

Health Consultation

ACME SOLVENTS INC. SITE
(a/k/a ACME SOLVENT RECLAIMING, INC.)

NEW MILFORD, WINNEBAGO COUNTY, ILLINOIS

EPA FACILITY ID: ILD053219259

MARCH 17, 2005

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

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

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

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HEALTH CONSULTATION

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Prepared by:

Illinois Department of Public Health
Under Cooperative Agreement with the
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

Purpose

The purpose of this health consultation is to provide an update of activities at the Acme Solvent Reclaiming, Incorporated site (ACME). The Illinois Department of Public Health (IDPH) completed a Public Health Assessment (PHA) for ACME in 1995 [1]. The PHA evaluated data collected during the Site Remedial Investigation/Feasibility Study (RI/FS) and concluded that future potential exposure to groundwater contamination was the main health hazard at the site. Continued monitoring of area groundwater was recommended. This health consultation evaluates recent sampling data to determine whether volatile organic chemicals (VOCs) are present in groundwater at levels that could cause adverse health effects.

Background and Statement of Issues

Site Description and History

The ACME site covers approximately 20 acres and is 5 miles south of Rockford at 8400 Lindenwood Road in Winnebago County (Figure 1). ACME operated from 1960 to 1973 as a drum storage and waste disposal site for ACME's operations on 18th Avenue in Rockford. The wastes disposed at the site included paints, oils, sludges and non-recoverable solvents. Wastes were dumped into depressions created from previous quarrying operations or by using extra rock to form berms. These disposal practices resulted in soil contamination with numerous inorganic and organic chemicals, including metals, VOCs and polychlorinated biphenyls (PCBs). In addition to the soil contamination, a contaminant plume migrating south-southwest of the site was identified in groundwater beneath and near the site.

In 1972, the Illinois Pollution Control Board ordered ACME to remove all drums and wastes from the site and backfill the lagoons after the removal. Follow-up inspections after this order revealed that the wastes and crushed drums were being left on the site and covered up with soil. In 1982, the site was proposed for placement on the U.S. Environmental Protection Agency's (USEPA) National Priorities List (NPL or Superfund). The site was placed on the NPL in 1983.

The site is located in a heavily wooded, unincorporated area with farmland to the east and south and an active rock quarry to the north. Directly west of the site, across Lindenwood Road, is Pagel's Pit Landfill, which also is a Superfund site, used for the disposal of municipal wastes from Winnebago County. Organic chemical contamination and elevated arsenic levels were discovered in groundwater monitoring wells surrounding Pagel's Pit.

Approximately 300 people live within 1 mile of the site. Killbuck Creek flows within 250 feet of the Pagel's Pit landfill border. Near the ACME site, the creek is shallow and impassible by boat. Farther downstream, the creek is used for sport fishing. The creek is not used as a source of drinking water for humans or livestock, or for the irrigation of farm crops. It merges with the Kishwaukee River about two miles north of the site. Two intermittent streams flow north and south of the landfill and merge with Killbuck Creek at points 1,000 feet northwest and 1,200 feet south of the site. Area groundwater generally flows from east to west towards Killbuck Creek.

The discovery of area private well contamination resulted in the placement of the ACME site on the NPL in 1983. An ensuing investigation of the ACME site was conducted in 1984 and 1985. Contamination from the ACME site was detected in several area residential wells. As a result, these residences were supplied with water treatment systems for their homes. A pump and treat system also has been installed on the ACME site to remove contaminants from the groundwater. IDPH staff conducted a site visit in February 2000 and toured the groundwater treatment plant, which began operation in August 1995.

Site Monitoring

The most recent sampling data was received and reviewed by IDPH in August 2004. The pump and treat system includes 14 extraction wells, either on or southwest of the ACME property. Sampling data for these extraction wells are available from 1995 to 2000. Additionally, there are 38 monitoring wells located on and around the ACME site, with sampling data for these wells available from 1995 to 2004. A summary of the sampling results for both the extraction and monitoring wells can be found in Tables 1, 2 and 3.

Pagel's Pit Landfill also was a suspected contributor to area groundwater contamination. A remedial investigation was conducted for Pagel's Pit Landfill from 1988 to 1990 and concluded that future groundwater contamination was the main public health hazard associated with that site. Groundwater west of the landfill and on the southeast border of the site is contaminated, and several contaminants exist at levels greater than drinking water standards. The source of contamination on the southeastern portion of the site remains uncertain because the impact from the ACME site is unclear. Sampling of a monitoring well installed between the ACME site and landfill suggests that both sites are contributing sources to this area of contamination; however, analyses indicate a decreasing trend of contaminant levels in several wells, including well G120B. Nationwide Environmental Services Inc. conducted these analyses, in August 2003. A summary of the trend analysis is provided in Table 4.

