EPA Region 5 Records Ctr.
376393

Third Five-Year Review Report
FISHER-CALO SUPERFUND SITE

KINGSBURY,
INDIANA

August 2010

PREPARED BY:

United States Environmental Protection Agency
Region 5
Chicago, Illinois

Approved by:

for Richard C. Karl, Director
Superfund Division

Date:

8/25/10

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Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Fisher-Calo		
EPA ID *(from WasteLAN)*: IND074315896		
Region: 5	**State:** IN	**City/County:** Kingsbury, LaPorte
SITE STATUS		
NPL status: _X_ Final _ Deleted _ Other (specify)		
Remediation status (choose all that apply): _ Under Construction _X_ Operating _ Complete		
Multiple OUs?* _ YES _X_ NO	**Construction completion date:** _8/6/98	
Has site been put into reuse? _X_ YES _NO		
REVIEW STATUS		
Lead agency: _X_ EPA _ State _ Tribe _ Other Federal Agency		
Author name: Sheri L. Bianchin		
Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA, Region 5	
Review period:** _9/1/2009_ to _August 2010_		
Date(s) of site inspection: _October 28, 2009 and December 10, 2009_		
Type of review: _X_ Post-SARA _ Pre-SARA _ NPL-Removal only _ Non-NPL Remedial Action Site _ NPL State/Tribe-lead _ Regional Discretion		
Review number: _ 1 (first) _ 2 (second) _X_ 3 (third) _ Other (specify)		
Triggering action: _ Actual RA Onsite Construction at OU #__ _ Construction Completion _ Other (specify) _ Actual RA Start at OU#_1 _X_ Previous Five-Year Review Report		
Triggering action date *(from WasteLAN)*: _9/1/2005_		
Due date *(five years after triggering action date)*: _9/1/2010_		

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form continued

Issues

The following issues were identified:

1) Remedy requirements must be reviewed relative to whether performance standards will allow for Unlimited Use/Unrestricted Exposure (UU/UE) and whether ICs are required for soils and groundwater. (The current decision documents do not specifically include need for ICs.);

2) Consideration should be given to modifying pumping rates and reviewing other options to enhance remedy efficiency and optimization while ensuring protectiveness of the remedy;

3) The vapor intrusion pathway has not been fully evaluated.

Recommendations and Follow-up Actions:

The following recommendations and follow-ups are required:

1) Review remedy decision documents to determine if performance standards will allow for UU/UE and whether ICs are required in order to ensure long-term protectiveness of human health and the environment.

If needed, U.S. EPA will amend or clarify the remedy decision documents and require from the from potentially responsible party (PRP) Site Group that an IC work plan be submitted which includes IC evaluation activities.

2) A) Review proposal submitted by Site Group for optimization, and B) Complete green remediation pilot project.

3) Conduct a vapor intrusion study.

Protectiveness Statement

Completion of the current Five-Year Review confirms that the Fisher-Calo Superfund Site remains protective of human health and the environment in the short-term, and there are no known exposure pathways that could result in unacceptable health risks. All immediate risks have been addressed. The components of the remedy selected in the 1990 Fisher-Calo Site ROD and 1997 ROD Amendment have been implemented and are in place. Additional work is needed to ensure long-term protectiveness.

According to the February 14, 2002, Parsons Engineering Science, Inc. "Final Closure Report," decommissioning activities occurred during the following dates: A3 in January, 2002; Space Leasing in December 2001, A1 in January 2002, C2 in January 2000 and KIDP in January 2002. Therefore, the last of soil treatment systems for the Fisher-Calo Site was decommissioned in 2002. On October 20, 2003, EPA approved the remedial action completion for the soil source

groundwater treatment system ran at approximately 780 gallons per minute (gpm) during the past five years or approximately 750 gpm during the eleven years of operation. The four groundwater plumes and Site treatment plant are monitored under the ongoing Site operation and maintenance monitoring program. Monitoring data shows that nine of ten Volatile Organic Compounds (VOCs) at Fisher-Calo have been steadily decreasing over the last decade. Changes to extraction well flow rates and uses have been adjusted as the four plume contaminant levels have been reduced. The groundwater monitoring program was modified in 2006 to provide a more efficient sampling program in future years.

Long-term protectiveness of the groundwater requires continued operation and maintenance of the remedial components. Since it is unlikely that Site groundwater cleanup standards will be met during the next five years, the Fisher-Calo operation of the groundwater treatment system should continue to operate for the foreseeable future. However, a review of the remedy is on-going by the PRPs, United States Environmental Protection Agency (U.S. EPA), and the Indiana Department of Environmental Management (IDEM) to determine if the remedy can be optimized. The Site Group is proposing to increase the efficiency of the treatment system by reducing the flow of uncontaminated water to the treatment plant. U.S. EPA is reviewing that optimization proposal. Additionally, the Site was selected for a national green remediation pilot to assess whether the environmental footprint can be reduced.

A determination of the need for Institutional Controls (ICs) shall be undertaken to ensure long-term protectiveness of human health and the environment for the groundwater which exceeds the cleanup standards and for the remediated soils areas. U.S. EPA will review the need for ICs and amend or clarify the remedy decision document, if required. If needed, U.S. EPA will require IC evaluation activities and an IC work plan from the Potentially Responsible Party (PRP) Site group. Last, to ensure long-term protectiveness of human health and the environment, a vapor intrusion evaluation will be conducted.

Other Comments: none

Date of last Regional review of Human Exposure Indicator (from CERCLIS): *06/17/2009*
Human Exposure Survey Status (from CERCLIS): *Current Human Exposure Controlled*
Date of last Regional review of Groundwater Migration Indicator (from CERCLIS): *06/17/2009*
Groundwater Migration Survey Status (from CERCLIS): *Contaminated Ground Water Under Control*
Ready for Reuse Determination Status (from CERCLIS): *Not Ready for Reuse*

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List of Acronyms

ARARs	Applicable or Relevant and Appropriate Requirements
C-1,2DCE	1,2-Dichloroethene
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CE	Chloroethane
COC	Contaminants of Concern
CO2	Carbon Dioxide
c-12-DCE	cis-1,2-Dichloroethene
DCE	1,2-dichloroethene
EPA	United States Environmental Protection Agency
EW	Extraction Well
FIT	Field Investigation Team
FYR	Five-Year Review
GCP	Groundwater Contingency Plan
GETS	Groundwater Extraction and Treatment System
GPM	Gallons Per Minute
ICs	Institutional Controls
IDEM	Indiana Department of Environmental Management
ISBH	Indiana State Board of Health
KIDP	Kingsbury Industrial Park
LTS	Long-Term Stewardship
MCL	Maximum Contaminant Level
MNA	Monitored Natural Attenuation
NPL	National Priorities List
O&M	Operation and Maintenance
OM&M	Operations, Maintenance and Monitoring
PCBs	Polychlorinated biphenyls
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SVE	Soil Vapor Extraction
SVOCs	Semi-Volatile Organic Compounds
TCE	Trichloroethene
T-1,2-DCE	trans-1,2-Dichloroethene
U.S. EPA	United States Environmental Protection Agency

List of Acronyms
(continued)

UU/UE	Unlimited Use/Unrestricted Exposure
VC	Vinyl Chloride
VOCs	Volatile Organic Compounds
1,1,1-TCA	1,1,1-Trichloroethane
1,1-DCE	1,1-Dichloroethene
1,2-DCA	1,2-Dichloroethane
1,1-DCA	1,1-Dichloroethane

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FIVE-YEAR REVIEW REPORT
EXECUTIVE SUMMARY
AUGUST 2010

FISHER-CALO SUPERFUND SITE

KINGSBURY,
INDIANA

The completion of the current Five-Year Review (FYR) confirms that the Fisher-Calo Superfund Site remedial action remains protective of human health and the environment. The components of the remedy were selected in the 1990 Site Record of Decision (ROD) and 1997 ROD Amendment along with the 1992 Consent Decree. The Fisher-Calo groundwater extraction and treatment system remains in-place, and has been operating since February 1988 at approximately 780 gpm. The four groundwater plumes and Site treatment plant are monitored under the on-going Site operation and maintenance monitoring program. Monitoring data shows that nine of ten volatile organic compounds (VOCs) of concern at Fisher-Calo Site have been steadily decreasing. The ROD lists the following five VOCs of concern: Trichloroethene; Trans-1,2-dichloroethylene; 1,1,1-trichloroethane; Methylene Chloride and Vinyl chloride However, the following ten VOCs are being tracked by the monitoring program: Trichloroethene (TCE); Tetrachloroethene (PCE); 1,1,1-Trichloroethane (1,1,1-TCA); 1,1-Dichloroethene (1-1-DCE); 1,2-Dichloroethane (1,2-DCA); cis-1,2-Dichloroethene (C-1,2-DCE); Vinyl chloride (VC); trans-1,2-Dichloroethene (T-1,2-DCA); Chloroethane (CE); and 1,1-Dichloroethane (1,1-DCA).

This is the third FYR for the Fisher-Calo Site. The first FYR was completed and signed in September 2000. The second FYR was completed and signed in September 2005. The groundwater monitoring program was modified in 2006[1] to provide a more efficient sampling program for future years. Groundwater treatment system extraction well flow rates have been adjusted since the last review, and the four plume contaminant levels have been reduced. While the contaminant levels have been reduced, the groundwater treatment system was adjusted to maintain containment (i.e. the pumping rate of some extraction wells have been increased to maintain plume containment). The last of the five soil treatment systems for the Fisher-Calo Site was decommissioned in 2002, and the soil remedy was formally completed in October 2003.

The groundwater extraction and treatment system at the Fisher-Calo Site should be operated, maintained and monitored for the foreseeable future, until groundwater cleanup standards are met at the Site. However, U.S. EPA and the Potentially Responsible Parties (PRPs) are looking for opportunities to optimize the system. Additionally, the Site has been selected by U.S. EPA to undergo an optimization and green remediation pilot study conducted by U.S. EPA as part of an effort underway to research and promote such practices. (See Attachment 1)

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1 On January 26, 2006, EPA approved a modification to the groundwater sampling and pumping program as outline in a LFR Corporation memorandum (June 8, 2005); and on a telephone conference call between LFR, EPA and IDEM held on January 26, 2006.

A determination of the need for Institutional Controls (ICs) shall be undertaken to ensure long-term protectiveness of human health and the environment for the groundwater which exceeds the cleanup standards and for the remediated soils areas. U.S. EPA will review the need for ICs and amend or clarify the remedy decision document, if required. If needed, U.S. EPA will require from the PRP Site Group that an IC work plan be submitted which includes IC evaluation activities. Last, to ensure long-term protectiveness of human health and the environment, a vapor intrusion evaluation will be conducted.

U.S. Environmental Protection Agency
Region 5
Five-Year Review
Fisher-Calo Superfund Site
Kingsbury, Indiana
AUGUST 2010

I. Introduction

The purpose of a Five-Year Review (FYR) is to provide a summary of the selected remedy at a site, and determine if the remedy remains 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 identify recommendations to address them. In this report, the U.S. EPA Region 5 documents the FYR that has been conducted of the remedial actions implemented at the Fisher-Calo Superfund Site in Kingsbury, Indiana. This is the Third FYR for the Fisher-Calo Superfund Site. The first FYR was completed on September 7, 2000. That review was based on the site remedy construction completion which took place in 1998. The Second FYR was completed in September 2005. The date for the current FYR is triggered by the completion of the September 2005 review. The review was conducted between September 2009 and March 2010. This report documents the results of the FYR.

