

Health Assessment for

WILSON FARM

CERCLIS NO. NJD980532824

PLUMSTED TOWNSHIP, OCEAN COUNTY, NEW JERSEY

JUN 20 1990

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
WILSON FARM
OCEAN COUNTY
PLUMSTED TOWNSHIP, NEW JERSEY**

Prepared By:
Environmental Health Service
New Jersey Department of Health

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

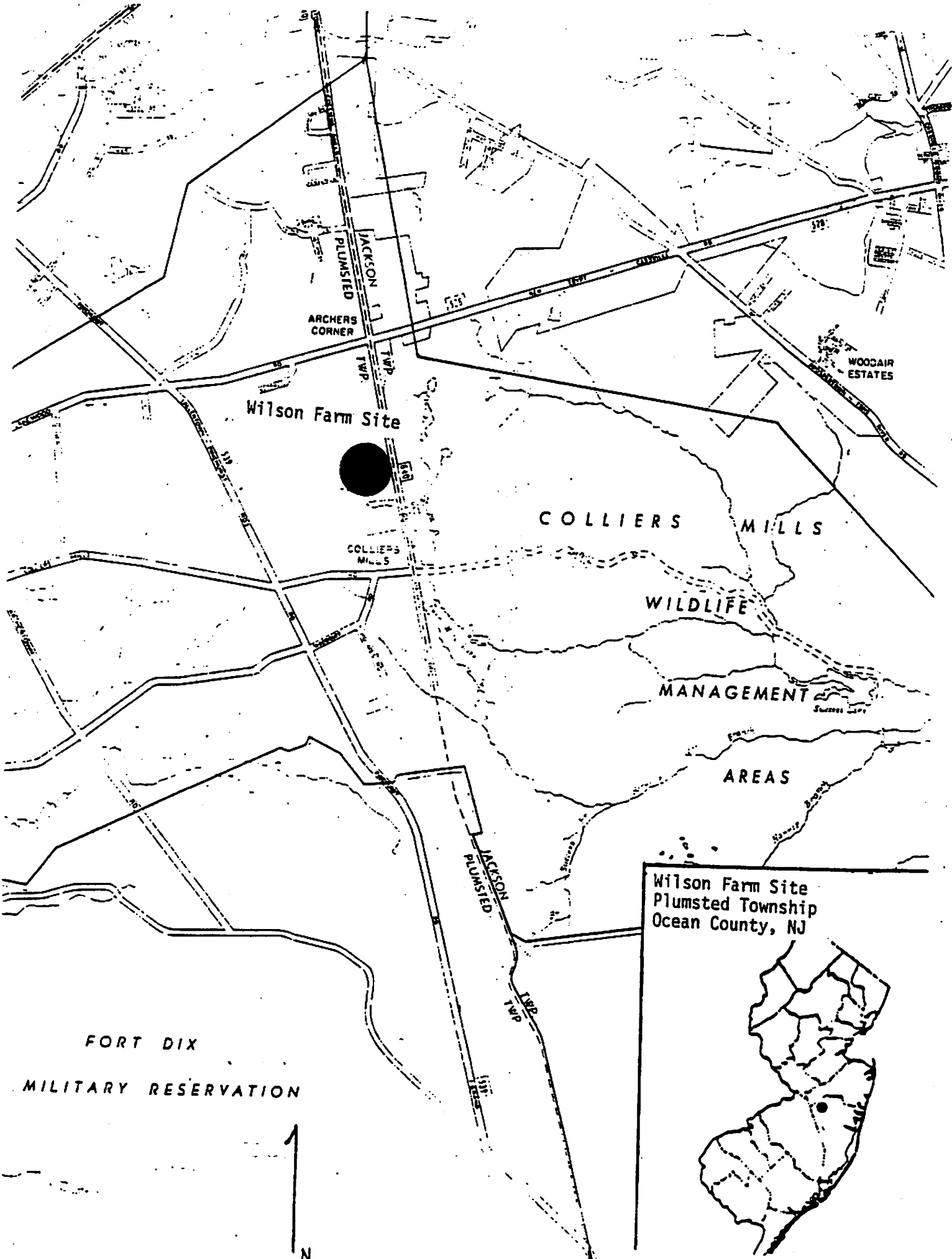
OBJECTIVES

The Remedial Investigation (RI) report was recently (May 1988) completed on the Wilson Farm site. Data from that report is utilized in this Health Assessment. The objectives of this Health Assessment, based upon the current stage of site investigation and remediation are to:

- * Assess the nature and magnitude of health effects associated with the site, and determine the degree of public health concern;
- * Identify, if necessary, immediate actions necessary to minimize exposure to hazards and contamination associated with the site;
- * Identify, if necessary, deficiencies in information and/or data regarding the site;
- * Review remedial activities in the context of their public health implications;
- * Document the concerns of the community with regard to the site;
- * Assess whether further health studies or investigations are indicated, based upon degree of public health concern.

