



## Five-Year Review Report

### Third Five-Year Review Report for Acme Solvent Reclaiming (Morristown Plant) Superfund Site Winnebago County, Illinois

September 2007

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Approved by:

A handwritten signature in black ink that reads "Richard C. Karl". The signature is written in a cursive style and is positioned above a horizontal line.

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Date:

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## List of Acronyms

1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
AOC	Administrative Order by Consent
ARARs	applicable or relevant and appropriate requirements
CAMU	corrective action management unit
CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cis-1,2-DCE	cis-1,2-dichloroethene
EE/CA	Engineering Evaluation/Cost Analysis
ESD	Explanation of Significant Differences
EXW	extraction well
FS	feasibility study
GIS	geographic information system
HCTU	home carbon treatment unit
HI	hazard index
HLA	Harding Lawson Associates
IC	institutional control
IEPA	Illinois Environmental Protection Agency
IPCB	Illinois Pollution Control Board
LTRA	long-term remedial action
LTTS	low temperature thermal stripping
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MIBK	methyl isobutyl ketone (4-methyl-2-pentanone)
msl	mean sea level
NCP	National Contingency Plan
NES	Nationwide Environmental Services, Inc.
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O & M	operation and maintenance
OU	operable unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene (perchloroethylene)
PRP	potentially responsible party
RA	remedial action
RPM	remedial project manager
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RI	remedial investigation
ROD	Record of Decision
SMCL	secondary maximum contaminant level
STI	supplemental technical investigation
SVOC	semivolatile organic compound
TCE	trichloroethene
TCLP	toxicity characteristic leaching procedure
TSCA	Toxic Substances Control Act
U.S. EPA	United States Environmental Protection Agency
UU/UE	unlimited use or unrestricted exposure
VC	vinyl chloride
VOC	volatile organic compound

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## Executive Summary

The remedy for the Acme Solvent Reclaiming (Morristown Plant) Superfund Site (Site), located in Winnebago County, Illinois (near Rockford), based on the 1990 Record of Decision (ROD) and two subsequent Explanations of Significant Differences (ESDs) included:

- Excavation of soils and sludges in two waste areas and treatment by low-temperature thermal stripping;
- Further treatment of residuals, if necessary, by solidification and on-site or off-site disposal;
- Incineration of the liquids and sludges in two tanks remaining on the Site and disposal of the tanks;
- Provision of a permanent alternate water supply to residents with contaminated wells.
- Extraction and treatment of VOC-contaminated groundwater and discharge to surface water.
- Treatment of VOC-contaminated soils and, if possible, bedrock by soil/bedrock vapor extraction;
- Consolidation of soils with remaining SVOCs, PCBs, and lead contamination and covering these soils and any area where residuals are landfilled on-site with a soil cover;
- Conducting long-term groundwater monitoring;
- Fencing the Site and providing, to the extent possible, deed and access restrictions and deed notices or advisories for residences with contaminated groundwater.

The Site achieved construction completion with the signing of the Preliminary Close Out Report (PCOR) on July 13, 1998. The trigger for this review was the signing of the second Five-Year Review Report on September 24, 2002.

The assessment of this five-year review found that the remedy was constructed in accordance with the 1990 ROD and the ESDs. The remedy is functioning as anticipated. Threats at the Site have been addressed through: capping; low-temperature thermal desorption; groundwater pump-and-treat; provision of an alternate water supply; installation of fencing; and implementation of some institutional controls (ICs).

The remedy for operable unit (OU) 1 was not completed; it was superseded by the remedy for OU 2. Therefore a protectiveness statement for OU 1 is not appropriate. The remedy for OU 2, which incorporates the previous OU 1 work, and therefore the entire Site, is protective of human health and the environment in the short term because exposure pathways that could result in unacceptable risks are being controlled. The groundwater remedy is currently protective of human health and the environment because an alternate water supply is available to users within the plume area and no one is currently using the water. The groundwater remedy will achieve long-term protectiveness when the groundwater cleanup standards are achieved throughout the plume area. Interim groundwater use restrictions are required in the plume area until groundwater cleanup standards are achieved. The soil remedy is currently protective of human health and the environment because there is no evidence of interference with the land cover and there is no current inconsistent use of the property. Long-term protectiveness requires compliance with effective ICs. Long-term stewardship requires assuring that all required ICs are

in place and effective and that effective ICs will be maintained and monitored along with maintaining the Site remedy components. The existing Site uses are consistent with the IC objectives.



### Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name (from CERCLIS): Acme Solvent Reclaiming (Morristown Plant)l		
EPA ID (from CERCLIS): ILD053219259		
Region: 5	State: IL	City/County: Winnebago County
SITE STATUS		
NPL status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): <input type="checkbox"/> Under construction <input checked="" type="checkbox"/> Operating <input type="checkbox"/> Complete		
Multiple OUs?* <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Construction completion date: <u>07/13/98</u>	
Has Site been put into reuse? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
REVIEW STATUS		
Lead Agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author name: Bernard J. Schorle		
Author title: Remedial Project Manager	Author affiliation: U.S. EPA, Region 5	
Review period:** <u>9/02</u> to <u>7/07</u>		
Date(s) of Site inspection: <u>7/24/07</u>		
Type of review: <input checked="" type="checkbox"/> Post-SARA	<input type="checkbox"/> Pre-SARA	
<input type="checkbox"/> Non-NPL remedial action site	<input type="checkbox"/> NPL State/Tribe-lead	
<input type="checkbox"/> Regional discretion	<input type="checkbox"/> NPL-removal only	
Review number: <input type="checkbox"/> 1 (first) <input type="checkbox"/> 2 (second) <input checked="" type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify)		
Triggering action:		
<input type="checkbox"/> Actual RA on-site construction at OU # <input type="checkbox"/>	<input type="checkbox"/> Actual RA start at OU #	
<input type="checkbox"/> Construction completion	<input checked="" type="checkbox"/> Previous five-year review report	
<input type="checkbox"/> Other (specify)		
Triggering action date (from CERCLIS): <u>9/24/02</u>		Due date: <u>9/24/07</u>

\*--"OU" refers to operable unit

\*\*--Review period should correspond to the actual start and end dates of the five-year review in CERCLIS

#### Issues:

1A. Institutional Controls--The ICs that have been implemented have not been fully studied to determine if they are effective, whether additional ICs are needed, and whether effective procedures are in place for long-term Site stewardship.

1B. Institutional Controls--Along with assuring that effective ICs are in place for all required areas, effective procedures must be assured for long-term Site stewardship, which includes maintaining and monitoring effective ICs, so that the remedy remains protective.

2. Two monitoring wells and two piezometers are in locations where the Group has been denied access.

#### Recommendations and Follow-up Actions:

1A. Institutional Controls--The Group was directed to perform a study of the ICs and they agreed to conduct an IC evaluation.