The FYR requirement applies to all remedial actions selected under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121. FYRs should be conducted either to meet the statutory mandate under CERCLA §121(c) or as a matter of U.S. EPA policy. Consequently, FYRs are classified in this guidance as either "statutory" or "policy." The previous FYR for the Site stated that the FYR was required by policy because it was reasoned that the cleanup goals would achieve unlimited use/unrestricted exposure (UU/UE), although it was estimated that it would take five or more years to attain the Site remedial action goals specified in the decision documents for groundwater. Based upon the current review, it appears that it is more accurate to state that the FYRs are required for this Site by statute because hazardous substances will remain at the Site above levels that allow for unlimited use and unrestricted exposure after completion of the remedial action. The remedial action according to the ROD (August 1990), Consent Decree (CD) (February 1992) and ROD Amendment (September 1997) at the Fisher-Calo Superfund Site established groundwater clean up standards which would allow for eventual unlimited use of groundwater at the Fisher-Calo Site, albeit that it will take many years. Interim ICs should be considered until the groundwater meets the cleanup standards. Also, it appears that the soil cleanup level may not allow for UU/UE and may require restrictions to ensure long-term protectiveness as the remediated soils areas may need to have future use limited to non-residential or to commercial /industrial uses. Although the decision document implies[2] that the remedy would not achieve UU/UE, and therefore ICs could

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2 The 1989 ROD Amendment stated that consistent with Section 121 (C) of CERCLA, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

be necessary to protect the integrity of the remedy and minimize potential for exposure, the requirement is not clear and no ICs are called for in the selected remedy. More research is required to clarify the soils cleanup level and what future use will be allowed.

II. Site Chronology

Table 1 lists the Chronology of events for the Fisher-Calo Superfund Site.

Table 1: Chronology of Site Events

Date	Event
1978	Initial discovery of problem
1980	Initial drum removal
1982	U.S. EPA Site investigation
1982	Proposed for National Priorities List (NPL) listing
1983	NPL final listing
1986	Remedial Investigation/FS initiated
1990	Remedial Investigation/FS completed
1990	ROD signed
1992	RD/RA Consent Decree
1995	Remedial Action start
1995	Buried Drum removal
1996	Polychlorinated biphenyls (PCBs) soils removal and initial SVE
1997	ROD Amendment
1998	Remedy construction completion
2000	First Five-Year Review
2003	Soil remedy completion
2005	Second Five-Year Review
2010	Third Five-Year Review

III. Background

A. Physical Characteristics

The Fisher-Calo Site is located in the Kingsbury Industrial Development Park (KIDP) in LaPorte County, Indiana (Refer to Figures 1.1, 1.2 & 1.3). The KIDP is located in the southeast section of LaPorte County, approximately 12 miles southeast of LaPorte, Indiana. The communities of Kingsbury, 1.9 miles to the northwest, and Kingsford Heights, 1.6 miles to the southwest, are the major population centers located near the site. An upper and lower aquifer have been identified at the Site. Groundwater flow in the upper aquifer is to the south and southwest, which is consistent with regional flow patterns.

The Fisher-Calo Site is located on three areas at KIDP: These are 1) the One-Line Road property, 2) the Two-Line Road property and 3) the Space Leasing property. It should be noted that the KIDP Space Leasing Area is now known as Midwest Warehousing Company. The KIDP Two-Line Road property is located one mile east of the One-Line property. The Space Leasing property is approximately two miles east of the Two-Line Road property on the north side of Hupp Road.

B. Land and Resource Use

The Kingsbury Park One-Line Road property is bordered to the north and south by grasslands and buildings. The area west of the One-Line property contains scattered woodlands and fields. Travis Ditch and Kingsbury Creek parallel the western border of the facility. The land between the One-Line property and Two-Line property, as well as along the eastern and southern side of the Two-Line facility, is often under cultivation with corn or soybeans. Abandoned munitions bunkers surrounded by grassland are located north of Hupp Road across from the Two-Line property. To the south of the facility, the land consists of scattered woodlands and grassland.

The Space Leasing property is surrounded by munitions bunkers to the west and cropland to the north and south. The Kingsbury Fish and Wildlife area, operated by the Indiana Department of Natural Resources, is located at the end of Hupp Road and to the east of the Space Leasing area. A number of industrial park production wells are located near the Fisher-Calo Site. Three production wells are located near the Site in the industrial park, and several municipal wells are installed west and southwest of the Site.

C. History of Contamination

Fisher-Calo and various subsidiaries began operations at KIDP in the early 1970's. The Site facilities were used for processing and distributing solvents, metal finishing supplies and other industrial chemicals. Fisher-Calo also operated a solvent reclamation facility on the Site for several years to recover and resell paint and metal cleaning solvents. Chemical wastes were either stored in metal drums and buried, or stockpiled on the Site. In addition, wastes were

disposed of directly on the ground.

D. Initial Response

The Site was subject to numerous removal actions in the 1980's and 1990's as is described further below. Industrial facilities on the One-Line Road property caught on fire in March 1978. Fisher-Calo's solvent reclamation building, several bulk storage tanks, and an estimated 20,000 drums of chemical wastes and solvents were destroyed. Residents within a five mile radius of the Site were evacuated during the fire. After the fire, the Indiana State Board of Health (ISBH) and other regulatory agencies conducted periodic inspections of the Fisher-Calo operations.
A number of violations, including buried drums and waste, were discovered over the next few years at Fisher-Calo. Drums containing chemicals and sludges were removed from the Site in 1980. In February 1982, the U.S. EPA's Field Investigation Team (FIT) conducted a Site investigation which indicated elevated levels of organic compounds in the groundwater and surface soils. Multiple removal actions were conducted at the Site to abate immediate risks. For example, the excavation of the approximately 3,600 buried drums was completed in April 1994. Consolidation and offsite disposal of the excavated drums took place in late 1995 and January 1996. Excavation and offsite disposal of PCB-contaminated soils took place in December 1995 and January 1996.

E. Basis for Taking Action

Remedial planning began at Fisher-Calo as the Site was proposed for the National Priorities List (NPL) on December 30, 1982. The Site became a final NPL listing on September 8, 1983. A remedial investigation (RI) and feasibility study (FS) were carried out from 1986 through 1990. The significant results of the RI/FS at the Fisher-Calo Site included:

* Elevated levels of organic compounds were found in the groundwater and surface soils. This contamination was the result of improper waste handling and disposal practices at the Fisher-Calo Site.

* There were a number of soil contamination areas at the Site. The primary areas of soil contamination were where drums had been stored or buried, or where disposal pits were present. The soil contaminants were a source of contamination to the groundwater at the Site.

* The primary contaminants in the soil source areas were volatile organic compounds such as trichloroethene (TCE), 1,2-dichloroethene (DCE) and 1,1-DCA; the semi-volatile bis (2-ethylhexyl) phthalate; and polychlorinated biphenyls (PCBs).

* Groundwater contaminants considered to be the major potential human health and environmental threats included the volatile organic compounds TCE, DCE and DCA.

* Surface drums and buried drums at the Site often leaked, and were a significant human

health and safety risk at the Site. As a result, it was appropriate to conduct emergency removal actions to examine, repackage and remove the drums from the Site.

The Risk Assessment for the Site indicated that the primary exposure pathway was through the groundwater, and that the contaminant concentrations in each of the identified contaminant plumes could present an unacceptable risk to human health. Soils in some areas of the site were considered to be sources of groundwater contamination along with buried drums. Other possible pathways identified in the risk assessment which might present an unacceptable risk to human health were the asbestos contained in materials lying on the ground and which might be present in buildings and the Cardinal Chemical Discharge lagoon.

The 1990 ROD and 1997 ROD Amendment prepared by U.S. EPA with concurrence by IDEM outlined the remediation goals for the Fisher-Calo Site. These goals included protecting human health by preventing the contaminants in the soils from entering the groundwater; treating the groundwater in order to protect the public and private water supply wells in the area from contamination; reducing the soil and groundwater contamination in order to eliminate human health risks at the Site; and identifying any additional buried or surface drums at the Site and removing them. Also, fences were installed which provides for access restrictions on the Fisher-Calo Site property.

IV. Remedial Actions

A. Remedy Selection

The major components of the 1997 ROD Amendment at the Fisher-Calo Site, including those components in the 1990 ROD that were updated due to the amended Site remedy, consist of the following:

* Installation of security fences around the contaminated soil areas on the One-Line Road property, the Two-Line Road property and the Space Leasing property.

* Excavation and off-site disposal of PCB contaminated soils on the One-Line Road property. The soils were disposed off-site in a permitted hazardous waste landfill.

* Installation of air sparging injection wells and use of bioremediation in soil areas contaminated with semi-volatile organic compounds (SVOCs) on the One-Line Road property and Two-Line Road property.

* Soil vapor extraction of VOCs in contaminated soil areas on the One-Line Road property, the Two-Line Road property and the Space Leasing property. The soils were treated, as outlined in the remedial design work plan, to allow attainment of established groundwater cleanup levels.

* A buried drum investigation was undertaken in two areas on the One-Line Road property and the Space Leasing property. Testing was done to determine where buried drums and/or containers may have come to be located. Any located drums, containers and container contents were excavated and properly disposed. Contaminated soils in the buried drum areas were identified and were treated.

* Installation of an extraction well network to remove contaminated groundwater. Following extraction, the contaminated groundwater is pumped through a piping system to a groundwater treatment facility. The groundwater is treated by air stripping in order to meet appropriate U.S. EPA and State of Indiana requirements. After treatment, the water is discharged into nearby Travis Ditch, pictured below.

*Photograph taken in 2010

* Installation of a groundwater monitoring well system to determine the effectiveness of the remedy, and provide public health and safety. The monitoring well system is being used to ensure that the treatment system contains the Site groundwater plumes, and to monitor the levels of contaminants in groundwater to ensure that the standards are met.

* A new production well capable of producing at least 500 gallons per minute was installed. This well was needed to replace the capacity of an existing production well (well A) previously closed due to contamination.

The major differences between the remedy outlined in the 1997 ROD Amendment for Fisher-Calo and the remedy described in the 1990 ROD are as follows:

SUMMARY OF FISHER-CALO 1990 ROD CHANGES

1990 ROD	**ROD Amendment (1997)**
Soil flushing or Soil Vapor Extraction (SVE) to treat VOC-contaminated soil.	SVE to treat VOC-contaminated soil.
Excavation and incineration of SVOC-contaminated soil.	Bioremediation of SVOCs in soils using air sparging wells.
Excavation and incineration PCB-contaminated soil.	Excavation and off-site disposal of PCB-contaminated soils at a permitted facility.
Extraction, treatment and Reinjection of water.	Extraction, treatment and discharge to Travis Ditch.

B. Remedy Implementation

A Consent Decree regarding the August 1990 ROD was entered in U.S. District Court in February 1992 between U.S. EPA and the PRPs. The contractor representing the PRPs completed the remedial design (RD) in 1995. The Remedial Design Work Plan was approved by the U.S. EPA in June 1993. From 1993 to 1997, the Site Group collected additional data to facilitate the Remedial Design and initiated the Remedial Action that included removal of drums of contaminant source material. Buried drum investigations carried out at the One-Line Road and Space Leasing properties during the remedial design revealed approximately 3500 buried drums. These drums and contents were excavated, over packed and sampled in 1994. The 3500 drums and contents were then consolidated, removed and disposed off-site from September to December of 1995. The soil areas at the One-Line Road and Space Leasing properties where the drums were excavated then became part of the Site soil remedy, and an additional fourth groundwater plume at Space Leasing became part of the groundwater remedy. The PCB-contaminated soil cleanup was completed in January 1996 when approximately 500 cubic yards of the soil was excavated and disposed off-site in a hazardous waste landfill.