SUMMARY

The Wilson Farm site comprises a 10 acre area located in Plumsted Township, Ocean County, New Jersey. It is one of seven similar hazardous waste sites allegedly utilized by the Thiokol Chemical Company for the disposal of bulk liquid, solid, and



FORT DIX
MILITARY RESERVATION



Wilson Farm Site
Plumsted Township
Ocean County, NJ

drummed wastes during the 1960's. The Remedial Investigation commenced in February of 1987 to establish the nature and extent of on-site contamination. Contaminants were identified in ground and surface waters, soils, and sediment samples. The major pathways of concern are pathways related to soils, groundwater, and surface water. This site is considered by ATSDR and NJDOH to be of potential public health concern. Additional health study and/or evaluation is not indicated at this time.

SITE DESCRIPTION

The Wilson Farm is a property of approximately 438 acres located 1,000 feet west of Route 640, (Hawkins Rd.) and one mile south of the intersection with Route 528, in Plumsted Township Ocean County. (See location map) It is one of seven similar "Plumsted" sites located within a 20 square mile area. Contained therein is an area of approximately ten acres allegedly utilized by the Thiokol Chemical Company for the disposal of bulk liquid and drummed wastes. Through an agreement with the owner of the site, hazardous materials were dumped on a regular basis resulting in contamination with volatile organic compounds (VOC's), chlorinated chemicals, and heavy metals. All wastes are reported to be limited to the surface of the site; there is no evidence of buried wastes. In 1988, the Wilson Farm site was ranked 84 of 100 among New Jersey sites, and 539 of 703 on the National Priority List (1986). The Remedial Investigation / Feasibility Study (RI/FS) was initiated by the Acres International Corp., in February of 1987.

The site is primarily a wooded, rural area bounded by Borden's Run creek on the west and an active farm field on the north. Collier's Mill lake and Wildlife Refuge is located approximately 1,200 feet to the south, and is fed by the creek. No physical structures or buildings exist on-site. The site is not fenced or posted.

SITE VISIT

The Wilson Farm site was inspected by the New Jersey Department of Health (NJDOH) personnel in July of 1988. Inspection revealed evidence of past contamination on-site. Laboratory debris, areas of tar-like sludge, and household wastes were observed along existing roadways and paths. Drums containing the drilling cores and waste materials generated during the initial Remedial Investigation were present in a contained area on-site.

Flora in the vicinity of the site were predominantly various species of pine and oak trees. Soils were generally sandy. There is evidence the site area is used for hunting and

recreation; beer cans, targets with bullet holes and empty shotgun shells were observed. The field adjacent to the site was planted with corn.

COMMUNITY CONCERNS

Examination of New Jersey Department of Environmental Protection (NJDEP) files, and an interview with the Ocean County Health Department Environmental Coordinator confirmed that the concerns expressed by local citizens regarding the Wilson Farm site were similar to those of other Plumsted sites. Of primary concern is ground and surface water contamination. Residents in the area rely exclusively upon potable wells for their water supply; thus the possible migration of contaminants off-site is a primary issue. A public meeting to discuss the initiation of the RI/FS study was conducted by NJDEP on March 31, 1987.

The Plumsted Township area is undergoing a period of growth and development. Developers and individual parties have expressed concern with regard to NJDEP's recommendations for well restriction areas in relation to this and other Plumsted sites. Also of concern is the potential contamination of Borden's Run Creek and Collier's Mill Lake, which is designated as a New Jersey wildlife refuge and used for fishing and recreational purposes.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

In early 1980, the Wilson Farm site was inspected by NJDEP. The presence of drums and evidence of other potentially hazardous wastes resulted in the initiation of an Immediate Removal Action Plan in February of 1980. Six ground water monitoring wells were installed in June 1980. In September 1980, emergency cleanup activities included the removal of drums and the excavation/removal of sludge, solid wastes, and approximately 620 cubic yards of contaminated soil.