1B. Institutional Controls--Based upon the results of the IC study, an IC Plan will be developed by U.S. EPA to incorporate the required follow-up actions into the remedy in order to assure long-term Site stewardship.

2. U.S. EPA will evaluate the continued need for these wells and piezometers. If any are not needed, U.S. EPA will pursue proper abandonment. If any are needed, U.S. EPA will work with the Group to gain access or require installation of replacement(s).

#### Protectiveness Statement(s):

The remedy for operable unit (OU) 1 was not completed; it was superseded by the remedy for OU 2. Therefore a protectiveness statement for OU 1 is not appropriate. The remedy for OU 2, which incorporates the previous OU 1 work, and therefore the entire Site, is protective of human health and the environment in the short term because exposure pathways that could result in unacceptable risks are being controlled. The groundwater remedy is currently protective of human health and the environment because an alternate water supply is available to users within the

plume area and no one is currently using the water. The groundwater remedy will achieve long-term protectiveness when the groundwater cleanup standards are achieved throughout the plume area. Interim groundwater use restrictions are required in the plume area until groundwater cleanup standards are achieved. The soil remedy is currently protective of human health and the environment because there is no evidence of interference with the land cover and there is no current inconsistent use of the property. Long-term protectiveness requires compliance with effective ICs. Long-term stewardship requires assuring that all required ICs are in place and effective and that effective ICs will be maintained and monitored along with maintaining the Site remedy components. The existing Site uses are consistent with the IC objectives.

**Acme Solvent Reclaiming Superfund Site  
Winnebago County, Illinois  
Third Five-Year Review Report**

**I. Introduction**

The purpose of a five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in this five-year review report. In addition, the five-year review report identifies issues found during the review, if any, and identifies recommendations to address them.

This Five-Year Review Report is being prepared pursuant to Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9621, and to the National Contingency Plan (NCP), 40 CFR Part 300. Section 121 of CERCLA states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the NCP. Regulation 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The United States Environmental Protection Agency (U.S. EPA), Region 5, which is the lead agency for the Acme Solvent Reclaiming (Morristown Plant) Superfund Site (Site), has conducted the five-year review of the remedy implemented at the Site in Winnebago County, Illinois. This review was conducted for the entire Site by the remedial project manager (RPM) and was initiated in the spring of 2007, with an inspection completed in July 2007. This report documents the results of the review.

This is the third five-year review for the Site. The triggering action for this statutory review is the signature date of the second Five-Year Review Report, September 24, 2002. The five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

## II. Site Chronology

Event	Date
Operations initiated at the Site	Approximately 1960
State ordered owner to clean up the Site	09/1972
Site proposed for inclusion on the National Priorities List (NPL)	12/30/1982
Site placed as final on the NPL	09/08/1983
Remedial investigation report	09/1984
Feasibility study report	02/1985
Record of Decision, OU 1	09/27/1985
PRPs' unauthorized clean-up action terminated	11/1986
Supplemental Technical Investigation: Final Report	05/29/1990
Engineering Evaluation/Cost Analysis	08/06/1990
Northwest Area Investigation: Final Report	10/11/90
Record of Decision, OU 2	12/30/90
Consent Decree	Entered 01/10/1992
Explanation of Significant Difference	05/20/1994
Final Remedial Action Report for the Groundwater Extraction and Treatment System and Soil Vapor Extraction System	07/25/1996
First Five-Year Review Report	09/30/1997
Explanation of Significant Difference	01/26/1998
Preliminary Close Out Report	07/13/1998
Second Five-Year Review Report	09/24/2002
Five-year review Site visit	07/24/2007

## III. Background

### Physical Characteristics

The Site is located near 8500 Lindenwood Road, south of New Milford and approximately five miles south of Rockford, Winnebago County, in north-central Illinois. The Site consists of approximately 20 acres of rolling uplands in a predominantly rural area. An intermittent stream crosses the Site on the western third of the property and flows to the north and is a tributary of Killbuck Creek.

The Site is underlain by a thin layer of unconsolidated deposits. The unconsolidated deposits overlie the dolomites of the Platteville and Galena groups. These dolomites and the saturated unconsolidated deposits comprise the Galena-Platteville aquifer. The Galena-Platteville aquifer has been classified as a Class II aquifer under the U.S. EPA's groundwater protection strategy and is extensively pumped by residential supply wells in northern Illinois. The Galena and Platteville dolomites are underlain by the dolomitic shales and sandstones of the Glenwood Formation, a semi-confining unit which separates the overlying Galena-Platteville aquifer and the underlying St. Peter Sandstone aquifer. The St. Peter Sandstone aquifer is also a Class II aquifer and is extensively pumped for domestic, industrial, and municipal water-supply in northern Illinois.

## **Land and Resource Use**

Adjacent property uses include quarrying operations to the north, agricultural to the east and south, and a subtitle D landfill on the west side of Lindenwood Road. There are also residences in the area, but the ones that were closest to the Site at the time of the remedial investigation (RI) no longer exist or are not used as residences. The Rockford Skeet and Trap Club is located near the entrance to the Site. Part of the landfill to the west is another Superfund site, the Pagel's Pit Landfill. This landfill facility in its entirety is now called the "Winnebago Landfill and Recycling Facility." See Figure 1 for a map showing the Site and the surrounding area.

The population of Winnebago County was approximately 278,000 in 2000 with about 150,000 people residing in Rockford.

## **History of Contamination**

From 1960 to 1973, the Site served as a disposal facility for paints, oils, and still bottoms from the Acme Solvent Reclaiming, Inc., solvent reclamation plant in Rockford, Illinois. Wastes were dumped into depressions created from previous quarrying operations or by scraping overburden from the near surface bedrock to form berms. Empty drums were also stored at the Site. In September 1972, the Illinois Pollution Control Board (IPCB) ordered the operator to remove all drums and wastes from the Site and to backfill the lagoons after the removal. Follow-up inspections subsequent to this order revealed that the wastes and crushed drums were being left on-site and covered with soil.

Releases from the facility were first documented in 1981 when downgradient residents complained of poor smelling drinking water obtained from private wells. Sampling and analysis of well water showed chlorinated organic compounds at concentrations exceeding U.S. EPA's Health Advisories for drinking water. The Illinois Environmental Protection Agency (IEPA) recommended that these wells not be used, and in 1981 the owner of Pagel's Pit Landfill agreed to voluntarily supply affected residents with bottled water.

## **Initial Response**

The Site was proposed to the National Priorities List (NPL) in 1982 and was included on the final NPL in September 1983. IEPA completed an RI/FS in 1984. On September 27, 1985, U.S. EPA issued a Record of Decision (ROD) for operable unit (OU) 1 to excavate an estimated 26,000 cubic yards of contaminated soils and sludges and treat them by on-site incineration. This ROD also called for providing home carbon treatment units (HCTUs) to residents affected by Site contamination and for further study of the groundwater and bedrock.

