FOURTH FIVE-YEAR REVIEW REPORT FOR LASALLE ELECTRIC UTILITIES SUPERFUND SITE
LaSalle County, Illinois

Prepared by

Illinois Environmental Protection Agency
Springfield, Illinois

For U.S. Environmental Protection Agency, Region 5
Chicago, Illinois

Richard C. Karl, Director
Superfund Division

9/25/2014
Date

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Five-Year Review Report
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LIST OF ABBREVIATIONS

ARARs	applicable or relevant and appropriate requirements
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CRPM	Co mmunity Relations Project Manager
CWA	Clean Water Act
E&E	Ecolog y and Environment, Inc.
EPA	U. S. Environmental Protection Agency
ESD	Explanation of Significant Difference
FS	Feasibility Study
FYR	Five Year Review
GAC	granular activated carbon
GTU	groun dwater treatment unit
HOPE	high-densit y polyethylene
HRS	Hazard Ranking System
ICs	institutional controls
Illinois EPA	Illinois Environmental Protection Agency
LEU	LaSalle Electric Utilities
MCLs	maxi mum contaminant levels
NAPL	non-aqueous-phase liquid
NCP	National Contingency Plan
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NPL	National Priorities List
O&M	operation and maintenance
OSHA	Occupational Safety and Health Administration
OU1	Operable Unit 1
OU2	Operable Unit 2
PCB	polychlorinated biphenyl
PCE	tetrachloroethene (i.e., perchloroethylene)
POTW	Publicly Owned Treatment Works
ppb	part per billion
ppm	parts per million
PRP	Potentially Responsible Party
RAOs	re medial action objectives
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
RRA	Residual Risk Assessment
SDWA	Safe Drinking Water Act
SVE	soil vapor extraction
1, 1, 1-TCA	1, 1, 1-trichloroethane
TCE	trichloroethene (i.e., trichloroethylene or 1, 1, 2-trichloroethene)
total 1, 2-DCE	total 1,2-dichloroethene
TSCA	Toxic Substances Control Act
VC	vin yl chloride
VOC	volatile organic compound

EXECUTIVE SUMMARY

This is the fourth Five-Year Review (FYR) for the LaSalle Electric Utilities (LEU) Superfund (Site) located in the city of LaSalle, LaSalle County, Illinois. The purpose of this FYR is to review information to determine if the remedy is and will continue to be protective of human health and the environment. The triggering action for this policy FYR was the signing of the previous FYR on September 25, 2009.

The LEU Site is approximately 10 acres and is located in west-central LaSalle County in the City of LaSalle. The Site is surrounded by small retail/industrial businesses, agricultural land, and residential property. Approximately 5,183 residents live within one mile of the Site, with approximately 190 people and 70 residences located within an eighth of a mile of the property.

LEU, a former manufacturer of electrical equipment, began operating prior to World War II. From about 1943 until 1982, the 68,000 square foot industrial complex manufactured capacitors for use in industrial applications and electrical power transmission. Between the late 1940s and 1978, PCBs were utilized in the production of capacitors. Undocumented reports allege the application of PCB-contaminated waste oil as a dust suppressant, both on and off the property, until as late as 1969. In 1982, the La Salle Electrical Utilities Company filed for bankruptcy and is now nonexistent.

The Site was divided into two operable units (OUs). OU 1 addressed offsite PCB soil contamination in the 1986 Record of Decision (ROD). OU 2 addressed the rest of the Site contamination in the 1988 ROD and subsequent 2004 Explanation of Significant Differences (ESD). The protectiveness for each OU and on a site-wide basis is as follows:

OU l — The remedy is protective. PCB-contaminated materials above 5 ppm at the surface and above 10 ppm at depths greater than one foot were removed as determined by sampling and industrial cleaning was done in homes on properties where excavation occurred.

OU 2 — The remedy is currently protective of human health and the environment in the short-term because there is no evidence of current exposures to site-related contamination. However, in order for the remedy to be protective in the long-term, the groundwater extraction, ground water treatment unit (GTU), and soil vapor extraction (SVE) systems must be re-started and institutional controls (ICs) must be implemented, maintained and enforced at the Site to supplement an already established LaSalle City ordinance prohibiting use of the shallow groundwater until remedial objectives are met.

Site-Wide -The remedies implemented at the Site are currently protective in the short-term because there is no evidence of current exposure to site-related contamination. However, in order for the remedies to be protective in the long-term, the groundwater extraction, GTU, and SVE systems must be re-started to meet the Remedial Action Objectives of the ROD for Site groundwater. Additionally, long-term protectiveness requires implementation and compliance with effective ICs until the cleanup standards have been met. An institutional control plan will be developed to identify the appropriate ICs for the Site. A LaSalle City ordinance exists to prohibit construction of any private wells for the purpose of obtaining a water supply. ICs

required in addition to the local ordinance will be developed through the Illinois Uniform Environmental Covenants Act (UECA) process. Compliance with effective ICs will be ensured by: verifying the existence of the ordinance; reviewing its effectiveness; and ensuring the ICs are monitored, maintained and enforced. Finally, the remedy will be modified as appropriate to formally incorporate any required ICs identified by the IC plan.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: LaSalle Electric Utilities		
EPA ID: ILD980794333		
Region: 5	**State:** IL	**City/County:** LaSalle, LaSalle

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: State
Author name (Federal or State Project Manager): Nicole M. Wilson. P.E.
Author affiliation: Illinois Environmental Protection Agency
Review period: 9/25/2009 – 9/25/2014
Date of site inspection: 5/14/2014
Type of review: Policy
Review number: 4
Triggering action date: 9/25/2009
Due date *(five years after triggering action date)*: 9/25/2014

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU 1

Issues and Recommendations Identified in the Five-Year Review:

OU(s): OU 2	**Issue Category:** Operations and Maintenance			
	Issue: The groundwater extraction, GTU, and SVE systems have not been restarted.			
	Recommendation: Develop a plan restart treatment of Site groundwater.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Illinois EPA	EPA	12/30/2015

Five-Year Review Summary Form (continued)

Issues/Recommendations

OU(s): OU 2	**Issue Category:** Operations and Maintenance			
	Issue: The GTU building flooded and the condition of the GTU equipment is questionable.			
	Recommendation: Develop a plan using an alternate treatment of Site groundwater.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Illinois EPA	EPA	12/30/2015

OU(s): OU 2	**Issue Category:** Monitoring			
	Issue: Groundwater monitoring was halted, due to budgetary restraints.			
	Recommendation: Update the groundwater monitoring requirements and restart monitoring.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Illinois EPA	EPA	12/30/2014

OU(s): OU 2	**Issue Category:** Institutional Controls			
	Issue: Institutional controls (ICs) are not included in the OU 2 ROD or the ESD for the Site which would prevent exposure to contaminated groundwater until the aquifer is restored to beneficial use.			
	Recommendation: Develop an IC plan to identify appropriate ICs needed as part of the remedy to prevent exposure to contaminated groundwater until it is restored.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Illinois EPA	EPA	12/30/2014
OU(s): OU 2	**Issue Category:** Institutional Controls			
	Issue: Institutional controls (ICs) are not included in the OU 2 ROD or the ESD for the Site which would prevent exposure to contaminated groundwater until the aquifer is restored to beneficial use.			
	Recommendation: Modify the remedy as appropriate to formally adopt any needed ICs identified in the IC plan.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**

No	Yes	Illinois EPA	EPA	10/30/2015
OU(s): OU 2	**Issue Category:** Institutional Controls			
	Issue: Institutional controls (ICs) are not included in the OU 2 ROD or the ESD for the Site which would prevent exposure to contaminated groundwater until the aquifer is restored to beneficial use.			
	Recommendation: Implement ICs if required by remedy modifications through the UECA process (765 Illinois Compiled Statues (ILCS) 122).			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	Illinois EPA	EPA	4/30/2016

Protectiveness Statement(s)

Operable Unit:	Protectiveness Determination:
OU 1	Protective

Protectiveness Statement:
The remedy is protective. PCB-contaminated materials above 5 ppm at the surface and above 10 ppm at depths greater than 1 foot were removed as determined by sampling and industrial cleaning was done in homes on properties where excavation occurred.

Operable Unit:	Protectiveness Determination:
OU 2	Short-term Protective

Protectiveness Statement:
The remedy is currently protective of human health and the environment in the short-term because there is no evidence of current exposures to site-related contamination. However, in order for the remedy to be protective in the long-term, the groundwater extraction, GTU, and SVE systems must be re-started and institutional controls (ICs) must be implemented, maintained and enforced at the Site to supplement an already established LaSalle City ordinance prohibiting use of the shallow groundwater.

Site-wide Protectiveness Statement

Protectiveness Determination:
Short-term Protective

Protectiveness Statement:
The remedies implemented at the Site are currently protective in the short-term because there is no evidence of current exposure to site-related contamination. However, in order for the remedies to be protective in the long-term, the groundwater extraction, GTU, and SVE systems must be re-started to meet the Remedial Action Objectives of the ROD for Site

groundwater. Additionally, long-term protectiveness requires implementation and compliance with effective ICs until the cleanup standards have been met. An institutional control plan will be developed to identify the appropriate ICs for the Site. A LaSalle City ordinance exists to prohibit construction of any private wells for the purpose of obtaining a water supply. ICs required in addition to the local ordinance will be developed through the Illinois Uniform Environmental Covenants Act (UECA) process. Compliance with effective ICs will be ensured by: verifying the existence of the ordinance; reviewing its effectiveness; and ensuring the ICs are monitored, maintained and enforced. Finally, the remedy will be modified as appropriate to formally incorporate any required ICs identified by the IC plan.