The Final Design was completed in May 1997 and included alternative remedies to the 1990 ROD. Several changes to the remedies were made including: in-situ treatment of VOCs and SVOC contaminated soils instead of excavation and landfill disposal; excavation and landfill disposal for PCB contaminated soils instead of incineration; and discharge of treated groundwater directly to Travis Ditch instead of reinjection to the aquifer. These remedy changes were approved in a ROD Amendment (September 1997).

Soil remediation was completed at five soil source areas known as areas A1, A3, C2, KIDP and Space Leasing. The soil treatment systems began operating at the Fisher-Calo Site in May 1998, with the exception of Area A3 which had been operating since the beginning of 1996. The PRPs were required to perform soil boring and system emissions sampling until VOC and SVOC soil compliance levels were met at each area. Soil treatment was determined to be complete based on confirmation soil and system emissions sampling. According to the Final Closure Report (Parsons, February 14, 2002, the following information regarding the remedial activities was documented: Area A3 soil treatment on Two-Line Road property was shut down in 1998 (decommissioned 2002) . The Space Leasing Soil Area treatment was shut down in December 1999 (decommissioned in 2001). Area A1 on Two-Line Road and Area C2 on One-Line Road were completed in 1999 (decommissioned in 2002). The security fence at Area C2 was taken down in 2001, since the area is located within a larger secured fence area. The last soil remediation area treatment system, KIDP, was shut down in 2001 (decommissioned in 2002). In October 2003, EPA approved the remedial action completion for the soil source area remediation at the Fisher-Calo Superfund Site.

The Groundwater Extraction and Treatment System (GETS) was constructed in 1997 and began operating in February 1998. The GETS consists of 16 extraction wells located over four different groundwater plumes and two miles of transmission lines. Currently only 13 extraction wells are being used (EW1N-03, EW2N-01, and EW2N-02 are turned off)[3]. These wells were used to pump contaminated water to four individual well field control buildings from four different groundwater plumes first. From each well field control building, the water was delivered through two miles of transmission lines to a main treatment building for treatment. A carbon dioxide (CO2) injection system was constructed for the One-Line Road groundwater treatment system in December 1999. The CO2 system was added in order to reduce the high levels of iron precipitation that were occurring in the extraction wells. The CO2 system was discontinued in 2004 after a study determined that it was no longer needed. See documentation in Attachment 7. An additional groundwater extraction well, EW1N-4, was added to the north end of the One-line Road system in January 2000 to achieve total capture of the groundwater plume located there. The nearby extraction well EW1N-3 was decommissioned when EW1N-4 went on-line.

As mentioned, for the last 11.5 years, the GETS has been in operation. The system is operated, maintained and monitored according to the Operations, Maintenance and Monitoring (OM&M) Plan dated October 1998. A detailed discussion of the groundwater trends can be found in the Data review section.

C. Institutional Controls

Institutional Controls (ICs) may be required to ensure the protectiveness of the remedy. 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

3 EW2N-01 was turned off in April 1998, EW1N-03 was turned off in May 1998, EW1N-04 was added in January 2000, and EW2N-02 was turned off in January 2006. EW1N-04 was recently replaced in March 2010.

ICs is required to assure long-term protectiveness for any areas which do not allow for unlimited use or UU/UE.

Although the ROD implied that ICs would be necessary to protect the integrity of the remedy and minimize potential for exposure, along with the active remedial action, no ICs were required. U.S. EPA will review the ROD and decide whether the remedy should be modified. The Fisher-Calo Site soil remedy was completed in October 2003, and the land is available to be utilized by any operating facilities within the KIDP facility. The Site is used by commercial and industrial operations. It is not clear whether the site soil clean-up standards would allow for a future residential development. U.S. EPA will review the assumptions made in the 1990 Fisher-Calo ROD and the 1997 Fisher-Calo ROD Amendment to determine if the standards will allow for unlimited use of soil and groundwater within the KIDP facility when the Site remedies have been completed. If they do allow for UU/UE, then institutional controls would not be required on the property to restrict land use. Although the groundwater remedy would allow for eventual unlimited use of groundwater that will take many years. Within one year, a review of the need for interim ICs will be conducted to ensure protectiveness of human health and the environment to restrict groundwater use at the four groundwater plumes until the Fisher-Calo groundwater remedy has been completed.

Areas that may not support UU/UE and for which ICs may be required are noted in the Table below.

Table 2: Institutional Controls Summary Table

Media, Engineered Controls, & Areas that Do Not Support UU/UE Based on Current Conditions	IC Objective	IC instrument
Groundwater at Fisher-Calo– current area that exceeds groundwater cleanup standards (See Figures 1.3 and 10.2).	Prohibit groundwater use until cleanup standards are met.	Requirement Under Review
Soils remediated at Fisher-Calo.	Under review	Requirement Under review
Other remedy components such as transmission lines and treatment plant	Prohibit interference with remedy components	Current Access agreements; Requirement under review

*Maps which depict the current conditions of the Site and areas which may not allow for UU/UE will be developed as part of the required IC evaluation activities and work plan.

Status of ICs and Follow-up Actions Required:

Initial IC evaluation activities have revealed that additional steps must be taken to evaluate whether ICs are required to ensure that the remedy continues to function as intended. The decision documents do not clearly address whether or not ICs are required. The remedy requirements relative to whether performance standards for soils allow for UU/UE will be conducted by U.S.EPA. Additionally, a determination if interim ICs are needed for groundwater until the performance standards have been met will also be conducted by U.S. EPA. The U.S. EPA will review remedy and if needed: 1) amend or clarify the remedy decision document and

2) require from the PRP Site Group that an IC work plan be submitted which includes IC evaluation activities including a long-term stewardship plan to ensure that effective ICs are implemented, monitored, maintained and enforced.

Current Compliance: Based on inspections and interviews, U.S. EPA is not aware of Site or media uses which are inconsistent with the stated objectives of any possible ICs. The remedy appears to be functioning as intended.

Long-Term Stewardship: Long-term protectiveness at the Site requires long-term stewardship (LTS) to assure the remedy continues to function as intended. If ICs will be required, then the decision document will be clarified and effective ICs will be implemented, monitored, maintained and enforced. Planning for long-term stewardship requires assuring that effective procedures are in place to properly maintain, monitor, and enforce any ICs determined to be needed, if any, along with monitoring of the groundwater. A LTS plan shall be developed (or the Operation and Maintenance (O&M) Plan updated) that includes procedures for long-term stewardship.

D. Systems Operations/ Operations and Maintenance

Groundwater and surface water remedial objectives at the Fisher-Calo Superfund Site are the attainment of U.S. EPA primary and secondary drinking water maximum contaminant levels (MCLs) by utilizing groundwater treatment, and the elimination of any excess lifetime cancer risks according to State of Indiana water quality requirements. Soil remedial objectives include the elimination of any excess groundwater leachate, direct contact, ingestion and inhalation human health risks by treatment of contaminated soils. Soil clean up levels for the Fisher-Calo Site were determined using a groundwater leachate model, in order to eliminate additional risks for groundwater contamination.

Excess human health risks due to contaminated groundwater are being addressed by the groundwater remedy at the Site. The extraction and treatment system has been on-line since February 1998, and continues to operate at approximately 780 gpm during the last five years (or average 750 gpm during the last eleven years). The Fisher-Calo Site group is required to perform sampling at the four groundwater plumes and treatment plant until groundwater compliance standards are met. The treated groundwater must also be sampled as long as the treatment plant operates to assure that it meets Indiana permit requirements before being discharged into Travis Ditch.

The four groundwater plumes are being adequately contained, and significant contaminant mass is being removed from the aquifer. Even though the parties will be looking at ways to the optimize the treatment systems, the groundwater treatment systems will likely be in place during the next scheduled FYR in 2015, since it is highly unlikely that groundwater clean-up standards will be met in the near future.

The Fisher-Calo soil remedy has been completed at all five (5) soil treatment areas, the PCB removal area, and the drum removal locations. Notice of remedial action completion of the soil remedy at the Site was documented and sent to the responsible parties in October 2003.

V. Progress Since Last Five-Year Review

This is the Third FYR for the Fisher-Calo Site. It found that the remedy was protective of human health and the environment. In addition, the Second FYR report was completed and signed in September 2005.

In the 2005 FYR, the following issues and recommendations were identified.

Identified Issues

Five-Year Review Issues	**Affects Current Protectiveness (Y/N)**	**Affects Future Protectiveness (Y/N)**
Revise monitoring for groundwater treatment system to optimize Site containment and treatment	N	N
Issues Noted at Site Inspection		
Replace pressure gauge at One-Line south building	N	N
Provide external identification at all monitoring wells	N	N
Secure lock on piezometer PZ1S-02	N	N
Repair casing cap on piezometer PZSL-4	N	N
Attach pole marker on extraction well EW1S-4	N	N
Secure KIDP municipal well building near 4-Line Road	N	N

The following recommendations and follow-up actions address the issues which were identified during the 2005 FYR and Site inspection:

Recommendations and Follow-up Actions

New Five-Year Review Issues	Recommendations Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N) Current, Future
Revise groundwater monitoring	Update and approve monitoring plan	Fisher-Calo Group/LFR	EPA/IDEM	2005	N, N
Inspection Site Issues					
One-Line south gauge	Replace pressure gauge	Fisher-Calo Group/ LFR	EPA/IDEM	2005/ ASAP	N, N
Monitoring well labels	Provide permanent exterior labels	Fisher-Calo Group/ LFR	EPA/IDEM	2005/ ASAP	N, N
PZ1S-02 lock	Secure PZ1S-02 lock	Fisher-Calo Group/ LFR	EPA/IDEM	2005/ ASAP	N, N
PZSL-4 casing cap	Repair dented casing cap	Fisher-Calo Group/ LFR	EPA/IDEM	2005/ ASAP	N, N
EW1S-4 pole marker	Attach EW1S-4 pole marker	Fisher-Calo Group/ LFR	EPA/IDEM	2005/ ASAP	N, N
KIDP well building	Secure KIDP 4-Line well building	Fisher-Calo Group/ LFR	EPA/IDEM	2005/ ASAP	N, N

Resolution of Issues noted in 2005 Five-Year Review.

The issues noted from the inspection were promptly resolved by the PRPs. The groundwater monitoring plan was amended in 2006. The U.S. EPA issued a letter approving the proposed groundwater sampling plan on January 26, 2006. The main purpose of the sampling plan changes was to reduce the sampling frequency at uncontaminated wells and increase the sampling frequency of in plume wells to allow for trend analysis. The Site Group adopted the new sampling plan starting with the April 2006 semi-annual sampling event.

The other issues from the 2005 inspection were resolved by the PRPs in October 2005. The information was shared during the monthly conference calls between the Site Group, U.S. EPA and IDEM in October 2005 and was documented in minutes to the monthly reports. The information was documented in the January 23, 2006, Semi-Annual Groundwater Treatment System Progress Report. In October and December 2009, the Site Group prepared a response letter to the FYR.

VI. Five-Year Review Process

A. Administrative Components

The Fisher-Calo FYR was prepared by Sheri L. Bianchin, U.S. EPA Remedial Project Manager for the Site. Resa Ramsey, State Project Manager with IDEM, also assisted with the review. The FYR consisted of several Site inspections along with the review of relevant documents.