U.S. EPA attempted to negotiate an agreement to implement the ROD with approximately sixty-five (65) potentially responsible parties (PRPs), including the Site owners/operators and several generators. U.S. EPA and these PRPs were not able to reach an agreement. However, a consortium of twenty-three (23) PRPs disregarded U.S. EPA's ROD and excavated and transported sludges and soils to permitted hazardous waste landfills. This PRP action resulted in

the enactment of a new provision in the Superfund Amendments and Reauthorization Act of 1986, prohibiting unauthorized remedial actions by PRPs.

The PRP action was terminated in November 1986, when U.S. EPA's land disposal restrictions (LDRs), which prohibited land disposal of solvent- and dioxin-contaminated waste without treatment, became effective. The PRP action removed approximately 40,000 tons of soil and sludge from the Site, or an estimated 90 percent of the total. After the PRP work stopped, an approximately 4,000-ton waste pile and two tanks containing contaminated liquids and sludges remained at the Site. Later, an additional waste area containing approximately 2,000 tons of soils and sludges was discovered.

On September 29, 1986, twenty-three (23) PRPs entered into an Administrative Order by Consent (AOC) with U.S. EPA and IEPA to further study the remaining soil, bedrock, and groundwater contamination and to provide HCTUs and monitoring to affected residents. This AOC did not require further work remediating the contaminated soils and sludges.

Under this AOC, Harding Lawson Associates (HLA), a consultant for the PRPs, completed a supplemental technical investigation (STI) in May 1990, an endangerment assessment (EA) in June 1990, and a remedial action alternatives evaluation (RAAE) in September 1990. HLA also completed an engineering evaluation/cost analysis (EE/CA) in August 1990 to evaluate alternatives to address the remaining waste areas and the two tanks. In October 1990, HLA completed an investigation of the northwest area of the Site. All of the areas that were addressed with these studies comprise OU 2.

### **Basis for Taking Action**

The STI identified two remaining waste disposal areas on the Site. The first area consisted of approximately 4,000 tons of soil and sludges. A second area, approximately 200 feet by 40 feet, was also identified. Sampling in these areas showed the existence of volatile organic chemicals (VOCs) and polychlorinated biphenyls (PCBs) exceeding background. Two 8,000-gallon storage tanks containing liquids and sludges were also present at the Site. Also, VOCs and semivolatile organic compounds (SVOCs) were found in the groundwater at unacceptable levels.

## **IV. Remedial Action**

### **Remedy Selected**

The 1985 ROD included these response objectives for the Acme Solvent Site:

- Provide drinking water that meets federal drinking water criteria in the surficial aquifer;
- Ensure that drinking water quality that meets the federal criteria be maintained at the currently affected homes along Lindenwood and Edson Roads and other nearby residences not currently affected by the contaminant plume;
- Prevent degradation of the deeper aquifers in the area;
- Maintain the quality of the water in Killbuck Creek at levels designated by the state;

- Eliminate health risks associated with contacting hazardous materials on the surface and in subsurface soils for current receptors and possible future on-site receptors; and
- Maintain ambient air quality for on-site and off-site receptors.

The 1985 ROD remedy for OU 1 contained these major components:

- Provision of an interim alternate water supply to affected residences by installation of home carbon treatment units;
- Excavation and incineration of waste materials and contaminated soils, with disposal of non-incinerable wastes at an off-site Resource Conservation and Recovery Act (RCRA) approved hazardous waste landfill;
- Continued investigation of bedrock contamination and the feasibility bedrock remediation; and
- Continued investigation of contaminated groundwater and performance of pump tests to evaluate the effectiveness and cost of plume control.

As stated above, some of the PRPs disregarded this ROD and implemented an unapproved action at the Site that resulted in the removal of some of the contaminated soils and sludges. After an additional investigation of the Site, a second ROD was issued in 1990.

The 1990 ROD included these response objectives for the Site, based on the findings of the STI and EA:

- Reduce human health risks due to dermal, ingestion, or inhalation exposure to contaminants in the two 8,000-gallon tanks, in the waste pile remaining from the 1986 PRP cleanup, in the soils and sludges in the northwest area of the Site, and in all other contaminated soils remaining after the 1986 cleanup;
- Reduce the potential for mobile contaminants, especially VOCs, in soils and waste areas to migrate and further contaminate groundwater;
- Remediate contaminated groundwater outside of the waste areas to meet applicable or relevant and appropriate requirements (ARARs) and health-based levels and provide a long-term alternate water supply to homes with contaminated wells; and
- Reduce the potential for migration of VOCs from bedrock gas to groundwater.

The 1990 ROD contained these major components:

- Excavation of soils and sludges in two waste areas and treatment by low-temperature thermal stripping;
- Further treatment of residuals, if necessary, by solidification and on-site or off-site disposal;
- Incineration of the liquids and sludges in two tanks remaining on the Site and disposal of the tanks;
- Provision of a permanent alternate water supply to residents with contaminated wells;
- Extraction and treatment of VOC-contaminated groundwater and discharge to surface water;

- Treatment of VOC-contaminated soils and, if possible, bedrock by soil/bedrock vapor extraction;
- Consolidation of soils with remaining SVOCs, PCBs, and lead contamination and covering these soils and any area where residuals are landfilled on-site with a RCRA Subtitle C compliant cap;
- Long-term groundwater monitoring; and
- Fencing the Site and providing, to the extent possible, deed and access restrictions and deed notices or advisories for residences with contaminated groundwater.

The 1994 Explanation of Significant Differences (ESD) specified the following changes to the remedy:

- Designating a corrective action management unit (CAMU) at the Site to allow for more practical handling of the wastes during remediation; and
- Providing a contingency plan for contaminated soils which would allow off-site trucking and off-site thermal destruction of the soil contamination if the low-temperature thermal stripping could not be completed in the timeframe established.

The 1998 ESD documented the substantive requirements of delisting and incorporated the use of actual Site conditions in the determination of the cleanup standards for the contaminants of concern. With this documentation, the RCRA cap would not be needed and a soil cover would be used.

In the exposure assessment for the 1990 ROD, the future use that was considered for the Site was residential. Future migration of contaminants to the existing homes by means of groundwater movement was evaluated. In addition, potential dermal, inhalation, and ingestion exposures to on-site soil and groundwater if a residence were constructed on the Site were evaluated. This future-use scenario was consistent with the land use near the Site at the time and with the zoning restrictions in place then, which allowed one single family dwelling per forty (40) acres.