Five Year Review Report

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The Illinois Environmental Protection Agency (Illinois EPA) prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 and the National Contingency Plan (NCP). CERCLA 121 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 five 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."*

U.S. Environmental Protection Agency interpreted this requirement further in the NCP; 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii), which 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 actions no less often than every five years after the initiation of the selected remedial action*."

The Illinois EPA conducted a FYR of the remedy implemented at the LaSalle Electric Utilities (LEU) Superfund Site in LaSalle, LaSalle County, Illinois. The Illinois EPA is the lead agency for developing and implementing the remedy for the Site. EPA, as the support agency, has reviewed all supporting documentation and provided input to Illinois EPA during the FYR process.

This is the fourth FYR for the LEU Superfund Site. The triggering action for this policy review was the completion of the Third FYR in September 2009. The FYR 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 (UU/UE). The Site consists of two Operable Units (OUs), all of which are addressed in this FYR.

II. PROGRESS SINCE THE LAST REVIEW

Table 1: Protectiveness Determinations/Statements from the 2009 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	Remedy is protective
2	Short-term Protective	Remedy is protective short-term because there is no evidence that there are current exposures. In order for the remedy to remain protective in the long-term, the groundwater extraction, GTU, and SVE systems must be re-started and the LaSalle City Ordinance prohibiting the use of shallow groundwater must be verified and monitored.
Site-wide	Short-term Protective	The Remedies implemented for the entire Site are protective short-term because there is no current exposure. In order for the remedy to remain protective in the long-term, the groundwater extraction, GTU, and SVE systems must be re-started. Additionally, the long-term protectiveness requires compliance with effective institutional controls until the cleanup standards have been met. A LaSalle City Ordinance exists to prohibit construction of any private wells for the purpose of obtaining a water supply. Compliance with effective institutional controls will be ensured by: verifying the existence of the ordinance; reviewing its effectiveness; and ensuring the ICs are monitored, maintained, and enforced. Finally, the remedy will be modified to formally incorporate the ICs.

Table 2: Status of Recommendations from the 2009 FYR

OU #	Issue	Recommendations / Follow-up Actions	Party Responsible	Oversight Party	Original Milestone Date	Current Status	Completion Date (if applicable)
2	The groundwater extraction, GTU, and SVE systems have been shut down for an observational period but have yet to be restarted.	Develop plan to restart the groundwater extraction, GTU, and SVE systems.	Illinois EPA	Illinois EPA	12/31/2009	Under Discussion	N/A
2	The groundwater monitoring may need to be modified to fully understand the current conditions of the aquifer due to the extended shutdown period.	Update the groundwater monitoring requirements to fully evaluate the extended shutdown observational period.	Illinois EPA	Illinois EPA	12/31/2009	Under Discussion	N/A
2	ICs are not included in the OU2 ROD or the ESD for the Site which would prevent exposure to contaminated groundwater until the aquifer is restored to beneficial use. However a LaSalle city ordinance currently prohibits the use of the shallow groundwater. This ordinance needs to be evaluated to ensure additional controls are not necessary.	Develop an IC Plan to determine: which ICs are necessary until the groundwater RAOs are achieved; the necessary remedy modifications to include the ICs; and to specify the requirements needed to monitor whether the ICs remain effective.	Illinois EPA	Illinois EPA	12/31/2009	Under Discussion	N/A

Recommendation 1: The observational period was extended due to Illinois EPA budgetary constraints. During the observational period, the groundwater treatment building suffered a valve and water supply line failure which flooded the building for an extended period of time. Illinois EPA disconnected the failed water line and drained the building. Since much of the pumps were underwater during this time, there is a concern that the integrity of the system is compromised. The collection and treatment system will need a full engineering evaluation, including replacement of faulty equipment, prior to restarting the system significantly increasing the costs associated with restarting the system. Illinois EPA has begun discussions with its consultants and EPA to evaluate the best path forward to continue progress toward attaining the cleanup objectives required by the remedy. Illinois EPA will develop a plan with its recommendations for EPA review.

Recommendation 2: The observational period was extended due to Illinois EPA budgetary constraints. Subsequently the groundwater monitoring efforts were halted due to the budgetary constraints as well. Pursuant to discussions with EPA, monitoring activities will begin under a revised monitoring plan which Illinois EPA anticipates to have in place by the end of 2014.

Recommendation 3: Illinois EPA has completed a residual risk assessment evaluating the Site conditions existing after the GTU and SVE systems were turned off. The risk estimates fell within the range of acceptable risks. However, the assessment did show that the risks could exceed the range of acceptable risks if Site conditions change and additional cleanup efforts did not occur. Based upon the results of this assessment, Illinois EPA will develop an IC plan by December 2015 to identify any needed ICs required to prevent unacceptable risks due to exposures from Site contaminants until the cleanup objectives have been attained. The remedies will then be modified, as appropriate, to formally adopt the required ICs as a component of the overall remedy for the Site.

Remedy Implementation Activities

During this fourth FYR, the revision to the Residual Risk Assessment (RRA) was completed. The results of RRA indicate that for a worst-case scenario (no attenuation) the estimated cancer risks due to vapor intrusion would range from 7.6×10^{-6} to 3.6×10^{-4}, and noncancer hazard indices would range from 1.2 to 7.6. The upper ends of both of these ranges exceed levels generally considered acceptable. However, if the degree of attenuation predicted by the ASTM E1739 groundwater model is taken into account, the estimated cancer risks fall to 4.8×10^{-7} to 3.3×10^{-6}, and the estimated noncancer hazard indices drop to 0.03 to 0.37, levels within or below levels generally considered acceptable. Using the most recent (September 2011) groundwater monitoring data, all of the noncancer hazard indices estimated for the perimeter well locations were less than 1. All of the excess cancer risks estimated for the perimeter wells were 2×10^{-6} or less and all but three were less than 1×10^{-6}.

Currently, the two phytoremediation plots remain in operation. The remedy shutdowns have not resulted in a significant increase in contaminant concentrations or in the areal extent of the l, 1, 1-TCA and TCE plumes. There currently are no immediate threats. However, continued groundwater monitoring will be needed to assess any further changes in site conditions that may result in risks to human health and the environment.

Institutional Controls

ICs are non-engineered instruments, such as administrative and or legal controls that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for those areas that do not allow for UU/UE.

ICs were not required by the two RODs or the ESD that document the required Site remedies. Illinois EPA will develop an IC plan identifying the appropriate ICs for the Site conditions, including addressing potential risks identified by the residual risk assessment. The soil cleanup standards were developed to be protective for residential use. The groundwater at the Site is not anticipated to reach concentrations which would allow for UU/UE standards for many years. Groundwater use restrictions are necessary to prohibit usage of the groundwater until groundwater concentrations reach those levels which would allow for UU/UE throughout the plume. Therefore, Illinois EPA will modify the remedy, as appropriate; to include ICs until the groundwater standards are met. Currently, LaSalle City Ordinance Number 1474 prohibits the construction of "any private water system including a well, within the City of LaSalle, for the purpose of obtaining a water supply" where the LaSalle public water supply is within 300 feet of the nearest property line. In addition to the City Ordinance 1474 and as determined by the IC plan, the UECA process will be followed to apply this prohibition to all areas of the contaminated groundwater plume. The ordinance must be verified to be in place and effective and properly monitored. The contaminant plume area is located entirely within the City of LaSalle, and thus the public water supply must be used. Illinois EPA examined the municipal water supply system and conducted a survey of private residential wells in the area and determined that the shallow groundwater is not currently used for potable purposes.

The Table 3 summarizes the ICs that are planned and/or implemented at the Site.

Table 3: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	Yes	No	Site wide	Prohibit groundwater use until cleanup standards are achieved	City of LaSalle Ordinance #1474 Supplemented with an Illinois UECA IC as determined by the IC plan (planned)

Current Compliance: Based on the Site inspection and data reviewed, neither Illinois EPA nor EPA are aware of Site or media uses which are inconsistent with of the objectives of the implemented remedies or the ICs. Illinois EPA examined the municipal water supply system and conducted a survey of private residential wells in the area and determined that the shallow groundwater is not currently used for potable purposes. Therefore, at this time, the LaSalle City Ordinance appears to be functioning as intended. However, long-term protectiveness requires implementation and compliance with effective ICs.

Long-term Stewardship: Long-term protectiveness at the Site requires compliance with use restrictions to assure the remedy continues to function as intended. To assure proper maintenance, monitoring and enforcement of effective ICs, long-term stewardship procedures will be reviewed and an IC plan will be developed. The plan will identify the type and location of ICs which need to be implemented, what type of remedy modification is required, and specify monitoring efforts required to ensure the ICs remain in place and effective.

System Operation/Operation and Maintenance Activities

The groundwater treatment system was not restarted during this review period. In March 2011, a flood within the treatment building potentially compromised the treatment system equipment. The groundwater was sampled in September 2011 to support the RRA. However, semi-annual monitoring was suspended due to budgetary constraints during this FYR period.

III. FIVE-YEAR REVIEW PROCESS

Administrative Components

The LEU Superfund Site FYR was led by Nicole M. Wilson, P.E., of the Illinois EPA, Remedial Project Manager (RPM) for the Site. Mr. David Seely, EPA RPM, assisted in the review as the representative for the support agency.

The review, which began on March 24, 2014, consisted of the following components:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection; and
- Five-Year Review Report Development and Review.

Community Notification and Involvement

Activities to involve the community in the five-year review process were initiated with a conversation in March 2014 between the Illinois EPA RPM and EPA RPM for the Site. A notice was published in the local newspaper, the LaSalle News Tribune, on May 12, 2014, stating that there was a five-year review and inviting the public to submit any comments to the Illinois EPA.

The results of the review and the report will be made available at the Site information repository when the Administrative Record is re-established at a new location. To date, no questions have been received from the public.