In February 1987, the Acres International Corporation was retained to perform a Remedial Investigation of the Wilson Farm site. Phase I investigations consisted of geophysical surveys, soil gas monitoring, soil borings, and the installation of eight monitoring wells. Surface wastes, air, soils, surface water, sediment, ground water, and off-site potable wells were analyzed.

Potable well analysis revealed similar levels of contamination in samples taken upgradient and downgradient of the site. Levels of inorganic materials present are considered representative of local background levels. Levels of organic chemicals (acetone, methylene chloride, phthalate, and carbon disulfide) are likely to be due to laboratory contamination, as these compounds were also detected in the blank samples.

Soil gas analysis revealed levels of VOC's compounds from 0.6 ppm to 5.2 ppm above background.

Contaminants of concern were identified based upon their toxicity, detected concentrations, and environmental fate. The contaminants of concern based upon the 1980 and 1987 data (including contaminants which were qualified based on quality assurance/quality control), are listed in Tables 1 and 2, respectively.

The on-site debris and drums generated by the Phase I investigations constitute the only identifiable physical hazards associated with the site.

QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance/quality control (QA/QC) data pertaining to the 1980 Immediate Removal Action Plan are not available for review and evaluation. In addition, the analytical results were representative of one sample date and location, and are therefore may be of limited value.

Data generated during the 1987 Phase I initial Remedial Investigation were evaluated by the NJDEP Bureau of Environmental Measurements and Quality Assurances. Those data qualified as a result of QA/QC review are indicated in Table 2. The presence of organic chemicals in the laboratory blanks, indicates that organic chemicals identified in potable wells are likely to be the a result of laboratory contamination, and not indicative of true groundwater quality.

DEMOGRAPHICS

The town of New Egypt is located approximately 4 miles to the west of the Wilson Farm property. Two military reservations, Fort Dix and the Lakehurst Naval Air Station are located 1.5 miles to the south and 3 miles to the southeast respectively. The general vicinity of the site may be characterized as wooded and rural/agricultural. There are eight houses located on the west side of Hawkins Road, within one-half mile of the site. It is estimated there are 80 homes within a one mile radius of the site, yielding an estimated population of 304 persons (3.8 persons/household). There are approximately 500 homes within a 3 mile radius of the site, yielding an estimated population of 1,900 persons. Estimated populations will likely increase as this area undergoes continuing development. No sensitive populations associated with the Wilson Farm site have been identified.

ENVIRONMENTAL DATA GAPS

The Acres Corporation conducted site surveys and sampling of environmental media as part of the initial Phase I RI/FS. These investigations included geophysical surveys, soil gas monitoring, surface and subsurface soils, surface and ground water, stream sediments, and off-site potable wells. All necessary environmental media on-site have been investigated.

The community has raised concern over the potential impact of the Hopkins Farm site upon the Collier's Mill Lake and Wildlife Refuge. To date, there is limited data available from two USGS well installed on the west shore of the lake, (July 1977) but these were not analyzed for HSL+30 compounds. Although the possibility of contamination appears to be remote, the issue of the potential contamination of these areas needs to be better addressed. If there is a potential for contamination, sampling of Borden's Run Creek and Collier's Mill Lake may be necessary.

ENVIRONMENTAL PATHWAYS

Based upon available information, primary pathways for environmental contamination are exposed surface wastes, and surface and ground water. Airborne VOC's were not conclusively confirmed by air sampling done at this site.

Direct contact (dermal contact and accidental ingestion) with surface and contaminated soils is a possible exposure pathway, as the area is evidently utilized for hunting and recreation. Hunters, children, ground dwelling fauna, and flora on-site risk contact with surface wastes. Concentrations of contaminants detected to date are unlikely to cause an acute hazard.

Utilization of contaminated ground and surface water by humans and on-site flora and fauna is a matter of concern, including the recreational use of Collier's Mill Lake. Impact upon the local food chain is possible although difficult to quantify at this time.

PUBLIC HEALTH IMPLICATIONS

Public health implications regarding the Wilson Farm site may be summarized as follows;

Contaminated groundwater and surface water.

