

Health Assessment for

MONITOR DEVICES/INTERCIRCUITS INC.

CERCLIS NO. NJD980529408

WALL TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

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

THE ATSDR HEALTH ASSESSMENT: A NOTE OF EXPLANATION

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

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

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

**HEALTH ASSESSMENT
MONITOR DEVICES
MONMOUTH COUNTY
WALL TOWNSHIP, NEW JERSEY**

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

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

OBJECTIVES

This document is designed to assess the potential health impacts from potential exposure to chemicals at the Monitor Devices site. At this stage of the site's assessment the important issues are:

- *to assess community concerns regarding the site,
- *to assess the potential magnitude of the health impact of the site,
- *to recommend possible immediate action that might be necessary to protect the public health,
- *to identify and/or fill information gaps,
- *to review if the sampling that has taken place to date has adequately addressed public health concerns,
- *to decide whether future sampling is indicated and will sufficiently aid the assessment of the impact of the site on public health, and
- *to assess whether a feasibility health study of the site is warranted.

SUMMARY

Monitor Devices is an active site that was previously contaminated by discharges from a former electroplating operation. The soil and the groundwater at and near the site are contaminated with volatile organic compounds (VOCs), metals

and PCBs (although it is not believed that the PCBs are related to the Monitor Devices operation). The small size of the site and the distance of the site from residential areas reduce the potential public health impact of the site. Fencing and posting, along with further exploration (identification, sampling, and/or modeling) of the industrial and potable wells, is recommended. Many of these activities are planned for in the Remedial Investigation that is underway.

On the basis of the information reviewed, the Monitor Devices Site is a potential public health concern. However, there is no documentation or indication in the information and data reviewed that human exposure to on-site/off-site contaminants is occurring or has occurred at levels of public health concern. Therefore, the Monitor Devices Site is not being considered for follow-up studies at this time.

SITE DESCRIPTION

Monitor Devices is located in Wall Township, Monmouth County. The site is small, consisting of a single building and surrounding area that is situated in an industrial park, adjacent to the Allaire Airport. The site is currently an active facility, employing 6-8 workers in the furniture business.

The site was originally inspected by EPA and NJDEP in 1980. Contamination at the site is from a previous manufacturing operation that was involved in the manufacturing of printed circuit boards. Electroplating wastes were discharged via three pipes, directly to the soil on the southern side of the building, for a period of approximately three years. The discharge included metals, solvents, and acids. Leaking drums were also found on the site. (Phase I Field Sampling Report)

The Phase I Field Sampling Report (Phase I Remedial Investigation) of the site has been completed. A Draft Phase II Sampling Plan has been submitted by the consultant and has been reviewed by the New Jersey Department of Environmental Protection (NJDEP). The site is a New Jersey State lead and is publicly funded. The potential responsible party is currently in bankruptcy court.

SITE VISIT

On April 28, 1988, NJDOH and NJDEP conducted a site visit at Monitor Devices. No physical hazards at the site were

observed. A darker shade of soil on the southeast side of the building, could have been due to the former discharge from the building or high organic content of the soil. Surface run-off could occur via a drainage ditch that ran toward the road. There was a solvent smell in the air that was most likely coming from the open door of the active furniture facility. Surface water was not observed in the area. Winds were very strong.

The site was not fenced and there was no obvious indication that the site is a Superfund site. During the site visit, we stopped to ask directions to the site. Employees at nearby facilities did not know about the site. Children are unlikely to wander near the site, although there is a bank one small block from the site. There is also the possibility of workers' families visiting the site. In addition, trucks were driven off the roads near the site, and are reported to be driven directly over the stained soil area, when unloading deliveries to the building (Personal communication, NJDEP).

COMMUNITY CONCERNS

Questions and concerns about the health and environmental impacts of the site were raised by a furniture worker on the site (letter of July 3, 1985), prospective tenants near the site, and at a public meeting on February 26, 1986. These concerns were responded to by the New Jersey Department of Environmental Protection.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

The Phase I Remedial Investigation (RI) included sampling of the soils, groundwater, soil gas, and air. Since the site is isolated from residential areas and the major route of contaminant migration appears to be limited to groundwater, all of the samples that were taken were either on-site or close to the site. Using this data, chemicals that might be of a public health concern were identified. Priority pollutant scans were run on the soil and groundwater samples.