Document Review

This FYR consisted of a review of relevant documents including the RRA and monitoring data. The March 1988 ROD and the July 2004 ESD were also reviewed.

Data Review

With changes in knowledge relating to release and exposure to chlorinated solvents via vapor release to ambient air, a reevaluation of risk was conducted. This risk reevaluation evaluated the potential risks to human health and the environment that could result after the groundwater collection and treatment system and the SVE systems were shut down in 2005. A conceptual model of potential future exposure pathways and receptors at the Site was developed, which indicates that vapor intrusion into buildings from groundwater is likely to be the dominant pathway that will drive potential future Site risks. Direct usage of groundwater is not expected to result in significant exposure because potable water is provided to the area by a public water supply system and a local ordinance is in place that prohibits use of groundwater as a water supply source.

Chemicals of potential concern (COPCs) were identified by comparing contaminant concentrations detected in groundwater samples collected between September 2005, after the groundwater collection and treatment and SVE systems were shut down in March 2005, and September 2011 with risk-based concentrations for groundwater corresponding to a cancer risk of 1×10^{-6} or a non-cancer hazard quotient of 1 for the vapor intrusion pathway. Chemicals whose maximum concentrations exceeded their risked-based concentrations (RBCs) were selected as COPCs. Seven chemicals, 1,1,2-trichloroethane, 1,1- dichloroethane, 1,4-dichlorobenzene, total PCBs, tetrachloroethene (PCE), TCE, and vinyl chloride, met this criterion. These chemicals and three others that have been consistently detected in Site groundwater at relatively high levels, 1,1,1- TCA, 1,1-dichloroethene, and trans-1,2-dichloroethene, were carried through the groundwater migration and vapor intrusion calculations to estimate the potential future health risks associated with this pathway.

Groundwater elevations and contaminant concentrations were monitored for six years since the shutdown of the groundwater collection and SVE systems in March 2005. Groundwater contamination patterns that remain after shutdown of the groundwater collection and treatment system can be summarized as follows. In general, two "hot spots" or source areas remain at the Site. One, centered at monitoring well EW3, the former location of the "Thinner Shed," consists primarily of PCE, TCE, and its degradation products 1,2-DCE and vinyl chloride. The other hot spot, centered on monitoring well EW12, the former location of the "Laboratory" within the LEU building, consists primarily of 1,1,1-TCA and its transformation and degradation products 1,1,2-TCA, 1,1-DCA, and 1,1-DCE. Groundwater contaminant concentrations fall off rapidly as the distance from these "hot spots" increases. At perimeter wells surrounding the Site, VOCs either were not detected, or were consistently detected at concentrations below their respective maximum contaminant levels (MCLs).

If the groundwater contaminant concentrations present at monitoring well(s) EW3 and/or EW12 were to reach the closest receptor locations unchanged, the estimated cancer risks due to vapor intrusion would range from 7.6×10^{-6} to 3.6×10^{-4}, and non-cancer hazard indices would range from 1.2 to 7.6. The upper ends of both of these ranges exceed levels generally considered acceptable by regulatory agencies. However, if the degree of attenuation predicted by the ASTM E1739 groundwater model is taken into account, the estimated cancer risks fall to 4.8×10^{-7} to 3.3×10^{-6}, and the estimated non-cancer hazard indices drop to 0.03 to 0.37, levels within or below levels generally considered acceptable.

The results of soil sampling for VOCs and chloride in 2004 and 2005 indicated that biodegradation was occurring in the PCB-contaminated area. Active biodegradation has been further supported by the results of groundwater samples collected at a nearby monitoring well, where a steady decrease in PCE concentrations has been accompanied with a concurrent, steady increase in total 1,2-dichloroethene (total 1,2-DCE) concentrations. The GTU system has enhanced collection of the TCE groundwater plume. TCE concentrations in groundwater samples collected from nearby monitoring wells have declined, and TCE has not been detected in groundwater downgradient and east of the Site.

Using the most recent (September 2011) groundwater monitoring data, all of the non-cancer hazard indices estimated for the perimeter well locations were less than 1. All of the excess cancer risks estimated for the perimeter wells were 2×10^{-6} or less and all but three were less than 1×10^{-6}.

Site Inspection

The inspection of the Site was conducted on May 14, 2014. In attendance were Nicole Wilson and Michelle Tebrugge of the Illinois EPA. The purpose of the inspection was to assess the protectiveness of the remedy. A subsequent site inspection was conducted on June 12, 2014 by Nicole Wilson and David Seely.

The Site is in good condition overall. The treatment building and fence were intact. No visible signs of vandalism were observed. The vegetation is slightly overgrown but not to a nuisance level. Wear patterns in the vegetation suggest that trespassing is common in the unfenced area of the Site.

Since the treatment system was not operational during this review period the condition of the treatment system could not be determined. However, in March of 2011 a flood inside the treatment building has potentially compromised the treatment system equipment.

The Site monitoring wells were found locked and in decent condition with the exception of monitoring well G120. The protective casing was severely damaged and the top of the well casing is smashed together.

The two phytoremediation plots are still thriving. However, the harsh winter weather has taken a toll on some of the trees. There are downed limbs, broken branches, and dead trees throughout both plots.

Interviews

Specific interviews associated with the preparation of the Five-Year Review report were not conducted. There are no current landowners or viable potentially responsible parties (PRPs). The community has not expressed interest in the Site. If the community expresses an interest as a result of the May 12, 2014 Public notice, an effort to conduct interviews will be made. However, to date no inquiries have been made by the public and no interviews have been conducted.

IV. TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents? **NO**

After the long-term aquifer rebound observational period, the operations were not restarted due to budgetary and logistical reasons. Consequently, the GTU and SVE systems must be restarted in order for the remedy to function as intended.

Remedial Action Performance

The shutdown of the GTU and SVE systems has not resulted in a significant increase in contaminant concentrations or in the areal extent of the 1, 1, 1-TCA and TCE plumes. One notable change is the migration of the TCE plume along the more permeable trench backfill m aterial surrounding the groundwater collection system laterals to the south. However, groundwater contaminants have not impacted the native silty clay soils screened by the perimeter monitoring wells. The phytoremediation system continues to degrade contaminants in the PCE-contaminated Northwest source area, and the GTU area system has enhanced collection of the TCE groundwater plume, preventing contaminant migration east of the Site. Based on groundwater analytical data, additional groundwater extraction and treatment will be necessary to achieve the remedial action objectives (RAOs; i.e., MCLs) currently established for the Site. The RAOs for groundwater are to remove contaminants from the groundwater to achieve the MCLs for the VOC contaminants and 1-ppb for PCBs.

System Operations/O&M

The GTU and SVE systems were shut down due to allow long-term observation and assessment of contaminant rebound effects in groundwater upon termination of the treatment. Prior to this, the remedy was functioning as intended. However, due to Illinois EPA budgetary issues, the systems have not been restarted. The long-term observational period is complete and the groundwater extraction system, GTU, and

SVE systems need to be restarted as soon as reasonably possible to ensure the remedies remain protective.

A flood within the treatment building has potentially compromised the groundwater treatment system. So restarting of the existing treatment system is questionable.

The Site groundwater was sampled once to aide with the revision to RRA, but semi-annual monitoring of the groundwater was also halted due to Illinois EPA budgetary issues.

Opportunities for Optimization

The Illinois EPA is looking into other treatment options for the groundwater contamination since restarting the existing system is not feasible. The monitoring plan needs to be revised, updated, and restarted to monitor any changes in contaminant concentrations.

Early Indicators of Potential Issues

Analytical results are the primary indicator of potential remedy problems. Restarting of continued groundwater monitoring will need to be done to assess changes in Site conditions the may result in risks to human health and the environment.

Implementation of Institutional Controls and Other Measures

The GTU and SVE systems are located within fenced areas. No break-ins have occurred, which is supportive of no additional security being required. The vegetated soil cover over the thermally treated soil is well maintained and there is no apparent burrowing by small animals into the ash. While most of phytoremediation plantings are not within a secured area, vandalism has not been noted. Similarly, monitoring wells and manhole standpipes are not within a secured area; however, they are secured by locks and vandalism has not been noted. Therefore, no additional security measures are needed at the LEU Site.

No institutional controls were included in either of the RODs or the E SD. The City of LaSalle has an ordinance restricting the use of the shallow groundwater preventing unacceptable exposures. The ordinance must be verified to be in place and effective, and compliance with the ordinance must be monitored. Also, Illinois EPA will revise the remedy, as appropriate, to include an Illinois UECA covenant as an IC to restrict the use of shallow groundwater until the groundwater standards are met.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy section still valid? **YES**

Changes in Standards and TBCs

The soil RAOs were developed to be protective of residential exposures using EPA policies for PCB spills in high contact soils. The area remains mostly residential with some commercial and agricultural uses so the exposure scenarios have not changed. Upon comparison with EPA's Regional Screening Levels for Chemical Contaminants at Superfund Sites updated May 2014, the selected cleanup level of 5 ppm remains within the acceptable risk range of 1x10-4 to 1x10-6. Therefore the soil cleanup level remains valid.

The ROD specified that MCLs will be achieved for VOC contaminants and 1 ppb for PCBs. Using the EPA Regional Screening Level Calculator, 1 ppb remains within the acceptable risk range. Therefore the PCB RAO remains valid.

Previous re-examinations of the municipal water supply system and a survey of private wells in the area determined that shallow groundwater is not currently used for potable purposes and a prohibition ordinance is in place. Additionally, the RRA concluded that the potential maximum cancer risks and non-cancer hazards associated with potential contaminated vapor intrusion into nearby residences and commercial buildings were well below levels of potential concern.