B. Community Notification and Involvement

The completed report will be available in the Site information repository and the U.S. EPA website for public view. An advertisement notice announcing the FYR process was placed for public viewing in the LaPorte, Indiana Herald on December 9, 2009. A copy can be found in Attachment 2 to this report. This report will be placed in the U.S. EPA and IDEM's files and will be posted on EPA's website.

Community relations ongoing at the Fisher-Calo Site include the comprehensive sampling program currently being carried out to assure that human health and environment in the area is protected, and that contaminants are contained and treated by the Site remedy.

C. Document Review

For this FYR, U.S. EPA reviewed several Site related documents and reports for this Site. A list of documents reviewed in preparation of this report is included in Attachment 6.

D. Data Review

Below, the Groundwater Remediation activities will be discussed. Groundwater monitoring at this Site is a combination of hydraulic and water quality monitoring designed to verify that the groundwater extraction wells are containing the contaminant plume and that groundwater quality is improving because of past source remediation and VOC removal from the aquifer.

Groundwater remediation at a site like the Fisher Calo Superfund Site is a long-term process that cannot be readily measured on a short-term basis using water quality data alone. Because of the time necessary to achieve groundwater remediation, containment of contaminated groundwater is the primary measurable and achievable short-term objective. Actual remediation of the

groundwater is a slower process that is more difficult to measure using field data on a short-term basis. Accordingly, water quality data is measured semi-annually on a long-term basis to show the downward trend of VOC concentrations in groundwater. Significant VOC reductions are measured over a period of years. The comprehensive sampling program currently being carried out assures that human health and environment in the area is protected, and that contaminants are contained and treated by the Site remedy. This is because monitoring is in place and measures will be taken if COC levels increase above action levels. Based on the semi-annual hydraulic monitoring and sampling results, the Site Group continues to monitor plume containment and adjust the target pumping rates as needed to increase treatment efficiency and maintain plume containment. All current sample results from the boundary monitoring wells used to demonstrate plume containment are less than the groundwater action levels.

The groundwater sampling plan was revised in 2006 to increase the sampling frequency of contaminated Site wells and decrease the sampling frequency at uncontaminated groundwater wells. The sampling frequency at the four Site plumes boundary wells remained unchanged and assures proper verification of groundwater plume containment. Approximately 70 groundwater sampling locations are monitored throughout the year in the Fisher-Calo sampling program for Site specific and VOCs. The Site groundwater treatment plant for the four groundwater plumes, which operates at approximately 780 gallons per minute, is also sampled. The objective of the groundwater monitoring program at the Site is to ensure containment of the contaminant plume, with a goal of reducing concentrations toward unlimited use of groundwater at the Site.

The Site is actively managed by the PRP Group or trustees. Monthly teleconferences continue with representative from the U.S. EPA, IDEM and the Site Group participating in the calls. The monthly teleconferences assure that frequent communication occurs on the progress of the work under the Groundwater Remediation Program. Minutes from the monthly teleconferences are provided in writing after each conference call and are also contained in the semi-annual and annual reports.

In addition to weekly inspections, the Site Group conducts monthly inspections (which involve a more detailed checklist), along with a more extensive semiannual inspection. The GETS continues to operate following the OM&M Plan dated October 1998. The Site Group conducts routine equipment-maintenance activities on the treatment system. Other than routine maintenance items, the Site Group did not identify any problems with the extraction and treatment systems during the weekly, monthly, and semiannual inspections. Copies of the weekly, monthly, and semiannual inspection logs are maintained at the treatment building office and off-site. A summary of the maintenance activities for the period is presented in semi-annual reports provided to the agencies.

Operation and maintenance sampling as required by the Fisher-Calo Consent Decree has been completed and reported at the Site through the end of 2009. The most recent reports are: 1) the Semi-Annual Groundwater Treatment System Progress Report dated February 25, 2010, for the time July 1, 2009 through December 31, 2009; and 2) the Annual Report Number 11 was dated August 14, 2009. These sampling events are carried out to confirm that hydraulic containment is

being achieved at all four plumes. The location of the hydraulic monitoring networks for each plume is shown on the attached Figures 1-4. To monitor the hydraulic movement and containment, a total of 160 monitoring wells and piezometers were measured, along with nine (9) staff gauges installed within Travis Ditch. The sixteen (16) extraction wells were also measured as part of this program. Additional hydraulic monitoring was conducted at the One Line South plume. To monitor the chemical contamination in the groundwater, a total, 41 wells were sampled including six (6) boundary wells (B), nine (9) chemical trend wells (CT), thirteen (13) extraction wells (E) and thirteen (13) plume wells (P) in accordance with the 2006 revised OM&M Plan and Groundwater Contingency Plan (GCP). All collected groundwater samples were submitted with chain-of-custody documentation to Test America Laboratories Inc, (Test America) in University Park, Illinois for analysis of VOCs. The analytical results of the April and October semi-annual groundwater sampling events from 2009, for the four plumes with the corresponding action levels, are provided in Tables 6 through 9 in the Annual Groundwater Monitoring Report.

Discussion

As a result of eleven and one-half years of treatment-system operation, the groundwater pumping has successfully contained contaminant migration down-gradient of the extraction wells at all four plumes with an apparent temporary exception at the One Line South plume. This minor loss of containment at the One Line South plume was detected as a result of the regularly scheduled hydraulic monitoring and groundwater sampling. Consistent with the requirements of the GCP, the Site Group increased the pumping rates at the One Line South plume extraction wells in July 2009 and began monitoring hydraulic containment by collecting groundwater levels on a monthly basis in August. The latest hydraulic monitoring data show that containment at the One Line South plume is now restored. However, based on the increasing trend results at CRA24A and the apparent temporary loss of containment between EW1S-3 and 4, the Site Group has increased the pumping rates at EW1S-2, 3 and 4 and continued to monitor groundwater levels monthly at the One Line South plume through the April 2010 sampling event. The hydraulic monitoring and capture results are shown on Figures 11- 14. Figures 12 a-12e show how the capture has been re-established in the One-Line South area.

Based on the most recent sampling results, there are no action level exceedances at any of the plumes boundary wells. Furthermore, there are currently no action level exceedances at previously contaminated wells CRA-58 downgradient of the One Line North plume and CRA-24A downgradient of the One Line South Plume.

Also, based on the treatment plant influent sample results, the overall volatile organic compound contaminant load present in the treatment plant influent has been steadily decreasing over the past eleven and one-half years of system operation. See Table 7. Finally, due to the loss of specific capacity of extraction well EW1N-4, the existing well was replaced with a new well in March 2010. The original EW1N-4 is being maintained so it can be sampled.

Extraction and Treatment System Operation
Treatment-Plant Sampling and Treatment System Operation

Pursuant to the approved OM&M Plan, the Site Group, through their contractor, conducted annual sampling of the groundwater treatment system to verify that the extracted groundwater was being properly treated, and that the approved discharge standards were being met. The treatment plant sampling included the combined influent flow (all four well field control buildings combined) and the post treatment effluent flow. Figure 5 depicts the combined influent VOC concentrations over time. The effluent water from the groundwater treatment plant discharges to Travis Ditch. Table 7 shows the combined influent and effluent concentrations over time. The sampling is conducted during the month of April each year. The extraction and treatment system operated over the past five years with less than 3.5% downtime. Most unscheduled operating interruptions are caused by power outages. Scheduled routine maintenance activities occur periodically to maintain target flow rates and treatment plant efficiency. The Site groundwater treatment plant for the four groundwater plumes system treated an average of approximately 1,139,040 gallons per day, or approximately 780 gpm throughout the period. Tables 6 and 7 present the volume of groundwater treated per year and total volume treated over the past five (5) years. Notably, the groundwater treatment system has treated 2,049,629,720 gallons of water in the last five years and 4,354,864,611 gallons of water over the last eleven years.

It is demonstrated that the treatment system is effectively treating the groundwater. The demonstration can be made based on reviewing 1) Table 6 which shows mass of VOCs removed by plume; 2) Table 7 which shows VOC influent and effluent concentration data over time and 3) Figures 6-9 which presented groundwater concentration data for seleted VOC compounds at One-Line North area, One-Line South area, Two-Line North area and Space Leasing area, respetively. Based on the sampling results and pumping rate, the quantity of VOCs removed in pounds is calculated. The tables also present the mass of VOCs removed (on an annual basis) and a graphical presentation of the total VOCs present in the influent. As demonstrated by the data and graph on Table 8, the mass of VOCs being removed has been steadily decreasing. In addition, a graph of the individual VOCs concentrations detected vs. time in the combined influent since system startup is shown on Figures 7 and 8. This graph shows five of the ten detected VOC concentrations are decreasing. The remaining five detected VOCs levels are currently less than five (5) µg/L. As of December 2009, a total of 7,515 pounds of VOCs have been removed since system startup in 1998. However, the total mass of VOCs removed last year was about one-third of the mass removed during the first year of system operation. This is an indication that while the remedy has been successful, the efficiency of the operation has been declining

Air discharge from the plant air strippers remains well below the permitted allowable discharge standards.

Groundwater Sampling and Analysis
***Groundwater* Data Review**

The Fisher-Calo groundwater treatment system has been operating for approximately eleven and a half (11.5) years. Available Fisher-Calo groundwater treatment system data shows that the overall contaminant load present in the Site treatment plant effluent has been steadily decreasing since the plant began operation in February 1998. The concentrations of nine of ten VOCs present in the treatment plant influent (i.e., 1,1,1-TCA, 1,1-DCA, 1,1-DCE, 1,2-DCA, CE, C-1,2-DCE, T-1,2-DCE, TCE and VC) have steadily decreased over the years of operation. The concentration of PCE present in the treatment plant influent has remained generally unchanged since 1998.

Based on review of those reports and other relevant information, the following can be determined. The overall volatile organic compound contaminant load present in the treatment plant influent has been steadily decreasing over the past eleven and one-half years of system operation based on the treatment plant influent sample results. As a result of the treatment-system operation, the groundwater pumping has successfully contained contaminant migration downgradient of the extraction wells at all four plumes with the exception of one location at One Line South plume in the last year. These exceptions were resolved and are discussed further below.

Evaluation of Hydraulic Monitoring Data and Hydraulic Containment

Groundwater contour drawings were developed for each of the four plumes which graphically present the sampling results for selected VOCs and show the effectiveness of the extraction well capture areas. The analytical groundwater characterization data for the samples collected in 2009 can be found in Tables 6 – 9 in the Semi-Annual Groundwater monitoring Report. The maps depicting that information can be found in Figures 6-9 attached to this report, the groundwater level contour maps can be found in the attached Figures 11-14. Based on review of the groundwater level contour maps and the statistical analysis for the site-specific indicator parameter 111- TCA from the last year, it was determined that hydraulic containment was maintained at all the plumes with the exception of one location at the One Line Road South plume. A temporary loss of containment was documented between several extraction wells last year. Therefore, adjustments were made to the system to enhance containment at those locations. Also, in accordance with the GCP, the frequency of the hydraulic monitoring was increased to a monthly basis for six months to ensure adequate information was collected to ensure that the issues were resolved. That has been occurring. The Site Group will continue to monitor hydraulic capture at the One Line North, Two Line North and Space Leasing plumes on a semi-annual basis. The Site Group modified the target pumping rates five times over the past five years to increase treatment efficiency and optimize hydraulic capture. The changes were based on the hydraulic monitoring and groundwater analytical data. Based on review of the data, it was determined that the target pumping rate at extraction well EW1N-4 was not able to be maintained because of a loss of specific capacity in the well. Four well redevelopment events during 2009 have been unsuccessful in restoring the specific capacity to a level sufficient to maintain the

target pumping rate for an extended time period. Due to the loss of specific capacity of extraction well EW1N-4, the existing well was replaced with a new well in March 2010. The original EW1N-4 is being maintained so it can be sampled.