Chemicals detected above NJDEP action levels or expected background concentrations in soils were chromium, copper, DDT, lead, endrin, endosulfan sulfate, polychlorinated biphenyls (PCBs), trichloroethylene (TCE), and 1,1,1-trichloroethane (TCA). (Phase I Field Sampling Report) Due to their toxicity, detected concentrations, and environmental fate, the chemicals in the soil that are of primary concern were identified, in this health assessment, as chromium, copper, TCE, and PCBs.

Chemicals that were detected in the groundwater above Federal or State water standards, criteria, or guidelines were dichloroethanes, dichloroethylenes, TCA, TCE, tetrachloroethylene, dichloropropane, chromium, copper, lead, nickel, and zinc. As discussed in the RI, the volatile contaminants that were detected in the groundwater could primarily be due to TCA, tetrachloroethylene and their degradation products. The primary contaminants of concern based on toxicity, detected concentrations, and mobility in the groundwater were identified, in this health assessment, as TCE, TCA, copper, chromium, zinc, and trans-1,2-dichloroethylene.

The purpose of the soil gas sampling was to characterize and delineate VOC contamination in soils. Both HNu and OVA, which do not identify specific volatile chemicals, were used for the readings. The highest concentrations of soil gas were not surprisingly found to be in the area where dumping had allegedly taken place. Other locations also showed some elevated VOC concentrations. (Phase I Field Sampling Report) This information demonstrates that VOCs in the discharge area are a concern but further studies are needed to delineate the extent of the volatile organic compound contamination.

Air samples were collected in Tenax tubes. The air sampling results are inconclusive for a number of reasons. (1) Swirling winds and aircraft landing and taking off made it difficult to determine the true downgradient direction. During some sampling events VOC concentrations were greater in upgradient air, rather than downgradient air. (2) The sampling was done during a very short period of time in the summer and cannot account for meteorological, diurnal, or seasonal changes. (3) Tenax tubes cannot detect chemicals which are adsorbed to particulates. Therefore, the air sampling by Tenax tube cannot confirm or deny the presence of PCBs or metals in the air. (4) The manufacturing operation in the building can be a contributor to air contaminants in the immediate area. The soil gas probes had to be continually adjusted to account for the volatile organic compounds that were believed to be emanating from the building.

Although there is little confidence in results of the air sampling plan that was used, the highest concentration of the chemicals that were detected in the air are low enough to be of little concern from acute exposure, and the average concentration is of little concern from chronic exposure. The following contaminants were found in greater concentrations downgradient than upgradient from the site, during at least one sampling event: methylene chloride, trichlorofluoromethane, TCA, and TCE.

The maximum concentrations of the contaminants of concern are presented in Table I.

QUALITY ASSURANCE/QUALITY CONTROL

Analysis of the environmental samples was conducted by Weston Analytical Laboratories. NJDEP'S consultant (S&ME) and the NJDEP/Bureau of Environmental Measurement and Quality Assurance (BEMQA) have both reviewed the quality assurance/quality control (QA/QC) of the analytical results. S&ME found that the base/neutral data were "poor", the VOC and pesticide/PCB data were "satisfactory", and the metal data were "good". BEMQA recommended that the base/neutral data from four samples of the site be rejected because of the poor quality of the analytical data. BEMQA also recommended that the data from the other parameters be accepted. None of the base/neutrals were identified as contaminants of concern at the site.

Chemicals that were identified as contaminants of concern passed QA/QC reviews. There is therefore an acceptable degree of confidence in the analytical information that was used in this health assessment.