The areas where the soils and sludges were to be excavated and treated by low temperature thermal stripping were to be delineated in the field using a photoionization device which detects the concentration of contaminants in the air. A reading of 10 parts per million (ppm) above the background would define the limits of excavation. Also, all waste area materials exceeding 10 ppm PCBs would have to be excavated and treated. This level was selected using the Toxic Substances Control Act (TSCA) PCB spill cleanup policy as a consideration. The cleanup standards for treated soil were developed using a model to determine a VOC concentration in soils that would ensure that the VOC concentrations in groundwater would not exceed a  $1 \times 10^{-5}$  carcinogenic risk level. This cleanup standard was also to be used to determine what areas were to be treated with soil vapor extraction and bedrock vapor extraction; in these areas this cleanup standard was to be reached. Lead-contaminated soils were to be solidified if the test extract exceeded the 5 ppm RCRA toxicity characteristic leaching procedure (TCLP) lead standard and they were to be disposed of in the same manner as the treated soils.

The cleanup standards for groundwater outside the Site boundaries were MCLs, proposed MCLs, or non-zero MCLGs. The MCL for 1,1-dichloroethene (1,1 DCE) was not used since the risk at



this MCL was too high. A cumulative carcinogenic risk of  $1 \times 10^{-5}$  or a cumulative hazard index (HI) of 1 was used to develop cleanup standards for 1,1 DCE and contaminants without MCLs. MCLs and a  $10^{-5}$  risk level were selected because concentrations at the  $10^{-5}$  risk level and lower were generally below reasonably achievable detection levels for many of the contaminants of concern and because of the technical difficulties associated with aquifer restoration in fractured bedrock. The carcinogenic risk of the alternate water supply was to be no greater than  $1 \times 10^{-5}$ .

## **Remedy Implementation**

On January 10, 1992, a Consent Decree (CD), signed by U.S. EPA and approximately thirty-one settling defendants who had been named as PRPs for the Site, was entered. The settling defendants have operated as the Acme Solvents RD/RA Group (Group). The Group has been implementing the remedy, which includes design, construction, and monitoring and maintenance, in accordance with the scope of work (SOW) that was included in the CD. Nationwide Environmental Services, Inc. (NES) began working with HLA on implementing the remedial work. The following describes the various elements of the remedy that were implemented.

Two steel storage tanks that had been used for the storage of waste residues were on the Site. The tops of the tanks were cut off to reach the material inside. This material was removed from the tanks with a backhoe and placed in roll-off containers with high-density polyethylene liners. The material was solidified/stabilized with a stabilizing agent (kiln dust) and transported off-site for disposal by incineration. The empty tanks were cleaned, crushed, and transported off-site for landfill disposal.

Five residences and one commercial location west of the Site along Lindenwood Road met eligibility criteria for connection to the permanent alternate water supply system. Service was also provided to the treatment plant at the Site. The system consists of an existing deep well supply source Greater Rockford Energy and Technology System (GREATS) well located near the intersection of Lindenwood Road with Baxter Road), a pneumatic tank to maintain constant pressure, a six-inch service main about 4,400 feet in length, and either 1 1/2- or 2-inch service connections from the main to the user. Water is supplied to the user at pressures in the range of 60 to 75 psi. Water meters were installed in all service connections to monitor the water usage. Three of the five residences have been torn down and one of the other residences has been converted to offices since the system was installed.

Thermal desorption, using a low temperature thermal stripping (LTTS) unit, was used on the Site to remove VOCs, SVOCs, and PCBs from contaminated soils. Affected soils were excavated from designated waste areas and thermally treated using infrared heating technology. Target compounds released from the soil medium upon heating were captured in an air handling system connected to the heating chamber. Upon exiting from the heating chamber, the off-gas was cooled and the target compounds contained in the condensate were captured in a liquid separator for off-site incineration. The treated soils resulting from the LTTS process were stockpiled and tested for compliance with cleanup goals. The LTTS process treated approximately 7,180 tons (wet weight) of soils and sludges excavated from two areas. In addition to this amount treated during full scale LTTS operations, 508 tons were treated in shakedown and proof-of-process tests prior to commencement of full-scale treatment. A total of 2,777 tons (wet weight) of treated

LTTS soils contained leachable lead above cleanup standards and were treated by solidification/stabilization. Approximately 100 tons of sludge was treated off-site by incineration due to concentrated amounts of VOC and SVOC. The thermally treated soils, including those stabilized, were backfilled and compacted on Site in the previously excavated waste areas upon verification that these areas were "clean," in accordance with the project cleanup criteria.

The soil vapor extraction (SVE) system was used to treat affected soils in designated waste areas to remove VOCs in order to prevent the VOCs from moving into the groundwater. The SVE system installed at the Site consisted of air injection wells installed perpendicular to the ground surface, an underground network of perforated piping installed six feet below ground surface, a vacuum pump, and a moisture separator. The vacuum pump exhausted the VOCs to the air. Ambient air was introduced into the soil through the air wells positioned above the underground extraction piping. The air emissions from the SVE system were monitored for compliance with health-based risk thresholds developed for off-site receptors. The SVE system was completed in July 1995 and began full-scale operation in January 1996 following a six-month shakedown period. By late 1997, conditions in the SVE area had improved such that the VOCs in the SVE area had reached levels at or below clean-up criteria. The system was operated in a pulse-pumping mode in May 1998 in order to determine whether VOC concentrations increased appreciably after the system was off for a time. There was no appreciable increase in VOC concentrations in the SVE system exhaust during this operation. Continuous operation of the SVE system was suspended on June 30, 1999. Further samples were taken in 2000 and 2001 and it was found that the clean-up criteria continued to be met. All operations of the system ceased following the 2001 sampling event.

Following implementation of source removal and remediation activities, bedrock vapor testing demonstrated that VOC concentrations in the bedrock met the cleanup standards established. Therefore no bedrock vapor extraction testing was done and this was dropped from consideration.

The design for the groundwater extraction and treatment system that was approved consisted of 16 extraction wells (EXW). Due to conditions encountered in the field during construction, two extraction wells were eliminated, EXW-15 and EXW-16. After construction, three wells could not be developed (EXW-11, EXW-13 and EXW-14) and were also eliminated. The system then consisted of eleven (11) wells and a groundwater treatment facility capable of treating eighty (80) gallons per minute (gpm). Five of the extraction wells are considered mass removal wells (EXW-1 through EXW-5) because they are located within or immediately downgradient of the waste disposal source areas at the Site. The remaining extraction wells (EXW-6 through EXW-10 and 12) are located further downgradient of the Site source areas. See Figure 2 for the locations of these and other wells. Performance of the system in meeting groundwater goals is monitored quarterly and a performance evaluation is prepared on a semi-annual basis.