The storm sewer system carrying contaminated soils during significant storm events discharge to a drainage ditch and subsequently into an unnamed intermittent stream. The RAOs for the sediments of the drainage ditch and intermittent stream adopted the soil RAOs. The primary exposure pathway to stream sediment is through fish consumption. Given that the drainage ditch and stream are intermittent and will not hold a fish population throughout the year, the soil RAOs are considered appropriate for the drainage ditch and stream sediments.

The RI documents contaminated sediments near the outfall and showed a decreasing trend with sediments averaging 1.7 ppm 1000 feet downstream. The stream empties into the Little Vermillion River about 3500 feet downstream. The State of Illinois monitors their water bodies and issues fish consumption advisories when significant contaminant concerns are found. It should be noted that there not a fish consumption advisory issued for the Little Vermillion River due to PCB contamination.

Expected Progress Towards Meeting RAOs

The soil and sediment RAOs have been met. The groundwater contaminant concentrations in some areas are still elevated. Additional work will be necessary to reach the RAOs.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy? **NO**

Based on the analytical data, the remedy is currently protective. Continued groundwater monitoring will be needed to assess any further changes in Site conditions that may result in risks to human health and the environment. No additional information has been obtained to indicate that the remedy is insufficient.

Technical Assessment Summary

The GTU and SVE systems were shut down to allow for long-term observations of the rebound of the aquifer. Although these systems have not yet been restarted, this has not resulted in a significant increase in contaminant concentrations or in the areal extent of the 1,1,1-TCA and TCE plumes, and one remedy enhancement, the phytoremediation plots, continues to provide groundwater contaminant extraction and treatment at the Site. There is no evidence of current exposure and the City of LaSalle has an ordinance which prohibits the use of the shallow groundwater which will be supplemented by an UECA in a future effort. Based on the last round of groundwater analytical data, the remedy is currently protective of human health and the environment; however, additional groundwater treatment, of some form, will be necessary to achieve the RAOs (i.e., MCLs) currently established for the Site.

The remedies implemented at the Site are protective of human health and the environment in the short-term because:

- Contaminated soils, sediments, and debris have been excavated and treated on-site or disposed appropriately off-site;

- The contaminated buildings on-site were demolished and removed for off-site disposal and other affected structures were industrially cleaned where significant excavation of contaminated soil was conducted;

- A groundwater extraction and treatment system was constructed, the contaminated groundwater plume had been captured by the operating system, and was enhanced by the addition of two dual-phase SVE units and two phytoremediation plots to target isolated source areas and to minimize the amount of clean water collected and treated;

- There is no evidence of exposure to the contaminated ground water.

However if the groundwater extraction system and GTU are not restarted, the remedy specified in the OU2 ROD will not be operating and functioning as intended and the long-term protectiveness of the remedy will be threatened.

V. ISSUES/RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 4: Issues and Recommendations/Follow-up Actions

OU #	Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
						Current	Future
2	The groundwater extraction, GTU, and SVE systems have not been restarted.	Develop a plan to restart treatment of Site groundwater	Illinois EPA	EPA	12/30/2015	N	Y
2	The GTU building flooded and the condition of the GTU equipment is questionable.	Develop a plan using an alternate treatment method of the Site groundwater.	Illinois EPA	EPA	12/30/2015	N	Y
2	Groundwater monitoring was halted due to budgetary restraints.	Update the groundwater monitoring requirements and restart monitoring.	Illinois EPA	EPA	12/30/2014	N	Y
2	Institutional controls (ICs) are not included in the OU 2 ROD or the ESD for the Site which would prevent exposure to contaminated groundwater until the aquifer is restored to beneficial use.	Develop an IC plan to identify appropriate ICs needed as part of the remedy to prevent exposure to contaminated groundwater until it is restored.	Illinois EPA	EPA	12/30/2014	N	Y
2	Institutional controls (ICs) are not included in the OU 2 ROD or the ESD for the Site which would prevent exposure to contaminated groundwater until the aquifer is restored to beneficial use.	Modify the remedy as appropriate to formally adopt any needed ICs identified in the IC plan.	Illinois EPA	EPA	10/30/2015	N	Y
2	Institutional controls (ICs) are not included in the OU 2 ROD or the ESD for the Site which would prevent exposure to contaminated groundwater until the aquifer is restored to beneficial use.	Implement ICs if required by remedy modifications through the UECA process (765 Illinois Compiled Statues (ILCS) 122).	Illinois EPA	EPA	4/30/2016	N	Y

In addition, the following are recommendations that improve effectiveness of remedy, *improve management of O&M, and accelerating site close out* but do not affect current protectiveness and were identified during the Five-Year Review:

- Since the status of the existing groundwater treatment system is questionable, filling the collection laterals of the treatment system could help limit migration of the TCE plume.

VI. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
Operable Unit: OU 1	*Protectiveness Determination:* Protective
Protectiveness Statement: Remedy is Protective. PCB-contaminated materials above 5 ppm at the surface and above 10 ppm at depths greater than 1 foot were removed as determined by sampling and industrial cleaning was done in homes on properties where excavation occurred.	
Protectiveness Statement(s)	
Operable Unit: OU 2	*Protectiveness Determination:* Short-term Protective
Protectiveness Statement: The remedy is currently protective of human health and the environment in the short-term because there is no evidence of current exposures to site-related contamination. However, in order for the remedy to be protective in the long-term, the groundwater extraction, GTU, and SVE systems must be restarted and ICs must be implemented, maintained and enforced at the Site to supplement a LaSalle City ordinance that is already in place and prohibiting use of the shallow groundwater.	
Site-wide Protectiveness Statement	
Protectiveness Determination: Short-term Protective	
Protectiveness Statement: The remedies implemented at the Site are currently protective in the short-term because there is no evidence of current exposure to site-related contamination. However, in order for the remedies to be protective in the long-term, the groundwater extraction, GTU, and SVE systems must be restarted to meet the Remedial Action Objectives of the ROD for Site groundwater. Additionally, long-term protectiveness requires implementation and compliance with effective ICs until the cleanup standards have been met. An institutional control plan will be developed to identify the appropriate ICs for the Site. A LaSalle City ordinance exists to prohibit construction of any private wells for the purpose of obtaining a water supply. ICs required in	

addition to the local ordinance will be developed through the Illinois Uniform Environmental Covenants Act (UECA) process. Compliance with effective ICs will be ensured by: verifying the existence of the ordinance; reviewing its effectiveness; and ensuring the ICs are monitored, maintained and enforced. Finally, the remedy will be modified as appropriate to formally incorporate any required ICs identified by the IC plan.

VII. NEXT REVIEW

The next five-year review report for the LEU Superfund Site is required five years from the completion date of this review.

Appendix A – Existing Site Information

A. SITE CHRONOLOGY

Table 1: Chronology of Site Events

Event	Date
LEU cited for inadequate polychlorinated biphenyl (PCB) storage facilities by EPA.	September 1975
Violation of PCB management practices documented by EPA and the Occupational Safety and Health	October 1979
Illinois EPA soil sampling revealed extensive PCB contamination on the LEU property.	December 1980
Illinois EPA soil sampling revealed PCB contamination on property beyond the LEU Site.	March and May 1981
Illinois EPA, under authority of Section 34 of the Illinois Environmental Protection Act, sealed all but the leased areas of the LEU property.	May 1981
Illinois EPA conducted additional soil sampling in the area.	June to September 1981
Illinois EPA filed a State of Illinois complaint.	May 1982
Illinois EPA amended the State of Illinois complaint and also filed a Federal complaint under TSCA.	August 1982
The EPA Field Investigation Team installed four monitoring wells at the Site.	August 1982
Based on the information gathered, the site is proposed to the National Priorities List (NPL).	December 1982
An EPA contractor fenced part of the LEU property as an immediate removal measure at the Site.	July 1983
EPA conducted additional sampling south of the LEU property. Results indicated heavy contamination on the property immediately to the south.	July and October 1983
Finalized on the NPL	September 1983
The EPA conducted an immediate removal action at the Site and capped the section of the property south of the LEU Site, which was found to be heavily contaminated. This cap diverted drainage to an on-site pond that was also constructed.	June 1984
Illinois EPA conducted additional soil and groundwater sampling in the area. Groundwater contamination, including VOCs and PCBs, was identified.	June 1984 to July 1985
EPA conducted an immediate removal action at the Site. PCB waste material that had been stored on the Site was staged, sampled, and packaged for eventual disposal.	April 1985
Draft Feasibility Study (FS) by an Illinois EPA contractor addressed contamination in area soils.	August 1985

Table 1 (Continued)

The Illinois EPA conducted an immediate removal at the Site. An Illinois EPA contractor removed the previously staged material and transported it to a nearby incineration facility.	December 1985
Draft Remedial Investigation (RI) report prepared by Illinois EPA.	January 1986
Illinois EPA contractor prepares Phased Feasibility Study regarding soil contamination beyond the LEU property.	June to August 1986
EPA Record of Decision regarding residential soil contamination is signed.	August 1986
Illinois EPA contractor prepares design plans and specifications for the cleanup of contaminated residential soils.	January to July 1986
Illinois EPA contractor conducts an investigation of groundwater contamination at the Site.	January to December 1987
Illinois EPA signs contract and begins preliminary work related to the cleanup of residential soils.	January 1988
EPA Record of Decision regarding on-site soils and groundwater is signed.	March 1988
Illinois EPA contractor begins off-site soil incineration.	November 1988
Illinois EPA contractor completes off-site incineration.	June 1989
Illinois EPA contractor begins on-site remedial efforts.	August 1990
Illinois EPA contractor begins construction of the groundwater collection and treatment system.	October 1991
Illinois EPA receives permit to discharge treated groundwater.	April 1992
Groundwater extraction and treatment unit (GTU) started up.	April 1993
Illinois EPA contractor completes on-site soil incineration.	October 1993
Illinois EPA contractor conducts pilot testing of soil vapor extraction (SVE).	April 1999
Initial Five-Year Review by Illinois EPA.	September 1999
Illinois EPA contractor implements phytoremediation test plot in the northwest corner of the Site.	April 2002
Illinois EPA contractor begins construction of SVE systems.	September 2002
Illinois EPA implements phytoremediation test plot along the eastern boundary of the Site.	September 2002
SVE systems begin operation.	March 2003
Semiannual groundwater monitoring replaces quarterly groundwater monitoring.	July 2003
EPA signs Explanation of Significant Difference (ESD) for remedy enhancements (SVE and phytoremediation).	July 2004
Second Five-Year Review by Illinois EPA.	September 2004
Illinois EPA contractor completes draft Residual Risk Assessment (RRA) to evaluate the risks associated with contaminated vapor intrusion into nearby residences and commercial buildings after remedy shutdown.	February 2005