As needed, since the inception of the pump and treatment systems, the PRP group have been proactive and made modifications to the system to maintain plume capture, optimize system operation and increase efficiency. Major changes to the OM&M Plan to maintain plume capture, optimize system operation and increase efficiency over the past 12 years include the following:

1. April 1998- Increased flow rates at One North, One South and Space Leasing extraction wells, reduced flow rates at Two North extraction wells, turned off extraction well EW2N-1.
2. May 1998- Increase flow rates at One North and One South extraction wells, turned off extraction well EW1N-3.
3. November 1998- Increased flow rate at extraction wells EW2N-4, EWSL-3 and EWSL-4.
4. January 2000- Added extraction well EW1N-4 at the north end of the One Line North plume; added CO2 injection system at One North and One South extraction wells to reduce precipitation of solids on the pumps and piping.
5. September 2000- Increased flow rate at extraction well EW2N-4.
6. November 2000- Increased flow rate at extraction well EW2N-4.
7. January 2005- Removed CO2 injection system.
8. January 2006- U.S. EPA approved proposed changes to the OM&M groundwater sampling plan dated June 8, 2005 in a letter dated January 26, 2006. The change reduced flow rates at One Line South extraction wells and ceased operation of extraction well EW2N-2.
9. February 2007- Increased flow rate at extraction well EW2N-4.
10. April 2007- U.S. EPA approved proposed analytical method change for treatment plant sampling dated April 3, 2007 in a letter dated April 12, 2007.
11. August 2008- Increased flow rates at extraction wells EW1S-3 and 4.
12. July 2009- Increased flow rates at extraction wells EW1S-1, 2 and 4.
13. October 2009- Proposed changes to OM&M plan detailed in a letter to U.S. EPA dated October 13, 2009.

From the above timeline, it can be seen that the PRP Site Group has been actively managing the system. Along with the modifications that have been made, the Group has also provided hydraulic monitoring and chemical concentration data along with maps to show how the changes made have assured plume capture. The latest proposal will be reviewed to ensure that the pump and treatment systems are optimized while also ensuring long-term protectiveness.

Contaminant Trend Analysis

The data indicate that, in general, the plumes are stable or decreasing in size and concentration. The graphs of the sampling results show that the VOC concentrations in most of the plume wells

are decreasing or remaining stable. Almost all of the wells showing increasing concentrations are operating extraction wells. The increasing concentrations in the extraction wells show the previously up-gradient contaminants have reached the extraction wells and are being removed by the system.

Proposed Operation Changes Under Review

The Site Group proposes increasing the efficiency of the treatment system by reducing the flow of uncontaminated water to the treatment plant. U.S. EPA and IDEM are currently reviewing the proposal. U.S. EPA and IDEM acknowledge that a large amount of uncontaminated water is captured and run through the treatment system unnecessarily. Once the optimization and green remediation pilot studies are completed by U.S. EPA, a comprehensive optimization plan can be considered.

The Site Group proposed operation changes after reviewing the following U.S. EPA Guidance: *Superfund Green Remediation Strategy* (August 2009) and *Energy Consumption and Carbon Dioxide Emissions at Superfund Cleanups* (Draft May 15, 2008). The Site Group undertook a review of the operation of the extraction system to determine whether the system could be modified to produce environmental benefits going beyond the removal of VOCs from groundwater. That review identified several potential changes to increase efficiency of the treatment system and reduce the carbon footprint associated with the Site.

The Site Group has proposed reducing the amount of uncontaminated water being treated. Specifically, the Site Group proposes shutting off extraction wells EWSL-1 and EW2N-3. Based on the sampling results, none of the contaminant levels in these wells currently exceed action levels. These extraction wells will continue to be sampled semi-annually and re-started if needed for plume containment. Second, the Site Group proposes reducing the pumping rate at EWSL-2 from 32.5 gpm by 7.5 gpm to 25 gpm. These changes would reduce the total target pumping rate from 790 gpm to 685 gpm.

If allowed, a byproduct of these changes will be reduced electricity usage and the corresponding reduction of greenhouse gas emissions from the electrical power generation station. Based on the relationships provided in the draft Guidance mentioned above, the proposed changes can be calculated to reduce carbon dioxide emissions associated with the Fisher-Calo site by more than 35 tons per year or five (5) percent.

An additional option to further reduce energy consumption and the associated carbon dioxide emissions would be to suspend operation of both extraction wells EW2N-3 and EW2N-4 and instead monitoring the natural attenuation of the plume. Extraction well EW2N-4 has been removing TCE impacted groundwater at a rate of 80 gpm. The concentration of TCE detected in this well has varied from 16 to 30 μg/L over the last four years (approximately 3 to 6 times the action level). An analysis of the VOC removal rates by plume shows the Two-Line North plume has the lowest removal efficiency. Table 6 presents the analysis of VOC removal rates over time by plume and a graphical presentation of the results.

has the lowest removal efficiency. Table 6 presents the analysis of VOC removal rates over time by plume and a graphical presentation of the results.

As an alternate proposal, the Site Group proposes shutting down all of the Two Line North extraction wells and modifying the groundwater remedy for the Two-Line North plume from groundwater pump and treatment to monitored natural attenuation (MNA). U.S. EPA guidance documents provide for modification of groundwater pump and treatment remedies to groundwater MNA remedies as part of the remedy optimization process that typically occurs during the FYR process. However, U.S. EPA would need to modify the decision documents to allow for such a permanent change to the remedy. The justification and benefits for this type of remedy modification include no down-gradient receptors which might be impacted by the change, ultimate down-gradient containment with the One Line South extraction wells, minimal VOCs currently being removed by the Two Line North extraction wells (15 lbs of VOCs removed per year), and a net reduction of the Site's carbon dioxide footprint of 147 tons per year or 21 percent.

If approved, the changes listed above would reduce the total volume of water processed by the treatment system by 185 gpm from 790 gpm to 605 gpm. At 605 gpm, one of the three air strippers in the treatment plant could be shut off significantly reducing energy use. Benefits of this proposal include a reduction of carbon dioxide emissions associated with the Fisher-Calo site by more than 147 tons per year or 21 percent. The resulting reduced electricity consumed would reduce the carbon dioxide emissions associated with the project by over 35 tons per year or five (5) percent. These proposals are under review by the U.S. EPA and IDEM.

E. Site Inspection

The Fisher-Calo Site was visited multiple times over the last five years. Most recently, among other representatives, the Site was inspected on October 28, 2009, by representatives from the U.S. EPA and IDEM as part of the FYR. Sheri L. Bianchin of U.S. EPA and Resa Ramsey of IDEM were present during the October 28th inspection. See list of attendees in Attachment 4 to this report. Additionally, the site was visited on December 4, 2009, to familiarize those involved in the optimization and green remediation pilot studies in preparation for commencing the pilot. See list of attendees in Attachment 5 to this report.

The Site was found to be in good condition during the inspections. A drive and walk around the Site showed minor disturbances, but no signs of any vandalism. Inspections of the groundwater extraction system well-field control buildings found no issues. The treatment plant is well maintained as is shown in the attached photograph below.

*photograph taken by U.S. EPA in 2009.

The air strippers in the treatment plant are also well maintained. See photograph on cover page of this report taken by U.S. EPA during the Site visit. The wells were found to be in good condition. See photograph of EW-1 below.

*photograph taken by U.S. EPA in 2009.

Although no problems were observed, the U.S. EPA representative requested that the hydraulic monitoring well data sheets be revised to include a specific place on the form to note well condition, to assure that no future problems with the well conditions are promptly noted and dealt with. The PRP group made those changes to the form. That form is included as Attachment 3 to this report.

F. Interviews

No members of the community have expressed interest or opinion concerning the Fisher-Calo FYR.

VII. Technical Assessment Summary

The following questions address the protection of human health and the environment of the remedy at the Fisher-Calo Superfund Site.

Question A: Is the remedy functioning as intended by the decision documents? Yes.

- **Implementation of Institutional Controls and Other Measures:** The Fisher-Calo Site soil remedy was completed in October 2003. The assumptions made in the 1990 Fisher-Calo ROD and the 1997 Fisher-Calo ROD Amendment need to be reviewed to determine if the standards will allow for unlimited use of soil within the KIDP facility when the Site remedies have been completed. If they do allow for UU/UE, then ICs would not be required on the property to restrict land use. Regarding groundwater, the site groundwater remedy currently operates a pump and treatment system at approximately 782 gpm on four associated groundwater plumes. Although UU/UE will be available for groundwater once the standards have been met, a review of the need for interim ICs will be conducted to ensure protectiveness of human health and the environment to restrict groundwater use at the four groundwater plumes until the Fisher-Calo groundwater cleanup standards have been met.

- **Remedial Action (RA) Performance:** The Fisher-Calo Site soil remedy was completed in October 2003. The Site groundwater remedy has been operating for approximately 11.5 years, and monitoring data at the treatment plant shows a continual decrease in total mass contaminant levels, as well as reductions of nine measured VOC compounds over that period. Operation of the groundwater pump and treatment system should continue to provide reduction in groundwater contaminant levels at the four associated groundwater plumes. The groundwater treatment system should be operated until groundwater drinking standards are met at the Fisher-Calo Site unless and until U.S. EPA decides that the proposal to allow MNA in its place is a viable remedy option.

- **System Operations/O&M:** The last of the soil treatment systems for the Fisher-Calo Site was decommissioned in 2002, and the soil remedy was formally completed in October 2003. The Site groundwater treatment system consists of an extraction well

network, four well field control buildings, a piping system, and a treatment plant with settling tank and air strippers for four groundwater plumes. Changes of extraction well flow rates and uses have been adjusted, as needed, to mange the contaminants in the four plumes, as mentioned above. Contaminant levels have been reduced. The revised groundwater monitoring program was approved in 2006 to provide a more efficient sampling program in future years.

- **Cost of System Operations/O&M and Energy Usage:** Current annual O&M costs at the Fisher-Calo Site are primarily for operation, maintenance, reporting and management of the Site groundwater treatment systems. Site annual costs estimated by the PRPs are shown in the table below. Other Site costs include those relating to the U.S. EPA and IDEM project manager time and travel related to the Site, and unexpected Site construction or maintenance. The system operating costs include labor and expenses for routine maintenance, non-routine maintenance, utilities, sampling, laboratory costs, reporting and project management. Based on the billing from the utility company, the Site Group has summarized the total electricity usage over the past seven years. A summary of the total operating costs for each of the past seven years is presented in Table 3 below. The Table also shows the ratios of total cost, gallons of water treated, kilowatt-hours of electricity used and carbon dioxide generated per pound of VOCs removed.

TABLE 3
Summary of System Operating Costs 2002-2009
Fisher-Calo Site
Kingsbury, Indiana

Year	Total Operating Cost	Total Electricity Usage (KWH)	Water Treated (gal)	VOCs Removed (lb)	Gallons Treated/ VOCs Removed (lb)	Electricity Used (KWH)/ VOCs Removed (lb)	CO2 Generated (Ton)/VOCs Removed (lb)	Total Cost per pound of VOCs Removed
2002[1]	$460,182	1,088,768	433,094,400	777	557,658	1,402	0.960	$593
2003	$460,030	1,045,600	435,196,800	686	634,413	1,524	1.044	$671
2004	$419,288	1,010,720	436,248,000	608	717,179	1,662	1.138	$689
2005	$424,599	1,024,960	421,583,760	547	770,184	1,872	1.283	$776
2006	$416,328	933,440	395,514,000	521	759,447	1,792	1.228	$799
2007	$425,809	933,760	396,828,000	376	1,056,517	2,486	1.703	$1,134
2008	$435,186	947,520	399,456,000	351	1,137,008	2,697	1.847	$1,239

[1] LFR became system operator on January 1, 2002.