The treatment system contains equipment and controls to remove target compounds contained in the groundwater. The primary ones are VOCs and SVOCs. Some mineral content and biological activity also needed to be removed to allow the system to work properly. Treated water is discharged to the intermittent stream which traverses the Site. The quality of the discharge is monitored quarterly. Solids generated from the fixed film reactor and the inclined plate separator

are dewatered in a plate and frame filter press. The dewatered solid waste products are disposed of off-site in a landfill.

The system began full-scale operation in January 1996. In January 2000 the downgradient extraction wells (EXW-6 through EXW-10 and 12) were shut down. It was shown that the groundwater quality in the vicinity of these wells and EXW-1 met groundwater cleanup standards for three consecutive years. Presently, four mass removal wells are being operated (EXW-2 through EXW-5). Treatment of the groundwater is now provided by the air stripping done in the bioreactor followed by discharge of the water through the granular activated carbon units.

Soil and vegetative covers were constructed in former waste areas to eliminate direct contact with the underlying soils and to minimize movement of water through these soils. See Figure 2 for the locations of the soil covers. A fence was constructed around the entire Site.

### **Institutional Controls**

Institutional controls (ICs) are required to ensure the protectiveness of the remedy. Institutional controls are non-engineered instruments, such as administrative and legal controls, that help to minimize the potential for exposure to contamination and that protect the integrity of the remedy. Institutional controls are required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure (UU/UE).

The 1990 ROD required deed restrictions to prevent use of shallow groundwater under the Site and to protect the soil cover, and to the extent possible, deed notices or advisories to protect off-site users of groundwater until cleanup levels are met.

The Acme Site Clean-up Coalition obtained an agreement with the defined constructive trustees for Acme Solvents Reclaiming, Inc., on a Declaration of Covenants, Conditions, Restrictions, and Easements to place deed and access restrictions on the Site in April 1990, which is prior to the signing of the 1990 ROD. This document remains in effect. The Declaration prohibits any use of the Acme property unless it is for the purpose of effectuating removal, remedial or closure activities at the Site.

Adjacent property owners have been advised of the presence of groundwater contamination in connection with the construction of the remedy.

The specific areas which do not allow for UU/UE are summarized in Table 1 on the following page.

**Table 1. Institutional Controls Summary Table**

<b>Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions</b>	<b>IC Objective</b>	<b>Title of Institutional Control Instrument Implemented</b>
Constructed soil cover	Prohibit destruction and interference with or disturbance of the components of the remedy that have been or will be placed on the property and prohibit use of area except for maintenance	Declaration of Covenants (under review).
Surface area of property beyond landfill cap	Prohibit destruction and interference with or disturbance of the components of the remedy that have been or will be placed on the property and prohibit use of area except for maintenance	Same as above.
Other remedial components (constructed) - fence; extraction well system	Prohibit destruction and interference with or disturbance of the components of the remedy that have been or will be placed on the property and prohibit use of area except for maintenance	Same as above.
Groundwater under the Acme Solvent Site	Prohibit use of groundwater	Same as above.
Groundwater off the Site	Prohibit use of groundwater	IC Plan will address.

More detailed maps (paper and GIS versions) which depict the physical areas for the information contained in Table 1 will be developed as part of an IC study. The maps will include current conditions (levels of contaminants of concern and prohibited uses) of the soil, groundwater and all other Site areas which do not allow for UU/UE.

A review of the ICs is needed to assure that the remedy is functioning as intended with regard to the ICs and to ensure effective procedures are in-place for long-term stewardship at the Site. To ensure the long-term effectiveness of the ICs, an IC study was requested from the Group, and the Group agreed to perform the IC evaluation activities. IC evaluation activities include performing title work to verify ownership and whether prior-in-time encumbrances may interfere with the ICs, preparation of additional maps (paper and GIS), and a complete evaluation of whether additional ICs are needed. The IC evaluation activities will also evaluate whether effective procedures are in place for long-term stewardship to assure proper maintenance and monitoring of effective ICs. That will include regular inspections of the ICs at the Site and annual certifications to U.S. EPA that the ICs are in place and effective. Additionally, use of a communications plan and use of the one-call system should be explored for long-term stewardship. Once the IC evaluation activities have been completed, an IC plan will be developed by U.S. EPA within six months of the five-year review. The IC plan will incorporate the results of the evaluation activities and will include plans for additional IC activities as needed, including planning for long-term stewardship.

Compliance with ICs is required to assure that the remedy continues to function as intended. Compliance with the stated objectives of the ICs was also evaluated during the five-year review by an inspection and interviews. According to the inspection and interviews, there are no inappropriate Site uses and there are no current exposures to Site contaminants or media which are inconsistent with stated IC objectives.

### Systems Operation and Operation and Maintenance

Presently NES handles the operation and maintenance and monitoring of the Site for the Group. A Performance Evaluation Report is submitted for each six-month period. The long-term remedial response (LTRA) component operations are routinely monitored as part of the scheduled operation and maintenance (O & M) activities. There is a group of monitoring wells in which only the water levels are measured quarterly. There is another group where samples for analysis are taken quarterly. And there are a few additional wells where samples for analysis are only taken annually. The routine activities that are performed for LTRA are:

- Operate remedial systems (groundwater pump-and-treat system);
- Maintain equipment and facility structures;
- Inspect facilities and equipment and monitor systems;
- Obtain operational data, including groundwater samples and analyses; and
- Report remedy performance status.

Periodically, operations at the Site are modified after consultation with U.S. EPA. There have been very few problems with the operation of the remedy.

### V. Progress Since the Last Five-Year Review

The only issues raised in the previous five-year review were to continue monitoring the results of the remedy and to continue to operate, maintain, and optimize the groundwater pump-and-treat system. Operation, maintenance, monitoring, and evaluation for optimization of the groundwater pump-and-treat system have been on-going. Specifically with regard to optimization, pulse pumping is being considered.

**Table 2. Actions Taken since Last Five-Year Review**

Issues From Previous Review	Recommendations/- Follow-up Actions	Party Responsible	Action Taken and Outcome
Monitoring	Continue monitoring	PRP group	Monitoring continued.
Groundwater pump-and-treat	Operate, maintain, and optimize groundwater pump-and-treat system	PRP group	System being operated and maintained; system operation changes being considered.

## **VI. Five-Year Review Process**

### **Administrative Components**

IEPA and the Group were formally notified about this review through a November 6, 2006, letter from U.S. EPA's Remedial Project Manager (RPM), Bernard Schorle.

### **Community Notification and Involvement**

An ad appeared in the *Rockford Register Star* on July 12, 2007, informing the community that a review was to take place, listing the major components of the remedy, and providing information concerning where additional documents could be found. The public was also informed that comments concerning the Site could be submitted to U.S. EPA. See Figure 3 for a copy of the newspaper notice. No comments were received.