DEMOGRAPHICS

Monitor Devices is located in an industrial area adjacent to the Allaire Airport. There are no residences within 1 - 1 1/2 miles from the site. There have not been any sensitive subpopulations identified near the site. There are two public supply wells approximately 2 miles upgradient from the site, which supply approximately 24,000 people, and an industrial well that is closer to and downgradient from the site (Personal communications, NJDEP). The use of the industrial well is not described in the RI report. According to the file of the local health department, there are 96 wells in Howell Township (a neighboring township) within 3 miles of the site, including 2 irrigation wells and 7 public non-community wells. The number of wells in Wall Township within 3 miles of the site was not easily available (File review, Monmouth County Health Department).

The demographic information that is presented in the Phase I RI report is incomplete. Some of this information is scheduled to be supplied in the Phase II RI report. Information that is needed includes the location of private, public, and industrial wells, the location of the nearest residence, and the characterization of sensitive populations, if any. Information on the population within a 2-3 mile radius

of the site, or at a minimum the population of Wall Township, should be provided. (According to the 1980 census the population of Wall Township was 18,952 people, in 6,533 households. 1,149 were children below 5 years old and 2,602 people were above 65 years old.) The use of the industrial well and whether people could be exposed to chemicals in the industrial well water needs to be addressed.

ENVIRONMENTAL DATA GAPS

All media that required sampling have been sampled. The sampling plan for Phase II of the Remedial Investigation (a draft of which has been commented on by DEP) will address the delineation of the soil and groundwater contamination from the site (Memos - NJDEP/Division of Water Resources to NJDEP/Bureau of Environmental Evaluation and Risk Assessment (BEERA), and NJDEP/BEERA to NJDEP/Bureau of Site Management).

Due to the distance of the potable wells from the site and the small size of the site, it is unlikely that these wells are being adversely impacted by the site. However, this issue needs to be more fully addressed in the RI/FS since it may be possible that a contaminant plume has left the site and may be approaching or contaminating an existing well. This issue can be addressed by either presenting arguments (using groundwater, data, modelling, and environmental fate information) that the site cannot adversely affect the potable wells, or by taking additional groundwater samples in the direction of the wells. Periodic sampling of the public supply wells indicate contaminants have not been found in the public supply wells that serve Wall Township. Additional groundwater sampling is planned in Phase II of the RI.

ENVIRONMENTAL PATHWAYS

The potential pathways of exposure that were considered at the site were via the groundwater, air, and direct contact. Since there is no surface water that could receive run-off from the site or discharge from the groundwater, surface water was not considered to be a potential route of exposure. Groundwater exposure would therefore only occur when the groundwater was used for potable or other purposes. This route of exposure is considered to be unlikely since there are no wells in the immediate area.

TCE and PCBs in the surface soil could potentially impact the air by volatilization and dust dispersion, respectively. High winds at the site would dilute out the concentration of

VOCs (i.e., TCE) in the air, but would increase the resuspension of soil particles (i.e., PCBs adsorbed to soil). Air monitoring data at the site is not considered to be conclusive, for reasons that were discussed above.

Direct contact, both soil ingestion and dermal absorption, are potential routes of exposure. Since children are not believed to frequent the site, accidental soil ingestion and dermal absorption by adults is considered to be the only significant direct contact exposure. Since the site is not fenced and there are no signs indicating a hazardous waste site, direct contact is considered to be a potential exposure pathway. Both PCBs and TCE may be absorbable through the skin.

PUBLIC HEALTH IMPLICATIONS

If it can be demonstrated that the potable water in the area is not, and will not eventually be, adversely impacted by the site, the major route of concern from a public health perspective is through the air and by direct contact. Since the site is outdoors and separated from residential areas, public exposure to the air is less significant than if the exposure were occurring indoors. It should be noted that, as mentioned above, during the site visit one could smell solvents originating from the active facility. It is, therefore, highly possible that indoor exposure from chemicals used in the furniture facility are of a greater concern than the outdoor exposure to the site.

Direct contact is a exposure pathway that can be and needs to be better addressed. People can be warned and/or kept off the site by fencing and posting that the area is a hazardous waste site.