- **Opportunities for Optimization:** The revision to the Fisher-Calo groundwater monitoring program which occurred in 2006 is an example of how the system was

optimized. In that revision, the number and location of groundwater samples at the Site were based on optimization principles. The modifications to the individual extraction well pumping rates, which are done by the Site Group on a frequent basis, also help optimize the Site remedy. Looking at the table above, it is apparent that the groundwater treatment systems are becoming less efficient in terms of pounds of VOCs removed and cost per pound of VOCs removed. The group has proposed modifications to the system, as described above, to optimize the system. The review of the proposals is underway. Additionally, the optimization and green remediation pilot which is underway by U.S. EPA will look for additional opportunities to make the remedial action systems "greener" including looking for more efficient ways to operate the systems to reduce the environmental footprint of the remedial system.

- **Early Indicators of Potential Remedy Issues:** There have been no indicators of significant potential remedy issues in relation to the Fisher-Calo Site since the last FYR in 2005. The Site soil remedy was completed in October 2003. The Site groundwater treatment system should continue to operate, in order to continue the reduction in groundwater contaminant levels until remedial action cleanup standards are met. As mentioned above, additional review of the pump and treat system is underway to look for optimization opportunities.

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

- **Changes in Standards and To Be Considered:** Standards outlined in the 1990 Fisher-Calo ROD and 1997 ROD Amendment are still valid at the Site.

- **Changes in Exposure Pathways:** No new exposure pathways have been discovered at the Fisher-Calo Site since the last FYR in 2005. However, the vapor intrusion pathway has not been formally evaluated. Even though the likelihood of a vapor intrusion pathway is very small at the Site, U.S. EPA will require that a more formal evaluation be conducted.

- **Changes in Toxicity and Other Contaminant Characteristics:** Toxicity and other factors for contaminants of concern (COCs) have not changed since the last FYR in 2005.

- **Changes in Risk Assessment Methodologies:** Risk assessment methodologies used at the Fisher-Calo Site since the last FYR in 2005 have not changed, and do not call into question the protectiveness of the remedy.

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

- No other information has come available that could question the remedy for Fisher-Calo Superfund Site. According to the data reviewed and the Site inspection, the remedy is functioning as intended in the ROD and ROD Amendment. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. Applicable or Relevant and Appropriate Requirements (ARARs) for soil contamination cited in the ROD and ROD Amendment have been met. The Site remedy remains protective of human health and the environment.

VIII. Issues

No issues were discovered during the FYR inspection; however, several issues were noted during the FYR process. Issues that were discovered during the FYR process are noted in Table 4 below.

Table 4: Identified Issues

Five-Year Review Issues	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Remedy requirements relative to whether performance standards will allow for UU/UE and for ICs must be reviewed.	N	Y
Consideration should be given to modifying pumping rates and reviewing other options to ensure protectiveness, enhance remedy efficiency and optimization	N	N
Vapor intrusion pathway has not been fully evaluated	N	N

IX. Recommendations and Follow-up Actions

The following table includes recommendations and follow-up actions which were identified during the FYR and Site inspection:

Table 5: Recommendations and Follow-up Actions

Five-Year Review Issues	Recommendations Follow-up Actions	Party Responsible	Oversight Agency	Mile-stone Date	Affects Protective-ness (Y/N) Current, Future
Remedy requirements must be reviewed relative to whether performance standards will allow for UU/UE and whether ICs are required for soils and groundwater. (Decision documents do not currently require ICs.)	Review the remedy decision documents to determine if performance standards will allow for UU/UE and whether ICs are required to ensure long-term protectiveness of human health and the environment. If needed, amend or clarify the remedy decision document and require an IC work plan from the PRP Site group.	U.S.EPA	U.S.EPA/ IDEM	12/31/ 2010	N, Y

Consideration should be given to modifying pumping rates and reviewing other options to enhance remedy efficiency and optimization while ensuring protectiveness of the remedy	**A) Review proposal submitted by PRP Site Group;** **B) Complete green remediation pilot project.**	**A) PRP Site Group** **B)U.S.EPA**	**U.S.EPA / IDEM**	**3/31/2011** **3/31/2011**	**N,N**
The vapor intrusion pathway has not been fully evaluated.	**Conduct a vapor intrusion study.**	**PRPs**	**U.S. EPA/ IDEM**	**06/30/2011**	**N,N**

X. Protectiveness Statements

Completion of the current FYR confirms that the Fisher-Calo Superfund Site remains protective of human health and the environment in the short-term, and there are no known exposure pathways that could result in unacceptable health risks. All immediate risks have been addressed. The components of the remedy selected in the 1990 Fisher-Calo Site ROD and 1997 ROD Amendment have been implemented and are in place. Additional work is needed to ensure long-term protectiveness.

The last of the five soil treatment systems for the Fisher-Calo Site was decommissioned in 2002, and the soil remedy was formally completed in October 2003. The Fisher-Calo groundwater extraction and treatment system remains in place, and has been operating since February 1988 at approximately 780 gpm. The four groundwater plumes and Site treatment plant are monitored under the ongoing Site operation and maintenance monitoring program. Monitoring data shows that nine of ten VOCs at Fisher-Calo have been steadily decreasing over the last decade. Changes to extraction well flow rates and uses have been adjusted and the four plume contaminant levels have been reduced. While the contaminant levels have been reduced, the groundwater treatment system was adjusted to maintain containment (i.e. the pumping rate of

monitoring program was modified in 2006 to provide a more efficient sampling program in future years.

Over the past almost twelve (12) years of treatment-system operation, the remedial action has been successfully implemented according to the ROD (August 1990) and ROD Amendment (September 1997). Based on the results of the treatment plant sampling and trend analysis, the remedial action is working and is protective of human health and the environment. In addition, plume containment is demonstrated by the results of all boundary well samples being below action levels. Based on the treatment plant influent sample results, the overall VOC-load present in the treatment plant influent has been generally decreasing over the life of system operation. Also, based on the trend analysis at each plume, most of the contaminant levels in the plume wells are decreasing or remaining stable.

Long-term protectiveness of the groundwater requires continued operation and maintenance of the remedial components. Since it is unlikely that Site groundwater cleanup standards will be met during the next five years, the Fisher-Calo operation of the groundwater treatment system should continue to operate for the foreseeable future. However, a review of the remedy is on-going by PRPs, EPA and IDEM to determine if the remedy can be optimized. The Site Group proposes increasing the efficiency of the treatment system by reducing the flow of uncontaminated water to the treatment plant. Additionally, the site was selected for a national green remediation pilot to assess whether the environmental footprint can be reduced. Along with that pilot, U.S. EPA will review the proposals by the PRPs to optimize the groundwater treatment system.

A determination of the need for ICs shall be undertaken to ensure long-term protectiveness of human health and the environment for the groundwater which exceeds the cleanup standards and for the remediated soils areas. U.S. EPA will review the need for ICs and amend the remedy decision document, if required. If needed, U.S. EPA will require IC evaluation activities and a work plan from the Site group. Last, to ensure long-term protectiveness of human health and the environment, a vapor intrusion evaluation will be conducted.

XI. Next Review

The Fisher-Calo Superfund Site requires ongoing FYRs. The next review shall be completed no later than five years from the completion date of this report or by August 2015. The completion date of the current FYR is the signature date shown on the cover attached to the front of this report.

FISHER-CALO SUPERFUND SITE
Five-Year Review Report

FIGURES AND TABLES

The New MapQuest is Here! Try the New Site Now »

MAPQUEST.

Sorry! When printing directly from the browser your directions or map may not print correctly. For best results, try clicking the Printer-Friendly button.

Kingsbury, IN

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FIGURE 1.1
FISHER-CALO SUPERFUND SITE
Five-Year Review

General Location Map

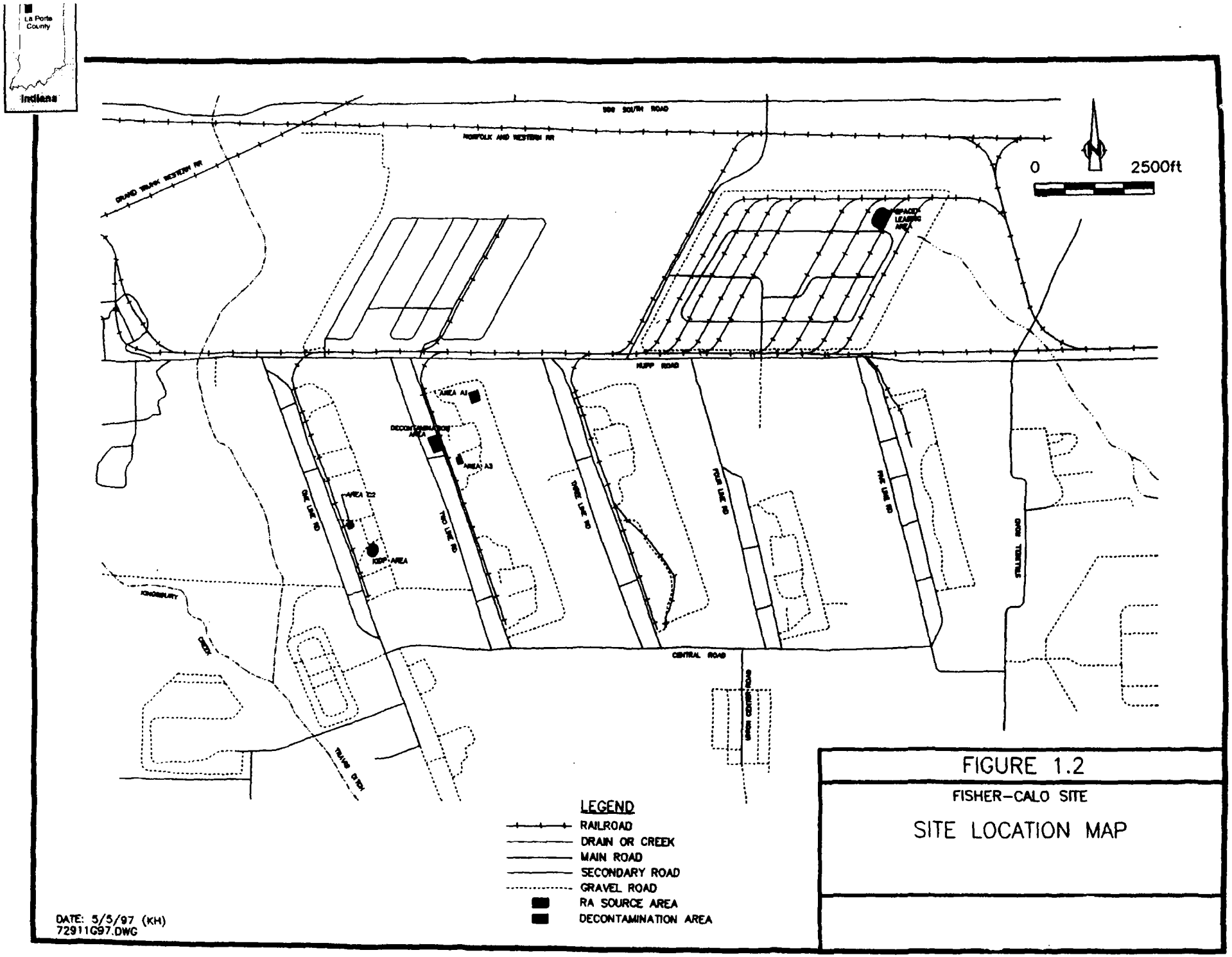


FIGURE 1.2

FISHER-CALO SITE

SITE LOCATION MAP

Figure 1.3
FISHER-CALO SUPERFUND SITE
Five-Year Review

SPACE LEASING AREA (DRAWING G2)