USEPA Site Evaluation

USEPA conducted a second 5-year review of the ACME site in May 2002. The results of this review were issued in a September 2002 report that concluded:

“The remedy is functioning as designed. The immediate threats have been addressed and the remedy remains protective of human health and the environment in the short term. There are no current exposure pathways. The contaminated soil removals and ground water/soil vapor extraction systems to eliminate the source of contamination has and is achieving the remedial objectives to minimize migration of contaminants to ground water and prevent direct contact with, or ingestion of, contaminants [2].”

Discussion

Chemicals of Interest

IDPH compared the results of each environmental sample with the appropriate ATSDR health-based comparison values used to select chemicals for further evaluation for carcinogenic and non-carcinogenic health effects. Chemicals found at levels greater than comparison values or those for which no comparison values exist were selected for further evaluation. A description of each comparison value used in this health consultation can be found in Attachment 1.

Although volatile organic chemicals including benzene, 1,1-dichloroethane, vinyl chloride, 1,1-dichloroethene, 1,2-dichloroethene, trichloroethene, and tetrachloroethylene have been associated with the site, the most recent groundwater sampling found only vinyl chloride at levels that exceeded comparison values. These levels of vinyl chloride were found only in the site monitoring wells, where there is no expectation of human exposure. No chemicals exceeded comparison values in off-site monitoring wells. The off-site monitoring wells are strategically placed between the site and the homes that are nearest the contaminant plume.

Exposure Evaluation

A chemical can cause an adverse effect only if people contact it at a sufficient level for a sufficient period of time. That requires a source of exposure, an environmental transport medium, a point of exposure, a route of exposure, and an exposed population. An exposure pathway is complete if all of the components are present, and people were exposed in the past, are currently exposed, or will be exposed in the future. If parts of a pathway are absent, data are insufficient to decide whether it is complete, or exposure may occur at some time (past, present, future), then a potential exposure pathway exists. If part of an exposure pathway is not present and will never exist, the pathway is incomplete and can be eliminated from further consideration.

In the past, area residents with private wells were exposed to elevated levels of site-related chemicals in their well water. Since that time, an alternate water supply system has been provided to the affected homes to prevent persons from being exposed to contaminated well water. The homes that still use private wells in the area are 0.5 miles south of the site, and there are no data that indicate the contaminant plume has migrated in that direction. Currently, the source remediation appears to be preventing contamination from leaving the site. Private wells and monitoring wells will be sampled at least annually as part of the site-monitoring plan to ensure the levels do not increase.

Past exposure to contaminants in air and surface soil may have occurred at this site, however, it is not possible to characterize these exposures because of limited data.

Community Health Concerns

Members of the community surrounding the site are concerned about potential health effects from drinking water and using groundwater in the area. As previously stated, affected private well owners have been provided water treatment units and future residential well contamination is unlikely because the nearest home is one-half mile from the site.

Residents also are concerned about the possible migration of the contaminant plume because natural attenuation was selected as the remedy for the site. The Record of Decision (ROD) includes continued monitoring of area groundwater and a contingency plan that will initiate an active remedy if the contamination persists and migrates. These actions should reduce or eliminate potential future exposures from this site.

Child Health Considerations

IDPH has determined that under current conditions, children near the site are not exposed to groundwater contamination in the area.

Conclusions

IDPH concludes that this site presently poses no apparent public health hazard since there is no indication of exposure to site-related contaminants. While future exposure to contaminants in groundwater is possible, the remedial activities and locations of the private wells make this exposure unlikely. The groundwater pump and treat system should reduce the potential for contaminant transport off the site. Past exposure to contaminants in air and surface soil may have occurred at this site; however, it is not possible to characterize these exposures because of limited data.

Recommendations

IDPH recommends that:

- The ACME Solvents Reclaiming Inc. remediation contractor, with USEPA oversight, continue to operate and monitor the groundwater extraction and treatment system.
- The ACME Solvents Reclaiming Inc. remediation contractor, with USEPA oversight, continue to conduct groundwater and residential well sampling to ensure the safety of area residents and monitor the migration of the contaminant plume.