An information repository for the Site is located at the Rockford Public Library. The five-year review reports can also be obtained through the Internet at [www.epa.gov/region5/superfund](http://www.epa.gov/region5/superfund).

A second notice announcing the completion of the five-year review and the availability of the report will be issued once the report is signed.

### **Document Review**

The Group submits a Performance Evaluation Report for each six-month period. These cover the operating status of the LTRA components at the Site and the results of the monitoring. Since these reports include the historical data, beginning in June 1995 for the groundwater monitoring wells, the report, dated June 22, 2007, was used for most of the review. This covered results for the period through December 31, 2006.

### **Data Review**

There are currently two wells downgradient of the Site that show contamination at or near unacceptable levels; wells G-120B and MW-202. See Figure 2 for the locations of the wells. In well G-120B, in 2006, the concentrations of 1,1-dichloroethane (1,1-DCA) were at the cleanup level in all the samples and the concentration of 1,1-dichloroethene (1,1-DCE) was at an estimated concentration of 0.4 micrograms per liter ( $\mu\text{g}/\text{l}$ ) in the last sample. In well MW-202 concentrations of eight of the ten substances whose cleanup standards are listed in the following table, and whose concentrations are reported, exceeded their cleanup standards in at least one sample during 2006. In this well, the concentrations for vinyl chloride (VC), 1,1-DCA, 1,2-dichloroethene (1,2-DCE), and 4-methyl-2-pentanone (MIBK) have consistently been well above the cleanup standards. The concentrations of VC were as high as two orders of magnitude above the cleanup standard in 2006. The results of a Mann-Kendall trend analysis in the June 22, 2007 report for well MW-202 indicate that there are decreasing trends for 1,1,1-trichloroethane (1,1,1-TCA) and tetrachloroethene (PCE), both of which have been undetected or detected at very low concentrations since 1995. There are no significant trends for the other five substances that were analyzed for a trend. No Mann-Kendall trend analyses were done for benzene and naphthalene,

whose concentrations sometimes drop below the cleanup standards, or for MIBK. In the March 2006 report, which included results through June 2005, no significant trends were reported for any of the seven substances in well MW-202 undergoing Mann-Kendall analysis. In well B-1, periodically, concentrations of tetrachloroethene (PCE) are above the cleanup standards. In 2006, the concentration of PCE was at the cleanup level in the December sample; it had been below the cleanup level since June 2004, but prior to that it had almost always been above the cleanup level. It is the only one of the ten substances for which results are reported whose concentrations have exceeded the cleanup level in this well since the end of 1995.

Table 11 of the 1990 ROD sets out the following groundwater cleanup standards:

Compound	Cleanup Standard $\mu\text{g/l}$	Basis
1,1, 1-trichloroethane	200	MCL
1,1-dichloroethene	0.2	$1 \times 10^{-5}$ carcinogenic risk
1,1-dichloroethane	2	$1 \times 10^{-5}$ carcinogenic risk
1,2-dichloroethene	70	MCLG for cis-1,2-DCE
benzene	5	MCL
tetrachloroethene	5	Proposed MCL
trichloroethene	5	MCL
vinyl chloride	2	MCL
4-methyl-2-pentanone	125	cumulative HI of 1
naphthalene	20	cumulative HI of 1

Notes:

- The table shows cleanup standards for indicator parameters only.
- The general cleanup standards described in the text of the ROD must be met for all groundwater contaminants.
- Groundwater cleanup standards below detection limits using U.S. EPA-approved methods for analysis of drinking water may be modified.
- 4-methyl-2-pentanone = methyl isobutyl ketone = MIBK

Samples and water level measurements are not being taken in two wells and two piezometers pursuant to the monitoring plan because the Group has been denied access to the property these wells and piezometers are located on. U.S. EPA will evaluate whether or not these monitoring wells and piezometers are still necessary for the monitoring program. If they are necessary for a fully robust monitoring program, U.S. EPA will instruct the Group to either pursue access or install new monitoring wells and piezometers, as needed, in locations that will provide comparable information. If they are no longer necessary, U.S. EPA will work with the Group and the other property owner to pursue proper well abandonment.

**Site Inspection**

An inspection of the Site was conducted on July 24, 2007, by the RPM, IEPA's site coordinator, and representatives of the Group's consultants. The purpose of the inspection was to observe the

Site and review those matters that are not generally reported. The Site appeared to be in very good condition.

## **Interviews**

During the Site inspection, the participants discussed activities that might be carried out at the Site in the near future. Primarily, this dealt with operating the pump-and-treat system in a pulse mode. The ICs were also discussed, particularly for areas off the Site where new controls may be necessary. The Group does not own any of these properties.

## **VII. Technical Assessment**

### **Question A. Is the remedy functioning as intended by the decision documents?**

Yes.

The review of the available information indicates that the remedy is functioning as was intended. Concentrations of contaminants have decreased over the years. It has been possible to greatly reduce the number of extraction wells that are used in the pump-and-treat system. However, the ICs have never been applied and implemented to the extent intended by the 1990 ROD.

Compliance with ICs is required to assure that the remedy continues to function as intended. Based on an inspection and interviews, there appears to be compliance with the stated objectives of the land and groundwater use restrictions. To assure that the remedy continues to function as intended, ICs must be reviewed to assure their effectiveness, and the ICs must be monitored and maintained. To that end, an IC study must be completed by the Group to study existing ICs and determine whether additional ICs are needed. An IC Plan will be prepared by U.S. EPA that will incorporate the results of the study and will include plans for additional IC activities, as needed.

### **Question B. Are the exposure assumptions, toxicity data, clean-up levels, and remedial action objectives used at the time of the remedy selection still valid?**

Yes.

There have been no major changes in the physical conditions of the Site that would affect the protectiveness of the remedy. The Site is being used as anticipated (that is, not being used) so the exposure assumptions that were made do not need to be changed.

The remaining applicable or relevant and appropriate requirements (ARARs) that still have to be attained deal with the quality of the groundwater; these are primarily the MCLs. There have been no changes made in the MCLs for the indicator substances at this Site. However, the cleanup standards will be reviewed since some were based on risks calculated with data that may have been upgraded. No Site uses which are inconsistent with the implemented ICs or the remedy's IC objectives have been noted during the Site inspection or discussions with the Group's representative.



**Question C. Has any other information come to light that could call into question the protectiveness of the remedy?**

No.

There has been no new information that would suggest that the remedy that was selected is not sufficient

**Technical Assessment Summary**

According to the data reviewed, the Site inspection, and discussions with the State's representative, and the Group's consultant, the remedy is functioning as intended by the ROD as amended by the ESDs. There have been no changes in the physical conditions at the Site that would affect the protectiveness of the remedy nor have there been any changes in the ARARs that still need to be met. The concentrations of the primary substances of concern in the groundwater have been holding fairly steady. The Site is being used in a manner consistent with the required use restrictions.