The utilization of groundwater for potable water supply by area residents is a potential public health concern. The assimilation of contaminated water by edible plants

may constitute a public health concern if substantiated. In addition to adjacent agricultural areas, wild blue/cranberries are abundant in this area, and are consumed by local human and animal populations.

Current and future development.

New construction will likely depend upon ground water for potable water supply. It will be necessary to determine the feasibility of new wells within the sphere of influence of the site. Remaining surface wastes and contaminated soils will also influence plans for development in the area.

Open access to the site.

Contaminated areas of the Wilson Farm are not restricted or posted in any fashion. Persons entering the area may not be aware of the presence of a Superfund site and the associated risks.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the information reviewed, ATSDR and NJDOH have concluded that the Wilson Farm is of potential public health concern because humans may have been exposed to hazardous substances at concentrations that may result in adverse health effects. As noted in the Environmental Contamination and Physical Hazards section, human exposure may be occurring and may have occurred in the past through domestic use of contaminated groundwater and physical contact with on-site solid wastes.

QA/QC difficulties (laboratory contamination) have minimized the validity of groundwater data. Phase II investigations to be conducted by NJDEP in May 1990 will resample on-site monitoring wells, and off-site potable wells. If off-site potable wells are shown to be impacted by the site, a reevaluation of the degree of public health concern would be indicated.

During future testing and surveillance of the Wilson Farm site, concerted efforts should be directed toward insuring the resulting data is as accurate as possible.

The site should be posted and fenced to clearly define the presence and boundaries of a Superfund site, and thus limit public activities in the area.

On-site material and drums generated by the Phase I remedial investigation should be removed.

The possible contamination of Borden's Run creek and the Collier's Mill Lake needs to be investigated.

The possible contamination of adjacent agricultural areas needs to be investigated.

In accordance with CERCLA as amended, the Wilson Farm site has been evaluated for appropriate follow-up with respect to health effects studies. Inasmuch as there is no extant documentation or indication in the information reviewed for this Health Assessment that human exposure to contaminants at levels of public health concern is occurring, 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

Superfund Documents:

Background Investigation Report: Wilson Farm, NJDEP (Acres Corp.); June 1987.

Phase I Remedial Investigation Report: Wilson Farm, NJDEP (Acres Corp.) Vols. I,II,III; May 1988.

ATSDR Site Summary: Wilson Farm; June 1988.

NJDEP Documents:

Wilson Farm Community Relations Plan; October 1986.

Public Meeting Fact Sheet: Wilson Farm; March 1987.

Interviews:

NJDEP Personnel: Site Manager, Technical Coordinator, Community Relations Coordinator.

Ocean County Health Department; Environmental Coordinator.

Table 1 - Wilson Farm; Groundwater Contamination, 1980

Parameter	Concentration (ppb.)
Di-N-Butyl Phthalate	384
Antimony	2100
Arsenic	180
Beryllium	19
Chromium	2000
Mercury	40
Zinc	2000
Adipic Acid	25

Table 2: Wilson Farm; Contaminants of Concern, 1987

	Soil Borings		Ground Water*		Potable Wells*	
	Surface Wastes	Surface Soils	Surface Soils	Stream Sediment		
<i>Volatile Organics (Ug/Kg)</i>						
Acetone	ND	2300	90.0	17.0	154.0	35.5
Methylene Chloride	140.0	160.0	122.0	ND	ND	60.0
Carbon Disulfide	140.0	ND	ND	11.0	28.0	144.0
2-Hexane	ND	ND	ND	20.0	ND	ND
<i>Semi-volatile Organics (Ug/Kg)</i>						
Di-N-Butylphthalate	3600	ND	ND	ND	450	7.0
2-Ethylhexyl Phthalate	2400	ND	ND	1900	ND	2700
Pentachlorophenol	2500	ND	ND	ND	ND	ND
<i>Pesticides (Ug/Kg)</i>						
4,4' -DDT	ND	81.6	ND	19.2	ND	ND
<i>Inorganics (Ug/Kg)</i>						
Barium	ND	ND	ND	ND	ND	193
Copper	13.9	5.9	3.7	26.0	1.4	105
Lead	85.4	15.8	44.3	83.0	7.9	20.6
Nitrate	ND	ND	ND	ND	ND	6820
Zinc	25.9	38.1	17.1	191	37.5	515

* Denotes values in Ug/L;

ND = Not Detected

Data qualified as a result of QA validation highlighted.