HUPP ROAD

TWO LINE ROAD NORTH AREA (DRAWING G3)

ONE LINE ROAD AREA (DRAWING G4)

THREE LINE RD

FOUR LINE RD

FIVE LINE RD

TWO LINE RD

CENTRAL ROAD

KIDP REPLACEMENT WELL A-2 (DRAWING RW-G1)

EWSL	EXTRACTION WELL SPACE LEASING
EWN	EXTRACTION WELL ONE LINE NORTH
EWS	EXTRACTION WELL ONE LINE SOUTH
EW2N	EXTRACTION WELL TWO LINE NORTH
PZSL	PIEZOMETER SPACE LEASING
PZ1N	PIEZOMETER ONE LINE NORTH
PZ1S	PIEZOMETER ONE LINE SOUTH
PZ2N	PIEZOMETER TWO LINE NORTH
WFCB	WELL FIELD CONTROL BUILDING
RW	REPLACEMENT WELL
KIDP	KINGSBURY INDUSTRIAL DEVELOPMENT PARK

LEGEND
EW2N-1 EXTRACTION WELL
PIPELINE
ACCESS ROAD
APPROXIMATE PLUME LOCATION

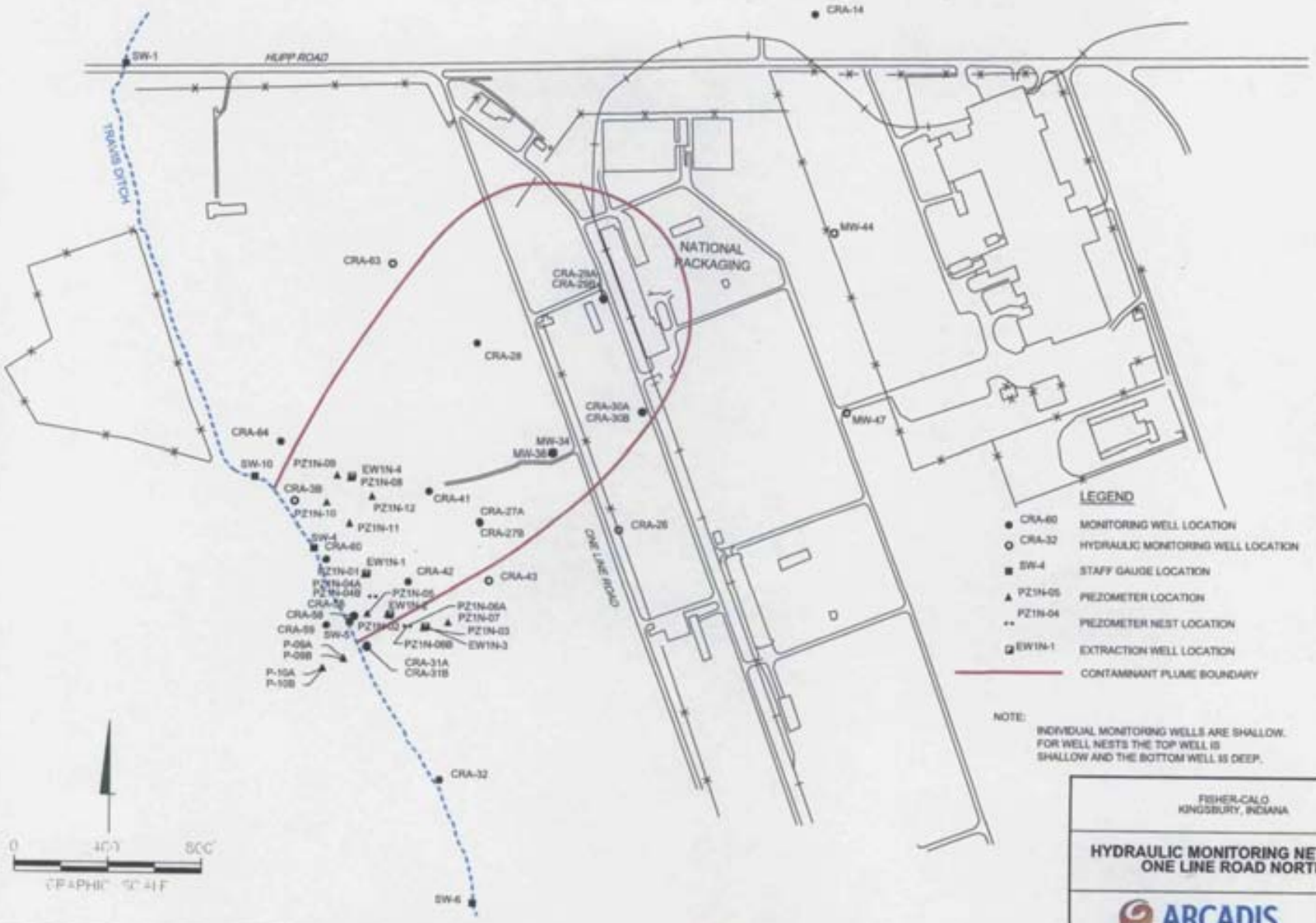
FISHER-CALO SITE
KINGSBURY, INDIANA

GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

OVERALL SITE PLAN

CRA ENGINEERING INC.
CONESTOGA-ROVERS & ASSOCIATES

Scale: 1"=400'
Date: MAY 2000
Project No. 10907-50
Drawing No. G1

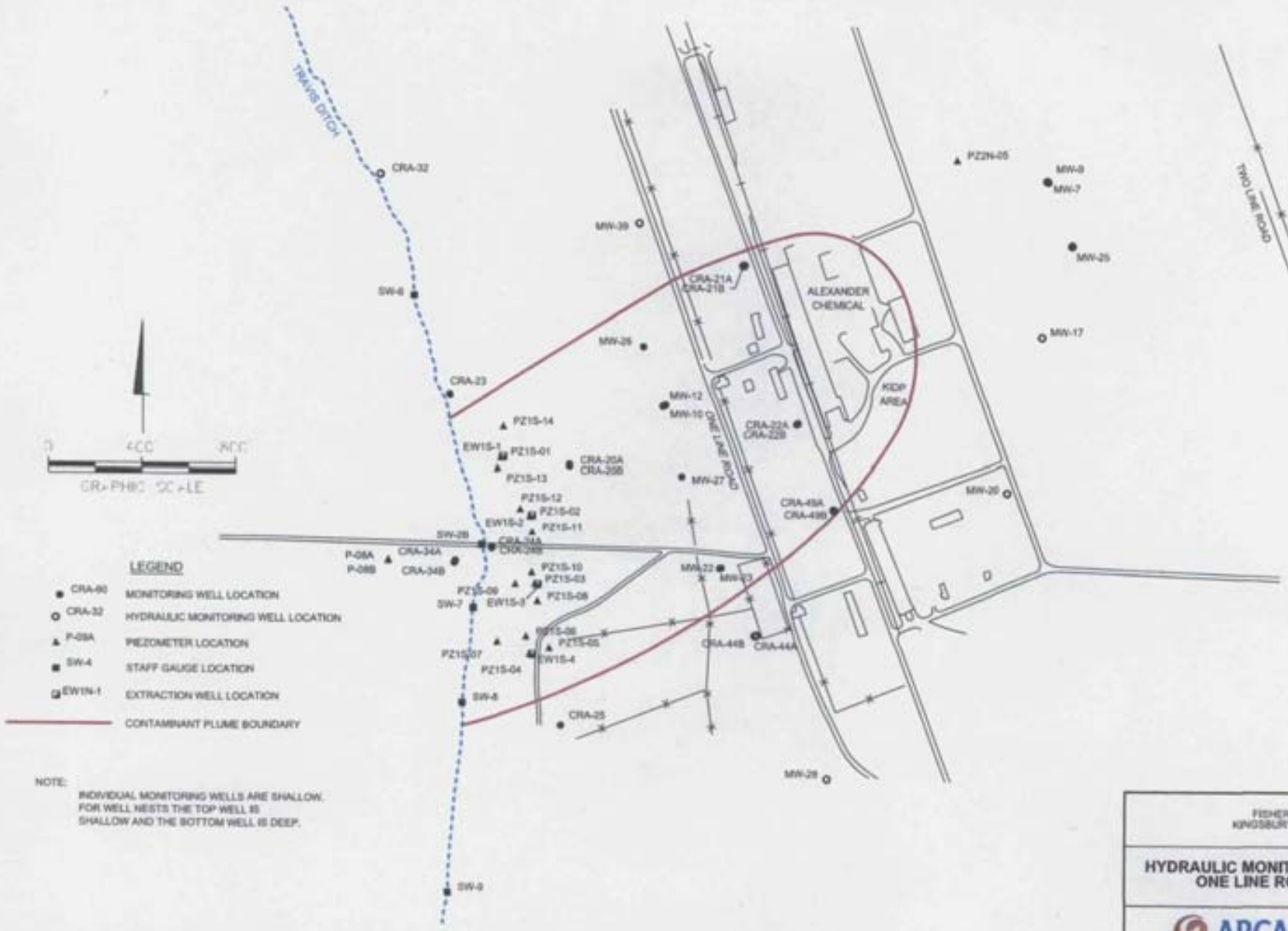


FISHER-CALO
KINGSBURY, INDIANA

HYDRAULIC MONITORING NETWORK
ONE LINE ROAD NORTH