**VIII. Issues**

The issues identified during this review were:

- 1A. Institutional Controls--The ICs that have been implemented have not been fully studied to determine if they are effective, whether additional ICs are needed, and whether effective procedures are in place for long-term Site stewardship.
- 1B. Institutional Controls--Along with assuring that effective ICs are in place for all required areas, effective procedures must be assured for long-term Site stewardship, which includes maintaining and monitoring effective ICs, so that the remedy remains protective.
2. Two monitoring wells and two piezometers are in locations where the Group has been denied access.

**IX. Recommendations and Follow-Up Actions**

- 1A. Institutional Controls--The Group was directed to perform a study of the ICs and they agreed to conduct an IC evaluation.
- 1B. Institutional Controls--Based upon the results of the IC study, an IC Plan will be developed by U.S. EPA to incorporate the required follow-up actions into the remedy in order to assure long-term Site stewardship.
2. U.S. EPA will evaluate the continued need for these wells and piezometers. If any are not needed, U.S. EPA will pursue proper abandonment. If any are needed, U.S. EPA will work with the Group to gain access or require installation of replacement(s).

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Mile-stone Date	Affects Protectiveness? (Y/N)	
					Current	Future
1A. ICs--The ICs that have been implemented have not been fully studied to determine if they are effective, whether additional ICs are needed, and whether effective procedures are in place for long-term Site stewardship.	The Group will perform and complete the study of the ICs.	PRP/U.S. EPA	U.S. EPA	March 2008	N	Y
1B. ICs--Along with assuring that effective ICs are in-place for all required areas, long-term stewardship must be assured, which includes maintaining and monitoring effective ICs.	Based upon the IC study, an IC Plan will be developed to incorporate required follow-up actions to assure that the remedy remains protective.	U.S. EPA (with input from the Group)	U.S. EPA	March 2008	N	Y
2. Two monitoring wells and two piezometers are in locations where the Group has been denied access.	U.S. EPA will evaluate the continued need for these wells and piezometers. If any are not needed, U.S. EPA will pursue proper abandonment. If any are needed, U.S. EPA will work with the Group to gain access or require installation of replacement(s).	U.S. EPA (with input from the Group)	U.S. EPA	March 2008	N	N

## X. Protectiveness Statement

The remedy for operable unit (OU) 1 was not completed; it was superseded by the remedy for OU 2. Therefore a protectiveness statement for OU 1 is not appropriate. The remedy for OU 2, which incorporates the previous OU 1 work, and therefore the entire Site, is protective of human health and the environment in the short term because exposure pathways that could result in

*unacceptable risks are being controlled. The groundwater remedy is currently protective of human health and the environment because an alternate water supply is available to users within the plume area and no one is currently using the water. The groundwater remedy will achieve long-term protectiveness when the groundwater cleanup standards are achieved throughout the plume area. Interim groundwater use restrictions are required in the plume area until groundwater cleanup standards are achieved. The soil remedy is currently protective of human health and the environment because there is no evidence of interference with the land cover and there is no current inconsistent use of the property. Long-term protectiveness requires compliance with effective ICs. Long-term stewardship requires assuring that all required ICs are in place and effective and that effective ICs will be maintained and monitored along with maintaining the Site remedy components. The existing Site uses are consistent with the IC objectives.*

## **XI. Next Review**

The next five-year review for the Acme Solvent Reclaiming (Morristown Plant) Site is required in September 2012, five years from the signature date of this review.