Table 1 (continued)

GTU and SVE systems shut down due to end in federal government funding and to allow long-term observation and assessment of contaminant rebound effects in groundwater.	March 2005
Two phytoremediation plots are in operation and semiannual groundwater monitoring continues.	September 2009
Third Five-Year Review by Illinois EPA.	September 2009
GTU building floods after water pipes froze and burst.	March 2011
Residual Risk Assessment finalized	January 2012

I. BACKGROUND

Physical Characteristics

The LEU Site is located in west-central LaSalle County, in the city of LaSalle in north-central Illinois (Southeast Quarter of the, Southwest Quarter of Section 3, Township 33 North, Range 1 East of the Third Principle Meridian). The LEU Site address is 2427 Saint Vincent Avenue. The Site originally consisted of five buildings, which were interconnected to form one main complex. This complex included an office building, two metal buildings, a brick building, and a Quonset building. Additional small buildings (pump house, two hose houses, a thinner shed, a small incinerator building, and a sandblasting shed) and a stormwater holding pond that received stormwater runoff from the parking lot were also present on the Site.

Land and Resource Use

Approximately 70 residences are located within 0.13 miles of the LEU property. Based on the 1980 Census data showing approximately 2.7 individuals per household in the area, it was estimated that these residences housed approximately 190 people. The land use to the north of the property is rural with an agricultural field separating the Site from a residential development. Immediately south of the Site are several commercial developments. East of the Site is the residential area that was addressed by the PCB soil removal effort. Finally, a mixture of small businesses and residences lies to the west.

History of Contamination

LEU is a former manufacturer of electrical equipment. Operations at the Site began prior to World War II, and in the late 1940s the plant began utilizing PCBs in the production of capacitors. This manufacturing practice continued until October 1978. During the 1970s, the company expanded its operations and opened another plant in Farmville, North Carolina. In May 1981, manufacturing operations ceased at the LaSalle Site. Subsequently, the Illinois EPA, enforcing Section 34 of the Illinois Environmental Protection Act, ordered the production areas of the plant to be sealed. The LEU office building remained in use by

a lessee until sometime in the early 1980s, when it was abandoned.

Information is limited on the waste management practices of the LEU Company. Undocumented reports allege that PCB-contaminated waste oils may have been applied as a dust suppressant both on the Site and off the property as late as 1969. Following the regulation of PCBs, inventory reports for LEU document the disposal of PCBs at approved facilities.

Contamination was transported off-site by use of contaminated soils as fill material, application of wastes oils as a dust suppressant, through overland surface run-off, or run-off into the storm sewer system which ultimately discharged into a drainage ditch feeding an intermittent unnamed stream.

Initial Response

Beginning in September 1975, numerous government agencies including the EPA, Illinois EPA, and OSHA conducted various inspections and issued myriad complaints and orders to the LEU Company as a result of its past manufacturing and handling practices.

Analysis of Site records indicated there was only one Potentially Responsible Party (PRP), LEU, from which the EPA could seek reimbursement of costs associated with the investigation and removal of contamination from the Site. However, LEU was not financially viable.

On September 19, 1983, LEU petitioned for relief under Chapter 11 of the Bankruptcy Act in the U.S. Bankruptcy Court, Wilson, North Carolina. On June 26, 1986, the court entered an order approving the company's planned liquidation.

From December 1980 through August 1982, multiple soil and groundwater sampling events were conducted at the LEU Site. Based on the analytical results, the LEU Site was included in the first publication of the NPL in December 1982. An HRS score of 42.06 was calculated for the LEU Site.

Starting in July 1983 and running through December 1987, additional Site investigations and limited Site removals were performed fencing the Site, capping heavily contaminated areas, and removing PCB wastes which had been stored on the property. Specifically, investigative reports prepared for the LEU Site included a draft Feasibility Study addressing contamination in area soils (August 1985), a draft Remedial Investigation report (January 1986), and a Phased Feasibility Study addressing soil contamination beyond the LEU property (August 1986).

Basis for Taking Action

The exposure pathways of concern for OU 1 were direct contact or ingestion of contaminated soil. The exposure pathways of concern for OU 2 were direct contact or

ingestion of contaminated soil and groundwater. Hazardous substances identified in the March 1988 ROD for the LEU Site that have been released into each medium include:

Soil	Groundwater	
Polychlorinated biphenyls	Polychlorinated biphenyls*	1, 1-Dichloroethene
Volatile organic compounds	Trichloroethene*	Toluene
	Trans- 1, 2-dichloroethene	Tetrachloroethene*
Sediment	1, 1, 1-Trichloroethane*	Ethylbenzene
Polychlorinated biphenyls	1, 1 -Dichloroethane	Xylenes
Volatile organic compounds	Vinyl chloride*	

* Primary constituent of concern.

II. REMEDIAL ACTIONS

Remedy Selection

EPA elected to split the Site into two separate OUs. The first OU (Phase I) dealt with PCB soil contamination beyond the LEU property (ROD dated August 1986) and required the following remedy components:

- The excavation of PCB-contaminated material above 5 parts per million (ppm) at the surface and above 10 ppm at depths greater than one foot and the replacement with clean fill. The soil RAOs were developed to be protective of residential exposures using EPA policies for PCB spills in high contact soils. The area remains mostly residential with some commercial and agricultural uses so the exposure scenarios have not changed. The materials would be thermally treated on the LEU property with a mobile incinerator which would be set up at that location. Provided that analysis of the residual material proves that it is uncontaminated, it could be used as cover material at a sanitary landfill or as fill in roadway and construction projects.

- Conventional industrial cleaning includes vacuuming, hand washing, steam jet cleaning, and adsorption. This would address all structures (basements and garages included) where soil removal activities would have taken place. The entire building, including the heating/air conditioning ducts, would be vacuumed. Afterwards, floors and walls would be hand scrubbed and wiped with adsorbent cloths. Other hard surfaces, such as counter tops, table tops, ceilings, and vertical surfaces of cabinets would be wiped with a damp cloth. Wood floors would be waxed after they are cleaned, and any surfaces that are damaged by the cleaning processes would be refinished or replaced. Carpeting and upholstery would be steam cleaned, while drapes and bedspreads would be dry cleaned under controlled conditions. The exterior walls and the gutters of the structures would be washed by hand. After all affected buildings are cleaned, samples will be collected from a representative number of locations to ensure that the cleaning process was successfully completed and met the selected clean-up level of 0.5 micrograms per 100 square centimeters ($\mu g/100cm^2$) for high contact surfaces and 10 $\mu g/100\ cm^2$ for surfaces with infrequent contact.

The second OU (Phase II ROD dated March 30, 1988) addressed all remaining contamination and required the following:

- Excavation of PCB-contaminated soil on the LEU property;
- High-pressure flushing and mechanical cleaning of contaminated sewer lines;
- Excavation of PCB-contaminated sediment from the unnamed creek downstream of the storm sewer discharge;
- Incineration of PCB-contaminated soil and sediment by a mobile, on-site thermal destruction unit;
- Construction of a groundwater collection system on and/or near the LEU property;
- Construction of an on-site treatment system that will process the VOC- and PCB-contaminated groundwater collected.

The OU2 soil RAOs adopted the OU1 soil RAOs. The RAOs for groundwater are to remove contaminants from the groundwater to achieve the MCLs for the VOC contaminants and 1- ppb for PCBs. The storm sewer system carrying contaminated soils during significant storm events discharge to a drainage ditch and subsequently into an unnamed intermittent stream. The RAOs for the sediments of the drainage ditch and intermittent stream adopted the soil RAOs.

The March 1988 OU2 ROD also stipulated that all applicable or relevant and appropriate requirements (ARARs) of other Federal and State environmental laws will be attained. Specifically, the ROD identified the following:

- Toxic Substances Control Act of 1976, as amended (TSCA). PCB disposal regulations under 40 CFR 761.60 require that PCB-contaminated soil at concentrations greater than 50 parts per million (ppm) be taken to a TSCA-regulated facility. Incineration of PCB waste must be able to meet a destruction removal efficiency of at least 99.999%. These requirements are applicable and will be met. In addition, residual material from the incinerator would be required to contain less than 2 ppm PCBs;
- Resource Conservation and Recovery Act of 1976, as amended (RCRA). Groundwater will be monitored for three years following attainment of cleanup levels consistent with corrective action minimum requirements under 40 CFR 264.100;
- Safe Drinking Water Act of 1974, as amended (SDWA). Contaminated groundwater will be collected to achieve Maximum Contaminant Levels for VOCs; PCBs will be removed to the 1- part per billion (ppb) level;

- Clean Water Act of 1972, as amended (CWA). Groundwater that is collected will be discharged to the local wastewater treatment plant following treatment and will meet pretreatment standards established pursuant to 40 CFR 403.5; and

- Clean Air Act of 1963, as amended (CAA). Emission control requirements may be applicable to emissions from the incinerator depending on their magnitude. Asbestos in the LEU buildings will be disposed of in accordance with National Emission Standards for Hazardous Air Pollutants (NESHAPs) for asbestos, 40 CFR 61.147.