Both of these actions are part of the record of decision for the site.

Public Health Action Plan

No actions are required at this time.

Preparers of Report

Ken Runkle and Ken McCann
Environmental Toxicologists
Illinois Department of Public Health

Kamela Wood
Environmental Health Intern
Illinois Department of Public Health

References

1. Illinois Department of Public Health. Draft Public Health Assessment for ACME Solvents Inc., Winnebago County, Rockford, Illinois, CERCLIS NO. ILD053219259. Springfield, IL. August 11, 1995.
2. US Environmental Protection Agency. Second Five-Year Review Report: ACME Solvents Reclaiming Inc. Site, Winnebago County, Illinois. USEPA, Region 5, Chicago, Illinois. September 2002.

Figure 1

ACME Solvents Site New Milford Winnebago County, IL CERCLIS No. ILD053219259

Winnebago
County

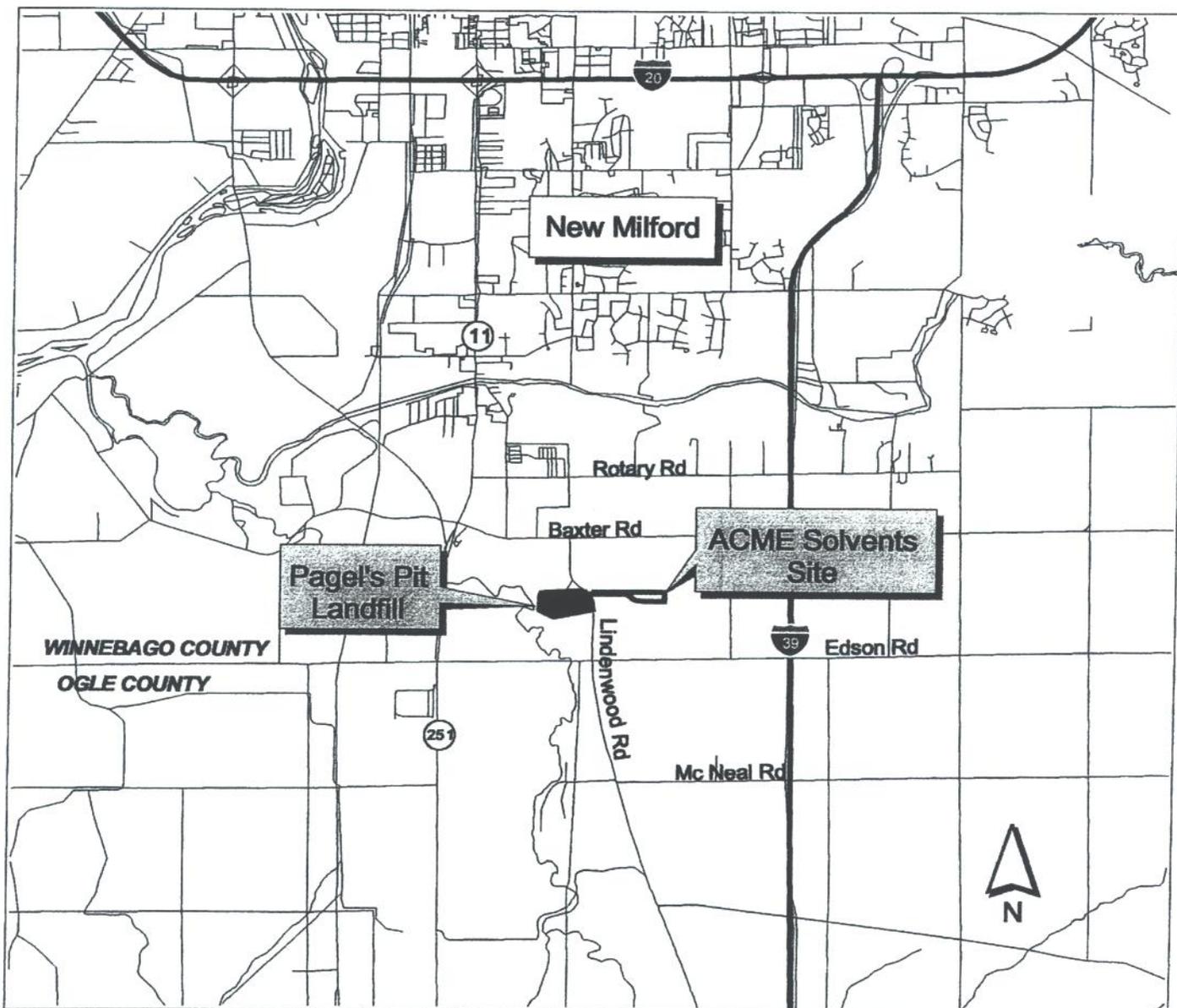


Table 1. Chemicals of interest detected in extraction wells at ACME Solvents property.