Groundwater exposure would only be important from a public health perspective, when the groundwater is used or discharges to the surface. Assurances need to be made that the industrial well and potable wells within 3 miles of the site have not and will not be affected by plume(s) from the site. In addition, groundwater exposure would be a concern if wells are installed closer to the site.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the information reviewed, the Monitor Devices Site is a potential public health concern because humans may be exposed to hazardous substances like PCBs and TCE at concentrations that may result in adverse health effects.

As noted in environmental pathways and public health implications section above, human exposure to volatile organic chemicals, metals and PCBs may occur via direct contact with soil or inhalation. Unless current exposure to groundwater is demonstrated, Monitor Devices does not pose an immediate health threat. Long-term health concerns to residents in the area are minimized by the size and the isolation of the site. The workers in the building, who are the only people regularly exposed to the site, need to be advised to stay off of the contaminated areas.

Phase I and the planned Phase II remedial investigation of the site are designed to identify and delineate the contamination at the site. When this is accomplished, the RI can be used to further characterize potential public health concerns and exposure pathways. To adequately address public health concerns the following additional actions are recommended:

1) The site should be fenced. Signs marking the site as a Superfund site should be posted.

2) Definitive arguments that the groundwater plume from the site has not and will not reach industrial and potable wells at unacceptable levels need to be presented, or the additional groundwater sampling needs to be conducted. Groundwater sampling is included in the Phase II of the Remedial Investigation. The use of the industrial well needs to be identified.

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).

In accordance with CERCLA as amended, the Monitor Devices site has been evaluated for appropriate follow-up with respect to health effects studies. Since there is no documentation or indication in the information and data reviewed that human exposure to on-site and off-site contaminants is occurring or has occurred at levels of public health concern, this site is not being considered for follow-up health studies at this time. However, if data become available suggesting that human exposure to significant levels of hazardous substances is currently occurring or has occurred in the past, ATSDR and NJDOH will reevaluate this site for any indicated follow-up.

This Health Assessment was prepared by the State of New Jersey, Department of Health, Environmental Health Service, under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry. The Division of Health Assessment and Consultation and the Division of Health Studies of ATSDR have reviewed this Health Assessment and concur with its findings.

REFERENCES

Interviews: NJDEP Technical Coordinator, NJDEP/Bureau of
Environmental Evaluation and Risk Assessment
NJDEP Community Relations Coordinator,
NJDEP/Bureau of Community Relations
Health Officer, Monmouth County Health Department

Site Visit: April 28, 1988.

File Review: NJDEP Technical Coordinator, NJDEP/BEERA
Health Officer, Monmouth County Health Department

Superfund documents: Phase I Field Sampling Report
Phase II Sampling Plan
Community Relations Plan (April 1986)

Memos: NJDEP/BEMQA to NJDEP/BEERA, Re: Data Validation, April
26, 1988
NJDEP/Division of Water Resources to NJDEP/BEERA, Re:
Review of Phase II Sampling Plan
NJDEP/BEERA to NJDEP/Bureau of Site Management, Re:
Review of Phase II Sampling Plan

Table I - Maximum Concentration of Contaminants of Concern

| <u>Contaminant</u> | <u>Concentration</u> | <u>Media</u> | <u>Standard or Criteria (1)</u> |
|----------------------------|----------------------|--------------|---------------------------------|
| Copper | 279 ppm | Soil | NA |
| | 3,490 ppb | GW | 1,300 ppb |
| PCBs | 84 ppm | Soil | 1-5 ppm |
| Chromium | 547 ppm | Soil | 100 ppm |
| | 432 ppb | GW | 50 ppb |
| TCE | 2,200 ppm | Soil | (2) |
| | 980 ppb | GW | 1 ppb |
| TCA | 440 ppb | GW | 26 ppb |
| trans 1,2-Dichloroethylene | 130 ppb | GW | 10 ppb |
| Zinc | 353 ppb | GW | NA |

(1) All VOC groundwater standards are New Jersey Maximum Contaminant Levels (MCLs) (N.J.A.C. 7:10-16.7). All soil criteria are New Jersey Soil Action Levels. All heavy metal standards are federal MCLs.

(2) The New Jersey Soil Action Level for total VOC's in soil is 1 ppm.

NA - Not applicable