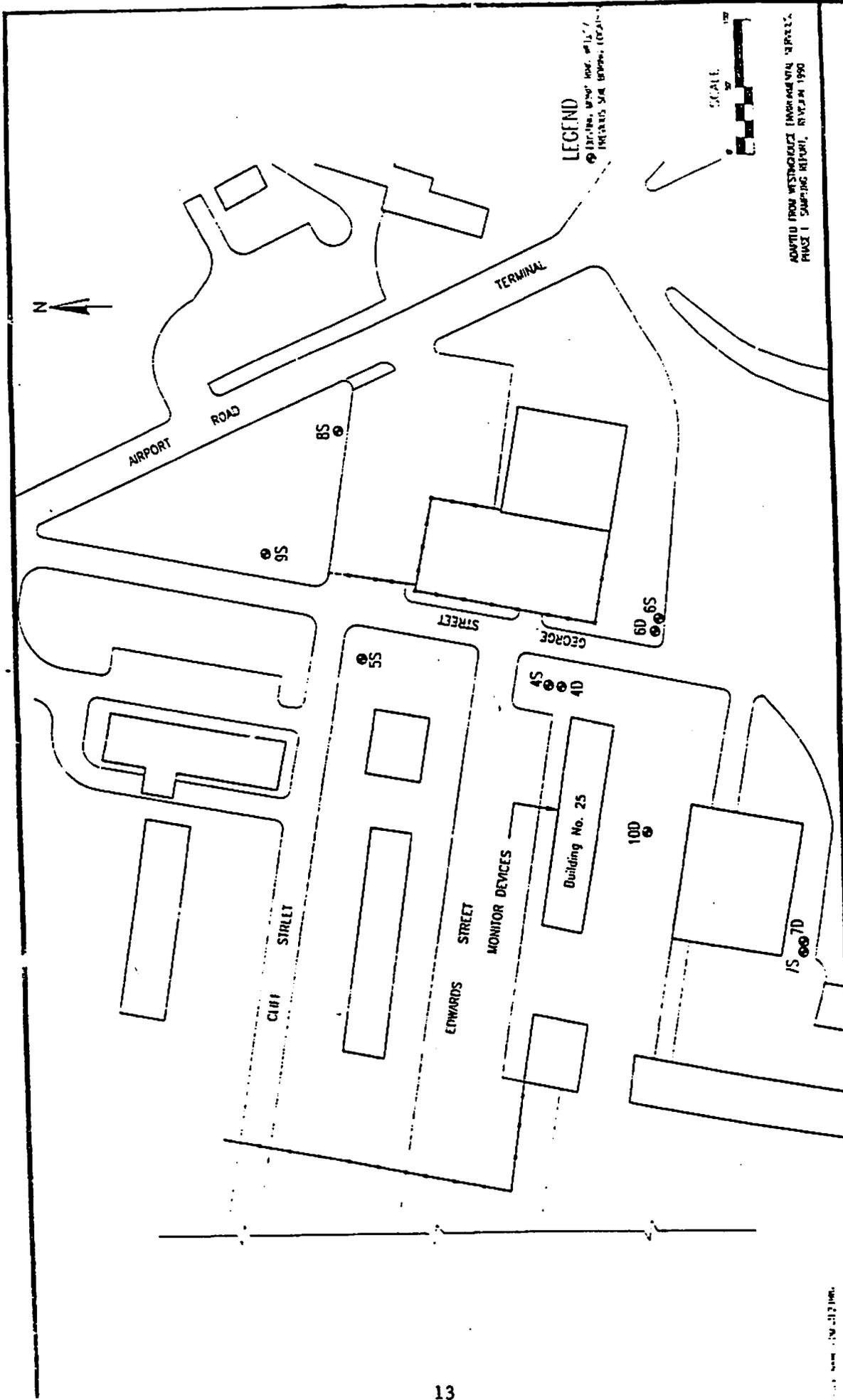
ADAPTED FROM WESTINGHOUSE ENVIRONMENTAL SERVICES
 PHASE I SAMPLING REPORT, REVISION 1990

MONITOR DEVICES SITE
 WALL TOWNSHIP, NEW JERSEY
 PREVIOUS SURFACE SOIL
 SAMPLE LOCATIONS

U.S. Patent (4,951,133) Dwg

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INCHES 1



LEGEND
 ● EXISTING MONITORING WELLS
 ○ PREVIOUS SOIL BORING LOCATIONS



ADAPTED FROM WESTINGHOUSE ENVIRONMENTAL SERVICES
 PHASE I SAMPLING REPORT, MARCH 1990

**MONITOR DEVICES SITE
 WALL TOWNSHIP, NEW JERSEY
 EXISTING MONITORING WELLS/
 PREVIOUS SOIL BORING LOCATIONS**

Scale: 1" = 100'

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