Extraction Wells			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Chemical	Comparison Values	Source	Range	Range	Range	Range	Range	Range	Range	Range	Range	Range
	ppb		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Benzene	5	MCL	ND - 7	ND	ND - 5.3	NT	ND - 5.3	ND - 5	NT	NT	NT	NT
1,1-Dichloroethane		--	ND - 41	0.6 - 4	0.5 - 39	NT	ND - 51	ND - 30	NT	NT	NT	NT
1,1-Dichloroethene	7	MCL	ND - 2	ND - 0.2	ND - 0.32	NT	ND - 2.5	ND - 2	NT	NT	NT	NT
1,2-Dichloroethene (total)	70	MCL	ND - 300	3 - 22	3.6 - 880	NT	1 - 380	6 - 300	NT	NT	NT	NT
4-Methyl-2-pentanone		--	ND - 4300	ND	ND - 1600	NT	ND - 920	ND - 400	NT	NT	NT	NT
Tetrachloroethene	5	MCL	ND - 58	4 - 16	ND - 27	NT	ND - 17	ND - 5	NT	NT	NT	NT
Trichloroethene	5	MCL	ND - 68	2 - 9	ND - 190	NT	ND - 33	2 - 27	NT	NT	NT	NT
Vinyl Chloride	2	MCL	ND - 590	ND	ND - 240	NT	ND - 130	ND - 130	NT	NT	NT	NT

-- = No Comparison Value Available

ND= No Detection

NT= Not Tested

ILEPA = Illinois Environmental Protection Agency- Tier I Groundwater Remediation Objectives

DOE = U.S. Department of Energy

MCL = Maximum Contaminant Level

CRMEG = Child Reference Dose Media Evaluation Guide

Table 2. Chemicals of interest in on-site monitoring wells at the ACME Solvents property.

Site- monitoring Wells			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Chemical	Comparison Values	Source	Range	Range	Range	Range	Range	Range	Range	Range	Range	Range
	ppb		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Benzene	5	MCL	ND - 21	ND - 12	ND - 14	ND - 16	ND - 13	ND - 15	ND - 16	ND - 16	ND - 10	ND - 3
1,1-Dichloroethane	--	--	ND - 62	ND - 120	0.5 - 110	0.34 - 130	0.3 - 150	ND - 120	0.6 - 100	0.6 - 110	0.5 - 44	ND - 41
1,1-Dichloroethene	7	MCL	0.1 - 10	0.2 - 200	0.44 - 50	0.3 - 200	0.25 - 500	0.5 - 100	ND - 100	ND - 50	ND - 5	ND - 5
1,2-Dichloroethene (total)	70	MCL	ND - 150	ND - 180	ND - 140	ND - 220	ND - 2800	ND - 730	ND - 100	ND - 330	ND - 21	ND - 35
4-Methyl-2-pentanone	--		ND - 600	ND - 12000	ND - 4600	ND - 12000	ND - 9700	ND - 7100	ND - 8200	ND - 4500	ND - 410	ND - 1
Tetrachloroethene	5	MCL	ND - 120	ND - 65	ND - 54	ND - 66	ND - 30	ND - 14	ND - 8	ND - 11	ND - 3	ND
Trichloroethene	5	MCL	ND - 18	ND - 34	ND - 12	ND - 9.8	ND - 55	ND - 11	ND - 5	ND - 8	ND - 5	ND - 1
Vinyl Chloride	2	MCL	ND - 39	ND - 270	ND - 150	ND - 140	ND - 1800	ND - 460	ND - 100	ND - 350	ND - 8	ND - 16

-- = No Comparison Value Available

ND= No Detection

NT= Not Tested

ILEPA = Illinois Environmental Protection Agency- Tier I Groundwater Remediation Objectives

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MCL = Maximum Contaminant Level

CRMEG = Child Reference Dose Media Evaluation Guide

Table 3. Chemicals of interest in off-site monitoring wells at the ACME Solvents property.