Due to the identification of isolated contaminated portions of the groundwater plume which were not being remediated as rapidly as expected and the large amount of clean groundwater being processed by the GTU, a series of remedy enhancements were implemented as discussed below. One enhancement was the installation of two phytoremediation plots to minimize the amount of clean water extracted by the system and to assist in the remediation of the isolated contaminant areas. These plots required irrigation, which was provided by treated groundwater from the effluent of the GTU. An Explanation of Significant Differences (ESD) was signed on July 16, 2004 to allow a portion of the treated groundwater previously being discharged to the local Publicly Owned Treatment Works (POTW) to be re-directed for use as irrigation water for the phytoremediation plots.

Remedy Implementation

PCB Soil Remediation

Phase I (OU1) was initiated in January 1988. Approximately 23,000 cubic yards of soil were removed from off-site properties and treated by the on-site incinerator. The remedial action also included industrial cleaning of structures on properties where significant excavation occurred.

Phase II (OU2) was initiated in July 1990 and approximately 68,000 cubic yards of on-site contaminated soil were incinerated. Additionally, high-pressure flushing and mechanical cleaning of contaminated sewer lines, and excavation of contaminated sediment from the unnamed creek downstream of the storm sewer discharge were performed.

Soil thermally treated by the on-site incinerator during Phase I of the project was used at a local land disposal facility as daily cover. The soil, sediments, and building demolition debris thermally treated during Phase II was used as on-site fill material. Upon completion of the thermal treatment, a soil cover was placed over the thermally treated soil, and a protective vegetative cover was established.

Ground Water Remediation

Groundwater Treatment Unit and Groundwater Quality

In April 1992, construction of the on-site groundwater collection and treatment system was initiated. The groundwater collection and treatment system became fully operational in April 1993. The groundwater collection system consists of a series of interconnected trenches that drain by gravity into a single collection manhole. From the manhole, the collected groundwater was pumped into the GTU.

The GTU included an acid feed system to adjust pH, an oil/water separator capable of removing both light and dense non-aqueous-phase oils, pressurized vessel filtration to remove particulate (including gypsum created by pH adjustment), twin air-stripping towers to remove VOCs from the influent with vapor-phase carbon adsorption of VOCs, and aqueous-phase granular activated carbon (GAC) to remove PCBs. Once treated, the groundwater was discharged to the local POTW.

In May 1999, after receipt of approval from the City of LaSalle, the GAC cells were taken off line. Previous sampling in 1998 indicated that the carbon cells were no longer needed to maintain the required effluent standards, and in an effort to maximize the throughput of the treatment system, the carbon cells were bypassed, allowing effluent from air stripper #2 to discharge directly to the city sewer connection. Because the carbon cells were taken off line, back-flushing the carbon cells was no longer required as part of routine operation and maintenance of the GTU. After the GTU shutdown, the spent carbon was extracted from the cells for proper disposal, and the carbon cells were removed from the Site.

During the operation of the system, no oil was collected from the oil/water separator. The separator functioned as a settler for the suspended soil material that entered the collection system with the groundwater and for calcium sulfate ($CaSO_4$) precipitates. This material was removed from the separator periodically via an under drain, and the unit was fully emptied when the system was shut down for routine maintenance. The sludge filter cake slurry was pumped into used bag filters, placed on a drying rack, and allowed to dewater before being placed into 55-gallon drums with the bag filters. Water generated in this process was returned to the treatment system for re-treatment and discharge to the POTW and the drummed filters and dried sludge were sent for off-site disposal.

Throughout its operation, the performance of the GTU, as well as groundwater quality, has been monitored. Through 2002, groundwater samples were collected on a quarterly basis, and analyzed for VOCs and PCBs. In 2003, groundwater sampling and analysis were reduced to semi-annual events. Additionally, weekly influent and effluent samples from the GTU were collected and analyzed for VOCs and PCBs.

As part of the ongoing groundwater and GTU monitoring programs, Illinois EPA has contracted Ecology and Environment, Inc., (E&E) to gather and model data, and to develop reports of the findings. Reports generated by E&E to date include:

- *Assessment of Performance Report, LaSalle Electric Utilities Company Site, Groundwater Treatment Unit, Inception Through 1995,* dated April 1996;

- *Review and Assessment Report, LaSalle Electric Utilities Company Site, Groundwater Treatment Unit 1996 through 1997,* dated April 1998;

- *Summary Report, Phase I Investigation of VOCs in Subsurface Soils,* dated July 1998;

- *Focused Feasibility Study Report, Phase II Investigation of VOCs in Subsurface Soils,* dated January *1999;*

- *Review and Assessment Report, LaSalle Electric Utilities Company Site, Groundwater Treatment Unit 1998,* dated April 1999;

- *Review and Assessment Report, LaSalle Electric Utilities Company Site, Groundwater Treatment Unit 1999-2000,* dated March 2001;

- *Review and Assessment Report, LaSalle Electric Utilities Company Site, Groundwater Treatment Unit, 2001,* dated July 2003;

- *Review and Assessment Report, LaSalle Electric Utilities Company Site, Groundwater Treatment Unit 2002-2003,* dated August 2004;

- *Review and Assessment Report. LaSalle Electric Utilities Company Site, Groundwater Treatment Unit, January 2004-March 2006,* dated June 2006; and

- *Technical Memorandum, Groundwater Sampling Results, October 2006-March 2008, LaSalle Electric Utilities Site,* dated July 2008.

Based on the data gathered during operations, the groundwater extraction system at the LEU Site developed a sufficient hydraulic gradient to capture the contaminant plume. Analytical results also showed that no non-aqueous-phase liquid (NAPL) was present in the groundwater. Additionally, the GTU consistently met the POTW effluent limitations. While the contaminant plume had been captured, subsequent investigations conducted in early 1998 to refine the understanding of Site hydrology determined that reduction in contaminant concentrations was slower than the original predictions. Additionally, the data showed that the concentration of VOCs at certain monitoring locations was steadily increasing. This trend suggested that there could be VOC-contaminated source areas remaining within the unsaturated zone, which led to additional investigations conducted in mid-1998. The additional soil investigations located three isolated on-site areas where the unsaturated zone

had elevated VOC concentrations: the former Laboratory area, the Thinner Shed area, and the northwest comer of the Site. In order to ensure that the groundwater MCLs were met in a timely fashion, remedy enhancements consisting of additional duel-phase soil vapor extraction units and two phytoremediation plots, were implemented to address these three isolated on-site source areas.

By the end of 2004, the total mass of contaminants in the extracted groundwater was minimal and approaching asymptotic levels. Additionally, the contract with the GTU operator was due to expire in March 2005, which also coincided with the completion of the long-term remedial action (LTRA) period. In March 2005, Illinois EPA decided it was an opportune time to shut down the groundwater extraction system and GTU to observe any rebound effects of the contaminant plume. This observational period would allow Illinois EPA to thoroughly evaluate the progress of the remedy and to better estimate the time frame needed to complete the remedy. Consequently, Illinois EPA decided to shut down the groundwater extraction system and the GTU in March 2005 once Federal government funding was terminated to observe the responses of the contaminant plume. The entire groundwater collection system and most of the GTU components remain in place at the Site but the system has not yet been restarted.

Soil Vapor Extraction Units

Installation of dual-phase SVE units in the Laboratory area and in the Thinner Shed area was completed in January 2003, and the startup and shakedown period took place in February 2003. By pneumatically fracturing the Site soils, an increase in the hydraulic conductivity of the remediation areas was achieved, thereby increasing soil vapor and groundwater extraction. By the end of 2003, the Laboratory area SVE system had removed a total of 20,930 gallons of groundwater, and 42,270 gallons had been removed by the Thinner Shed SVE system. The results of soil gas sampling for VOCs in 2004 indicated that biodegradation was occurring, and that an estimated 1.5 to 2 pounds of VOCs per month were being removed by the SVE system. Prior to the shutdown of the SVE system in March 2005, semi-annual groundwater sample collection at selected extraction wells was initiated in the Laboratory area and the Thinner Shed area to assess any changes in source area concentrations as a result of the GTU shutdown.

Phytoremediation Systems

Two phytoremediation systems were installed in 2002. Located in the northwest comer of the Site, the first system addresses PCB-contaminated soil and groundwater. The second system is located along the eastern side of the GTU parallel to St. Vincent's Avenue. This phytoremediation system was installed to enhance collection of the TCE groundwater plume, and secondarily, as a hydraulic curtain to prevent migration of VOCs off-site after shutdown of the GTU.

In the northwest comer, an area approximately 95 feet by 235 feet was planted with fast-growing poplar, willow, and bald cypress trees in April 2002. Due to an unseasonably hard

freeze on May 20, 2002, some poplar and all of the willow clones suffered significant stunting and/or mortality. The affected poplars and willows were removed, and these species were replanted in early 2003. A non-dedicated mobile spray gun irrigation system was used for watering this area.

In the GTU area, a plot approximately 90 feet by 300 feet was planted with fast-growing poplars and willows. Planting in the GTU area was completed in the fall of 2002. In order to prevent tree roots from coming into contact with the thermally treated ash, a hole was bored to native soil for each individual tree, and the borehole was lined with high-density polyethylene (HDPE) pipe. All of the GTU area trees were planted by lowering rooted whips to the bottom of the boring and then filling in the boring with a mixture of soil, sand, bark, and peat. A dedicated drip irrigation system was also installed within this plot.