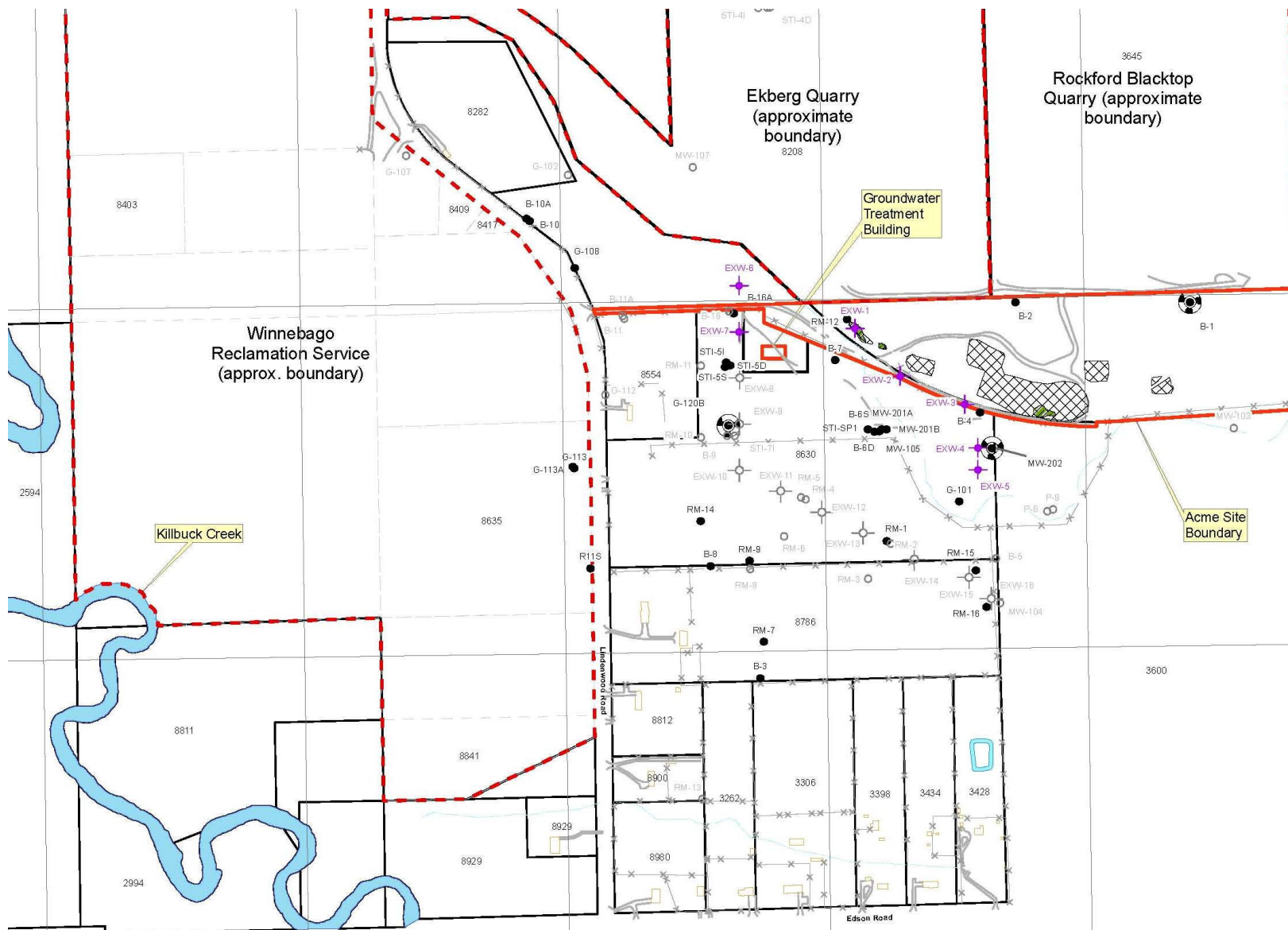
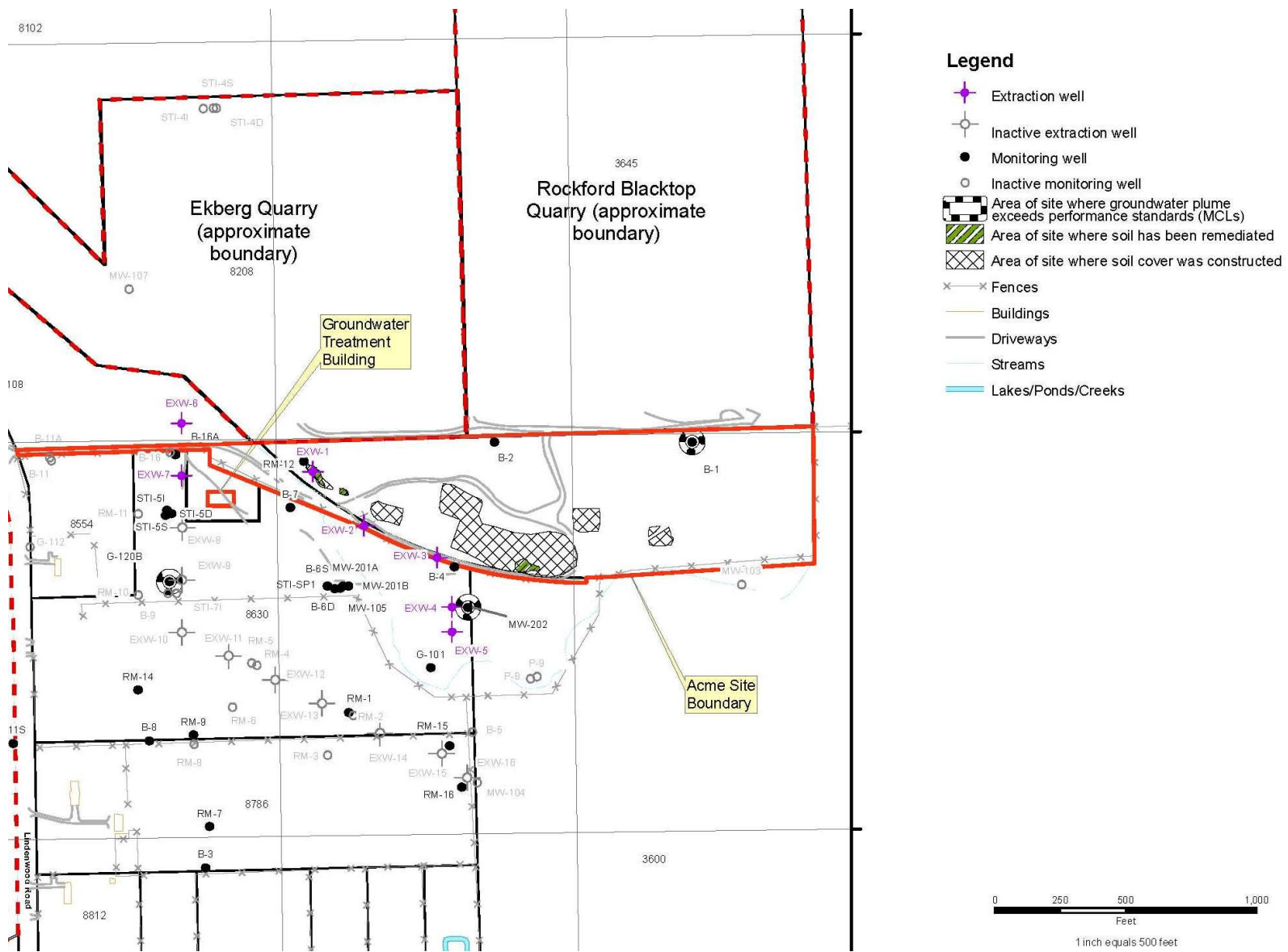


Figure 1. Acme Solvent Reclaiming (Morristown Plant) Site  
 (Cropped from NES map dated July 31, 2007)



(Cropped from NES map dated July 31, 2007)



**EPA to Review Acme Solvent Reclaiming, Inc. (Morristown Plant)**  
Winnebago County, Illinois

U.S. Environmental Protection Agency is conducting a five-year review of the Acme Solvent Reclaiming, Inc. (Morristown Plant) Superfund site located on Lindenwood Road in the southern part of Winnebago County, Illinois. The agency conducts the review to make sure the cleanup still protects human health and the environment. Construction work was completed in 1998. Although some cleanup work had taken place previously, the majority took place following the Record of Decision on December 31, 1990.

Briefly, the cleanup was to include:

- excavation and treatment of soil and sludge in two areas and disposal of some, if necessary, off site
- burning polluted liquids off-site and sludge from tanks on-site and disposal of those tanks
- providing a clean water supply to residents with contaminated wells
- treating contaminated ground water, then discharging it into surface water
- treating soil and, when possible, bedrock contaminated with organic chemicals by vapor extraction
- consolidating soil on the site and covering contaminated areas with an engineered cap
- monitoring ground water long-term
- putting a fence around the site and restricting the use of the property and nearby ground water

Two subsequent Explanations of Significant Differences changed parts of the remedy, including using a soil cover in place of the engineered cap mentioned above.

During the review, EPA will inspect the site, study ground-water monitoring results, and review restrictions placed on the site. Information about the site is available for review at the site repository at the Rockford Public Library, 215 North Wyman Street, Rockford, Ill. A copy of the 2002 five-year review report is available on the Internet at <http://www.epa.gov/R5Super/>.

EPA invites you to provide information that might be important in this site review. Your information will be most valuable to reviewers if it is received by July 27, 2007. This five-year review report is due on September 24, 2007 and will be placed in the Rockford Public Library. To provide information or ask questions please contact:

**Bernard Schorle, Remedial Project Manager**  
(312) 886-4746, or toll free, 800-621-8431 weekdays 9 a.m. - 4:30 p.m.  
[schorle.bernard@epa.gov](mailto:schorle.bernard@epa.gov)

1009-11224

Figure 3. Notice in *Rockford Register Star* on July 12, 2007