Residential Monitoring Wells			1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Chemical	Comparison Values	Source	Range	Range	Range	Range	Range	Range	Range	Range	Range	Range
	ppb		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Tetrachloroethene	5	MCL	ND - 5	ND - 11	ND - 6.7	ND - 8	ND - 8	ND - 5	ND - 6	ND - 4	ND - 6	ND - 2
Trichloroethene	5	MCL	ND - 6	ND - 5	ND - 5.8	ND - 17	ND - 6	ND - 4	ND - 4	ND - 5	ND - 3	ND
Vinyl Chloride	2	MCL	ND - 5	ND - 1	ND - 1	ND - 5	ND - 2	ND	ND	ND	ND - 1	ND

-- = No Comparison Value Available

ND= No Detection

NT= Not Tested

ILEPA = Illinois Environmental Protection Agency- Tier I Groundwater Remediation Objectives

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Table 4. Results of Mann-Kendall Trend Analysis (only significant decreasing trends shown).

Well ID	Analyte	Significant Trend	Trend Direction
B-1	1,1,1- Trichlorethane	Yes	Decreasing
	1,2-Dichlorethane	Yes	Decreasing
	Tetrachloroethene	Yes	Decreasing
	Trichlorethane	Yes	Decreasing
B-4	1,1,1- Trichlorethane	Yes	Decreasing
	1,1-Dichlorethane	Yes	Decreasing
	1,2-Dichlorethane	Yes	Decreasing
	Tetrachloroethene	Yes	Decreasing
	Trichlorethane	Yes	Decreasing
	Vinyl Chloride	Yes	Decreasing
G120B	1,1-Dichlorethane	Yes	Decreasing
	1,1-Dichlorethane	Yes	Decreasing
	1,2-Dichlorethane	Yes	Decreasing
	Tetrachloroethene	Yes	Decreasing
R11S	1,1,1- Trichlorethane	Yes	Decreasing
	1,2-Dichlorethane	Yes	Decreasing
	Tetrachloroethene	Yes	Decreasing
	Trichlorethane	Yes	Decreasing
RM-15	1,1,1- Trichlorethane	Yes	Decreasing
	1,2-Dichlorethane	Yes	Decreasing
	Tetrachloroethene	Yes	Decreasing
	Trichlorethane	Yes	Decreasing
RM-16	1,1,1- Trichlorethane	Yes	Decreasing
	1,1-Dichlorethane	Yes	Decreasing
	1,2-Dichlorethane	Yes	Decreasing
	Tetrachloroethene	Yes	Decreasing
	Trichlorethane	Yes	Decreasing
RM-7	1,1,1- Trichlorethane	Yes	Decreasing
	1,2-Dichlorethane	Yes	Decreasing
	Tetrachloroethene	Yes	Decreasing
	Trichlorethane	Yes	Decreasing

Comparison Values Used In Screening Contaminants for Further Evaluation

Comparison values (CVs) are the calculated levels of a chemical in air, water, food, or soil that is unlikely to cause adverse health effects in exposed people. CVs are used as a screening level during the public health assessment process. Substances found in amounts greater than their CVs might be selected for further evaluation in the public health assessment process.

Maximum Contaminant Levels (MCLs) have been established by USEPA for U.S. public water supplies to reduce the chances of adverse health effects occurring from exposure to contaminated drinking water. MCLs are enforceable limits that public water supplies must meet. These standards are well below levels at which health effects have been observed and take into account the financial feasibility of achieving specified contaminant levels.

There are three different types of comparison values, environmental media evaluation guides (EMEGs), reference dose media evaluation guides (RMEGs), and cancer risk evaluation guides (CREGs). These values are used to screen chemicals and determine those that need to be evaluated further.

Environmental media evaluation guides (EMEGs) are derived from minimal risk levels presented in ATSDR Toxicological Profiles. Standard exposure assumptions for children and adults (body weights; ingestion rates for water, soil and air; and frequency and duration of exposure) are used. Individual EMEGs do not consider cancer, chemical interactions or multiple routes of exposure. They do help to identify specific chemicals needing further evaluation.

Reference dose media evaluation guides (RMEGs) are derived from the oral RfDs developed by USEPA using standard exposure assumptions for children and adults (body weights; ingestion rates for water, soil and air; and frequency/duration of exposure). Like EMEGs, RMEGs do not consider carcinogenic effects, chemical interactions, or multiple exposures.

Cancer risk evaluation guides (CREGs) represent levels of environmental chemicals that may pose a 1×10^{-6} (one in a million) excess cancer risk. They are derived using cancer slope factors published by USEPA.