In total, approximately 1,000 trees were planted at the LEU Site, and it was estimated that for the 2003 growing season, the average tree took up approximately 210 gallons of groundwater. Multiplying this amount by the total number of trees, the approximate water uptake by both phytoremediation systems was 210,000 gallons of groundwater.

In order to optimize the remedy implementation, portions of the treated groundwater effluent was diverted to irrigate the phytoremediation plots from the discharge to the POTW. An ESD was signed on July 16, 2004, acknowledging the remedy enhancements and allowing this diversion of portions of the treated ground water effluent.

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Appendix B

- Public Notice
- Figure 1 – Laboratory Analytical Results for Contaminants of Concern September 2011
- Site Inspection Checklist
- Site Inspection Notes

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
and
U.S. ENVIRONMENTAL PROTECTION AGENCY
to review
LaSalle Electric Utilities

The Illinois Environmental Protection Agency (Illinois EPA) and United States Environmental Protection Agency (USEPA) are conducting the fourth five-year review of the LaSalle Electrical Utilities Superfund site located in the city of LaSalle, west-central LaSalle County Illinois. The Superfund law requires regular reviews of sites (at least every five years) where cleanup is underway and hazardous waste remains on site. These reviews are done to ensure that the cleanup continues to protect human health and the environment.

This is the fourth such review since September 1999 when it was concluded that the remedy was protective of human health and the environment. Since that time, additional remedy enhancements have been made and groundwater monitoring results indicated decreased concentrations of some volatile organic chemicals. Although there currently are no immediate threats, continued groundwater monitoring efforts are necessary in order to ensure the level of protection to human health and the environment as mandated in the March 1988 Record of Decision for the site. This review will evaluate current site conditions and look at the overall effectiveness of the cleanup actions; it began in April 2014 and is expected to be completed in June 2014. The review team (which included technical and community relations representatives from both the state and federal agencies) participates in data and document reviews and a site inspection. The review report is scheduled to be made public in July 2014 and will be available at the LaSalle Electric Utilities Information Repository located at the Illinois Valley Community College, 815 North Orlando Smith Road, Oglesby, Illinois 61348 (Phone: 815.224.272) and at the Illinois Environmental Protection Agency in Springfield, Illinois.

The five-year review also gives local community members the opportunity to voice their concerns and ask questions about site conditions and clean-up efforts. Anyone wishing further information or discussion on the status of the LaSalle Electric Utilities site or the five year review process should contact:

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LaSalle Electrical Utilities is a former manufacturer of electrical equipment that once utilized PCBs (polychlorinated biphenyl) in the production of capacitors. In the 1980s, PCB contamination on the plant site was detected at levels of up to 130,000 parts per million (ppm) in the surface soil and 300,000 ppm in a dense non-aqueous phase layer in the water table. Surface soil contamination extended from the plant site to over 100 residential properties and along more than 1.5 miles of road shoulder. Remediation by the Illinois and United States EPA for this site included the removal of 23,258 cubic yards of PCB-contaminated soil from private yards, road shoulders, agricultural fields, and adjoining business properties. This contaminated soil was processed through a thermal treatment unit and affected homes were industrially cleaned and/or had partial removal of yards and/or curb to sidewalk soils. In the early 1990s, the industrial complex was demolished and the structural steel was decontaminated for recycling. A collection and treatment system was also installed to remediate contaminated groundwater.

The next five-year review will be in 2019.

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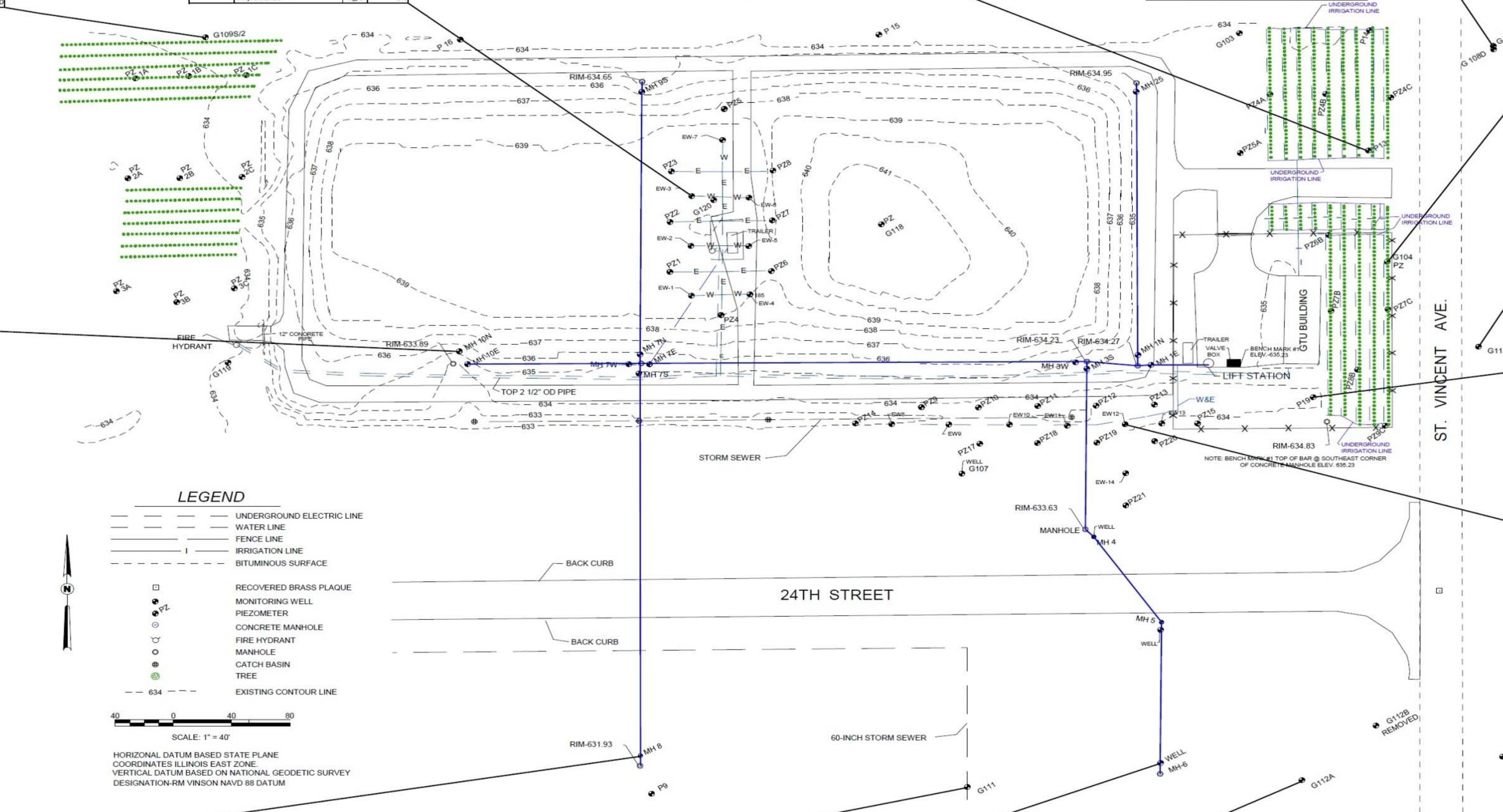

StationID	Analyte	Units	9/14/2011
G109S/2	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	86
	PCB, Total	ug/L	NA
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	6.3
	Trichloroethene	ug/L	ND
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/14/2011
EW3	1,1,1-Trichloroethane	ug/L	14
	1,1,2-Trichloroethane	ug/L	2.2
	1,1-Dichloroethane	ug/L	12
	1,1-Dichloroethene	ug/L	4.9
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	190
	PCB, Total	ug/L	15
	Tetrachloroethene	ug/L	2800
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	15
	Trichloroethene	ug/L	260
	Vinyl chloride	ug/L	9.0

StationID	Analyte	Units	9/13/2011
P13	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	3.6
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	4.1
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/13/2011
G108S	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	ND
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	ND
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/13/2011
G104	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	4.0
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	5.0
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/14/2011
G113	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	ND
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	ND
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/13/2011
MH10N	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	19
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	ND
	Vinyl chloride	ug/L	14

StationID	Analyte	Units	9/13/2011
P19	1,1,1-Trichloroethane	ug/L	12
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	ND
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	17
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/13/2011
EW12	1,1,1-Trichloroethane	ug/L	23000
	1,1,2-Trichloroethane	ug/L	68
	1,1-Dichloroethane	ug/L	4400
	1,1-Dichloroethene	ug/L	590
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	68
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	2.1
	Toluene	ug/L	6.1
	trans-1,2-Dichloroethene	ug/L	12
	Trichloroethene	ug/L	170
	Vinyl chloride	ug/L	10

StationID	Analyte	Units	9/14/2011
MH8	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	ND
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	6.8
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	8.4
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/14/2011
G111	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	ND
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	ND
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/14/2011
MH6	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	2.1
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	8.2
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/14/2011
G112A	1,1,1-Trichloroethane	ug/L	2.5
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	9.0
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	ND
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	2.6
	Vinyl chloride	ug/L	ND

StationID	Analyte	Units	9/13/2011
P12	1,1,1-Trichloroethane	ug/L	ND
	1,1,2-Trichloroethane	ug/L	ND
	1,1-Dichloroethane	ug/L	ND
	1,1-Dichloroethene	ug/L	ND
	1,2-Dichlorobenzene	ug/L	NA
	1,2-Dichloroethene, Total	ug/L	NA
	1,4-Dichlorobenzene	ug/L	NA
	cis-1,2-Dichloroethene	ug/L	ND
	PCB, Total	ug/L	ND
	Tetrachloroethene	ug/L	ND
	Toluene	ug/L	ND
	trans-1,2-Dichloroethene	ug/L	ND
	Trichloroethene	ug/L	ND
	Vinyl chloride	ug/L	ND

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Figure 1 Laboratory Analytical Results for Contaminants of Concern September 2011

LaSalle Electric Utilities Site, LaSalle, Illinois

SCALE	DATE	FILE NO.	DRAWING NO.	REV.
See Map	12/1/11		2-10	

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Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: LaSalle Electric Utilities	**Date of inspection:** 5/14/14
Location and Region: LaSalle, IL Region5	**EPA ID:** ILD980794333
Agency, office, or company leading the five-year review: IL EPA	**Weather/temperature:** Cloudy; 54°F

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☐ Access controls
- ☐ Institutional controls
- ☒ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☒ Other phytoremediation plots
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** N/A _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** N/A _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency N/A
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☐ O&M manual — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ As-built drawings — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks

2. **Site-Specific Health and Safety Plan** — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks

3. **O&M and OSHA Training Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Effluent discharge — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Other permits _____ — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks

7. **Groundwater Monitoring Records** — ☒ Readily available — ☐ Up to date — ☐ N/A

   Remarks at IL EPA files

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☒ N/A
   - ☐ Water (effluent) — ☐ Readily available — ☐ Up to date — ☒ N/A

   Remarks

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ☒ N/A

    Remarks

IV. O&M COSTS

1. **O&M Organization**
   - ☒ State in-house
   - ☐ Contractor for State
   - ☐ PRP in-house
   - ☐ Contractor for PRP
   - ☐ Federal Facility in-house
   - ☐ Contractor for Federal Facility
   - ☐ Other _____

2. **O&M Cost Records** N/A treatment system off line
   - ☐ Readily available ☐ Up to date
   - ☐ Funding mechanism/agreement in place
   - Original O&M cost estimate _____ ☐ Breakdown attached

   Total annual cost by year for review period if available

   From _____ (Date) To _____ (Date) _____ (Total cost) ☐ Breakdown attached
   From _____ (Date) To _____ (Date) _____ (Total cost) ☐ Breakdown attached
   From _____ (Date) To _____ (Date) _____ (Total cost) ☐ Breakdown attached
   From _____ (Date) To _____ (Date) _____ (Total cost) ☐ Breakdown attached
   From _____ (Date) To _____ (Date) _____ (Total cost) ☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☐ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A
   Remarks _____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
   Remarks Signs on fenced Areas restricting access

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☒ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☒ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☒ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☒ N/A
Violations have been reported ☐ Yes ☐ No ☒ N/A
Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☒ N/A
Remarks _____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☐ No vandalism evident
Remarks Trespassing is obvious on open grass area. Trails have been worn into the grass

2. **Land use changes on site** ☒ N/A
Remarks _____

3. **Land use changes off site** ☒ N/A
Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks slightly overgrown but functional

B. Other Site Conditions

Remarks Grass and trees need cut/trim but overall the site is satisfactory

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
   Areal extent _____ Depth _____
   Remarks _____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
   Lengths _____ Widths _____ Depths _____
   Remarks _____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent _____ Depth _____
   Remarks _____

4. **Holes** ☐ Location shown on site map ☒ Holes not evident
   Areal extent _____ Depth _____
   Remarks _____

5. **Vegetative Cover** ☒ Grass ☒ Cover properly established ☒ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks _____

6. **Alternative Cover (armored rock, concrete, etc.)** ☒ N/A
   Remarks _____

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
   Areal extent _____ Height _____
   Remarks _____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
- ☐ Wet areas ☐ Location shown on site map Areal extent_____
- ☐ Ponding ☐ Location shown on site map Areal extent_____
- ☐ Seeps ☐ Location shown on site map Areal extent_____
- ☐ Soft subgrade ☐ Location shown on site map Areal extent_____

Remarks_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☒ No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches ☐ Applicable ☒ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☒ N/A or okay
Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☒ N/A or okay
Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☒ N/A or okay
Remarks_____

C. Letdown Channels ☐ Applicable ☒ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☐ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☒ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☒ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☒ Properly secured/locked ☒ Functioning ☐ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks monitoring well G120 was found damaged, likely from tress passers. All other wells are good.

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☒ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks condition unknown System not operational during this review period.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☒ Needs Maintenance
   Remarks Condition unknown. System not operational during this review period. But treatment Building has flooded in March 2011.

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks condition unknown. System not operational during this review period

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. **Collection Structures, Pumps, and Electrical**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☐ Good condition ☐ Needs Maintenance
   Remarks

3. **Spare Parts and Equipment**
   ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   - ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   - ☐ Air stripping ☐ Carbon adsorbers
   - ☐ Filters
   - ☐ Additive (*e.g.*, chelation agent, flocculent)
   - ☐ Others
   - ☐ Good condition ☐ Needs Maintenance
   - ☐ Sampling ports properly marked and functional
   - ☐ Sampling/maintenance log displayed and up to date
   - ☐ Equipment properly identified
   - ☐ Quantity of groundwater treated annually
   - ☐ Quantity of surface water treated annually

   Remarks System not operational during this review period

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☒ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks

3. **Tanks, Vaults, Storage Vessels**
   ☒ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks

4. **Discharge Structure and Appurtenances**
   ☒ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks

5. **Treatment Building(s)**
   ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair
   ☒ Chemicals and equipment properly stored
   Remarks

6. **Monitoring Wells** (pump and treatment remedy)
   ☒ Properly secured/locked ☒ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks monitoring well G120 was found damaged; the rest of the wells are okay.

D. Monitoring Data

1. Monitoring Data
   ☐ Is routinely submitted on time ☒ Is of acceptable quality only sampled as part of revised HHRA

2. Monitoring data suggests:
   ☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☒ N/A
Remarks

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The purpose of groundwater remedy is to restore the water to drinkable status.

The treatment system was not operational during this review period. The data indicates the contamination isn't moving very far but also is not any closer to reaching objectives. In the present the remedy is working but is no closer to the final objectives

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The treatment system was not operational during this review period. The treatment building flooded (material) and the status of the system is questionable since the motors were submerged.

Short term the contamination remaining is not moving but we are not getting closer to attaining the objectives.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

Restarting of the existing treatment system is not likely. A different treatment option should be looked at to treat the remaining contamination.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

look for insitu treatments at the two source areas.

X. Other Remedies

Phytoremediation

Based on the results of the revised risk assessment the phytoremediation is working.

The past winter has taken its toll on some of trees. There are dead/broken/downed trees that will need to get cleaned up.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829
PAT QUINN, GOVERNOR LISA BONNETT, DIRECTOR

MEMORANDUM

Date: May 15, 2014

To: BOL File

From: Nicole Wilson, FSRS/FFU Unit

Re: 5-Year Review Site Inspection Notes
0990300007 – LaSalle County
LaSalle Electric Utilities
Superfund/Technical Reports

The Federal Site Remediation Section (FSRS) Project Manager and Community Relations Project Manager conducted the fourth Five-Year Review Site Inspection on May 14, 2014. The weather conditions were cloudy and 54 degrees Fahrenheit.

The groundwater treatment system was not operational during this review period. In March 2011, the treatment building flooded deep enough to potentially compromise the treatment system equipment. Monitoring Well G120 was found to be damaged. The remaining wells were undamaged and locked.

The site in general is in good condition. The grass and weeds are slightly overgrown. Some of the phytoremediation plot trees are dead/broken/overgrown. Paths in the grass of the unfenced area indicate trespassing is a common occurrence.

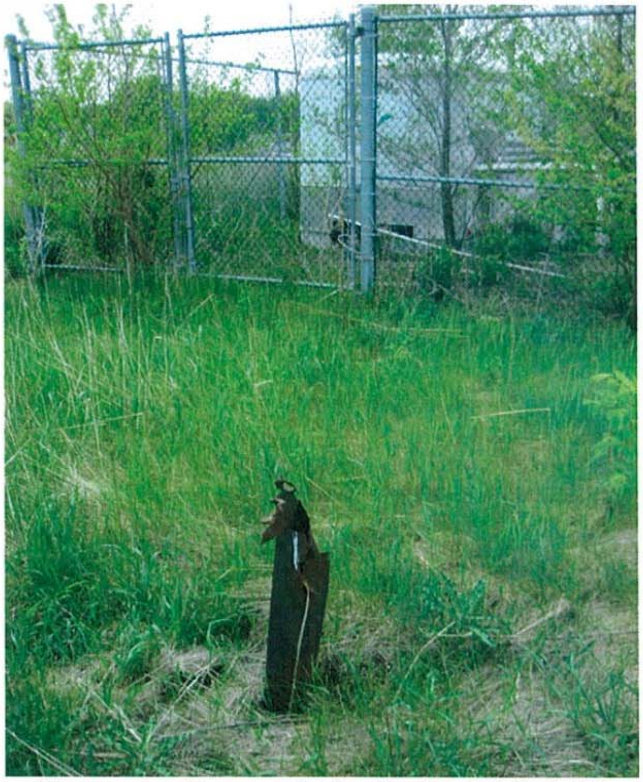
Picture 1 - Example of dead/broken trees near treatment building

4302 N. Main St., Rockford, IL 61103 (815) 987-7760
595 S. State, Elgin, IL 60123 (847) 608-3131
2125 S. First St., Champaign, IL 61820 (217) 278-5800
2009 Mall St., Collinsville, IL 62234 (618) 346-5120

9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309) 693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312) 814-6026

Picture 2 – Soil/Vegetative Cover - PCB Treated Soil

Picture 3 – Signs of wear in the grass due to trespassers



Picture 4 – Damaged Monitoring Well G120

Picture 5 – Example of damaged trees in far western phytoremediation plot

Picture 6 – General Site conditions within the fence

CLS:MVH:NMW:P:\PM\LEU\Siteinspectionmemo.doc