ARCADIS

FIGURE
1

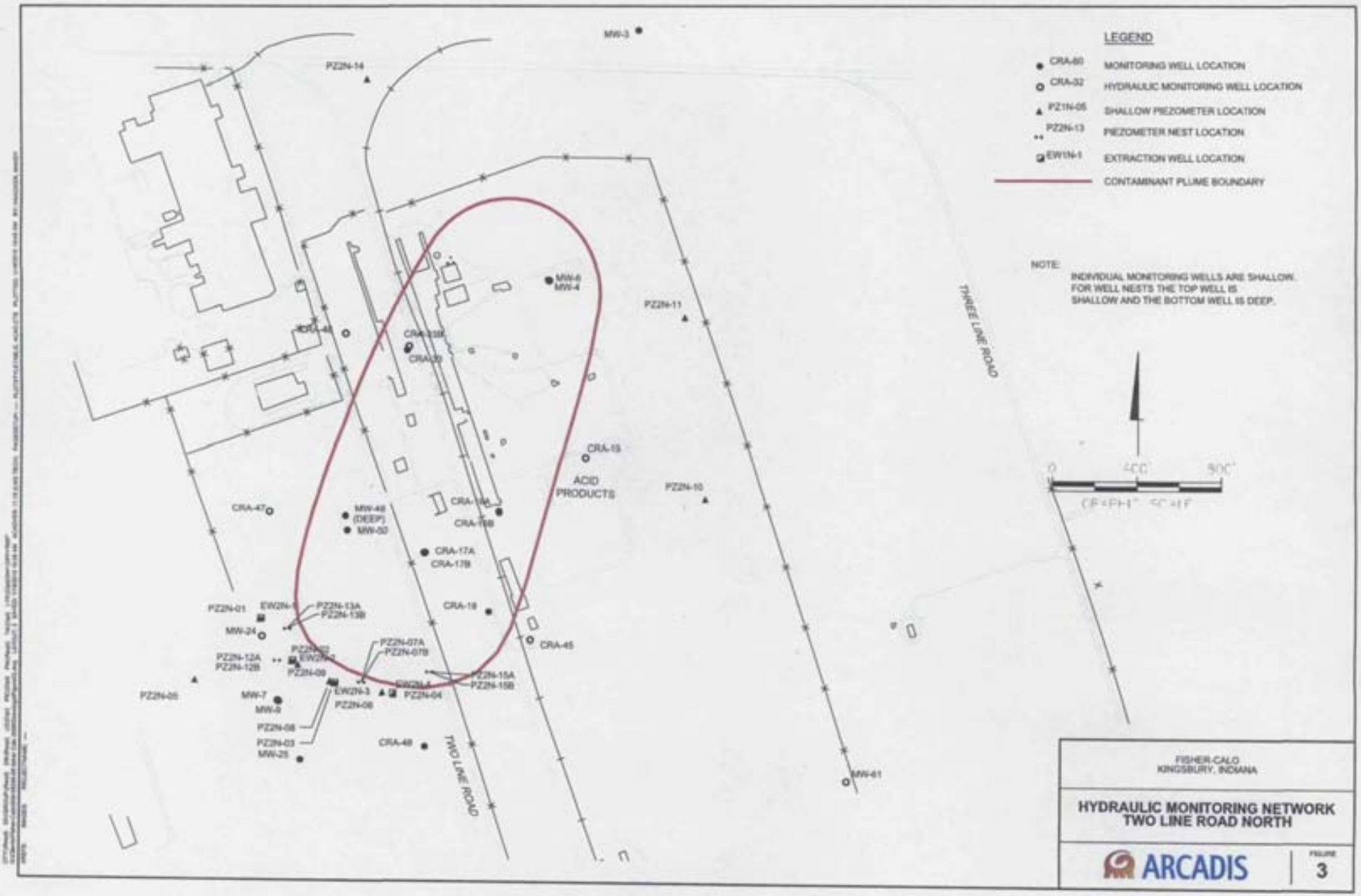


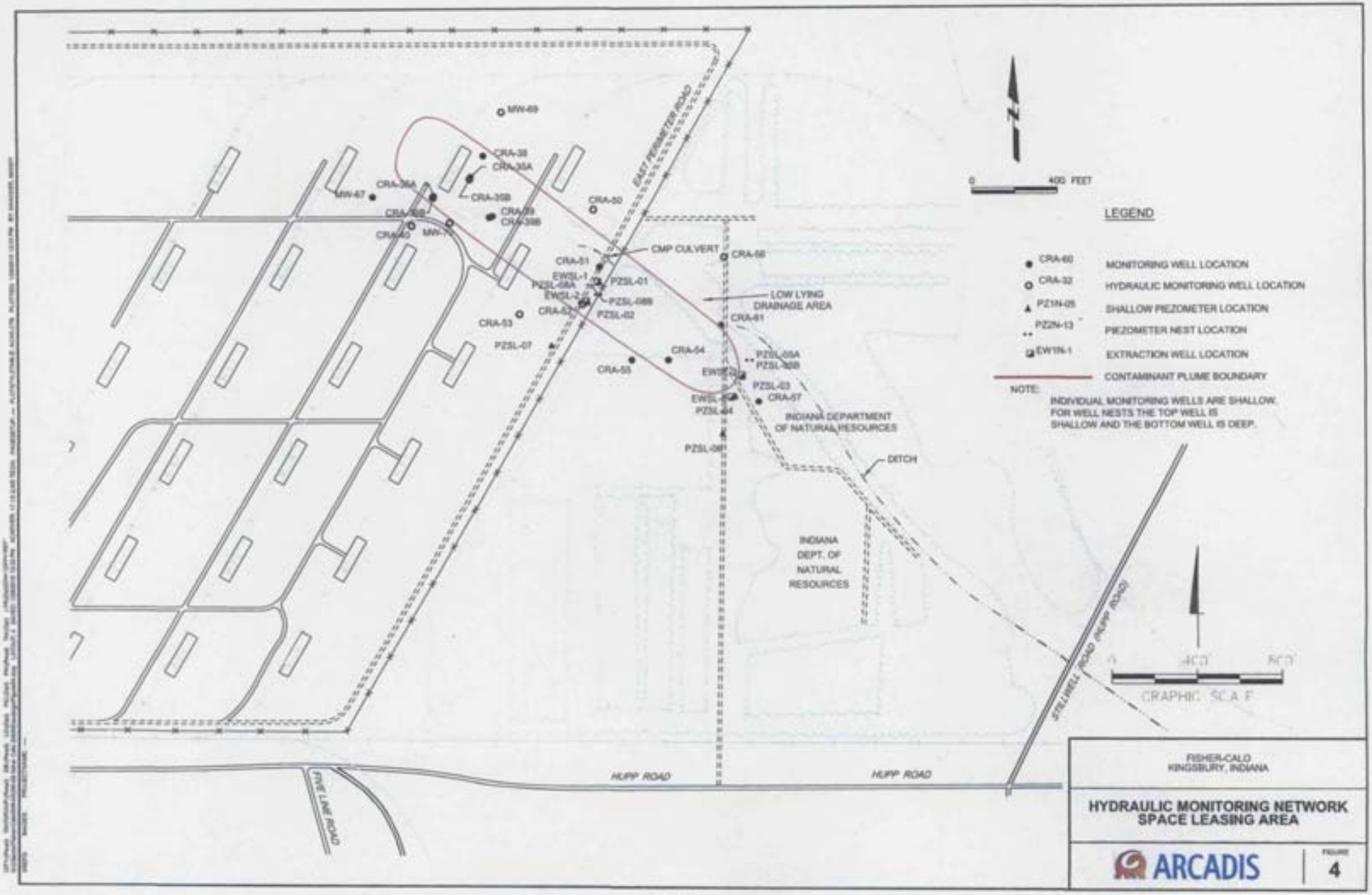
FISHER-CALO
KINGSBURY, INDIANA

HYDRAULIC MONITORING NETWORK
ONE LINE ROAD SOUTH

ARCADIS

FIGURE 2


LEGEND
CRA-60 MONITORING WELL LOCATION
CRA-32 HYDRAULIC MONITORING WELL LOCATION
PZ1N-05 SHALLOW PIEZOMETER LOCATION
PZ2N-13 PIEZOMETER NEST LOCATION
EW1N-1 EXTRACTION WELL LOCATION
CONTAMINANT PLUME BOUNDARY
NOTE:
INDIVIDUAL MONITORING WELLS ARE SHALLOW. FOR WELL NESTS THE TOP WELL IS SHALLOW AND THE BOTTOM WELL IS DEEP.
0
400'
800'
MW-3
PZ2N-14
MW-6
MW-4
PZ2N-11
THREE LINE ROAD
CRA-15
ACID PRODUCTS
PZ2N-10
CRA-47
MW-48 (DEEP)
MW-50
CRA-17A
CRA-17B
CRA-18
CRA-45
PZ2N-01
EW2N-1
PZ2N-13A
PZ2N-13B
MW-24
PZ2N-12A
PZ2N-12B
PZ2N-07A
PZ2N-07B
PZ2N-15A
PZ2N-15B
PZ2N-05
MW-7
MW-9
EW2N-3
PZ2N-06
PZ2N-04
PZ2N-08
PZ2N-03
MW-25
CRA-48
TWO LINE ROAD
MW-61
FISHER-CALO
KINGSBURY, INDIANA
HYDRAULIC MONITORING NETWORK
TWO LINE ROAD NORTH
ARCADIS
FIGURE
3



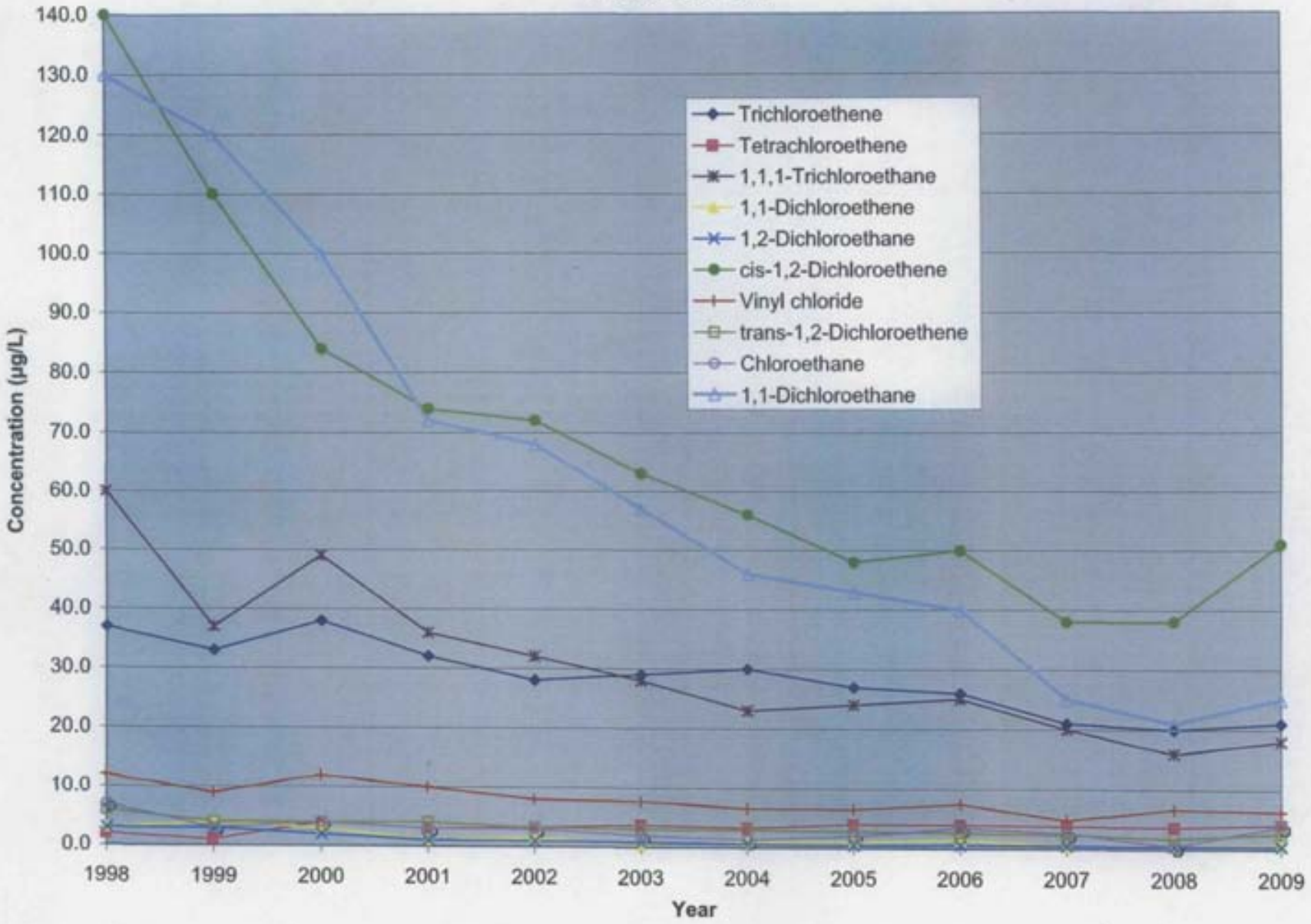
FISHER-CALO
KINGSBURY, INDIANA

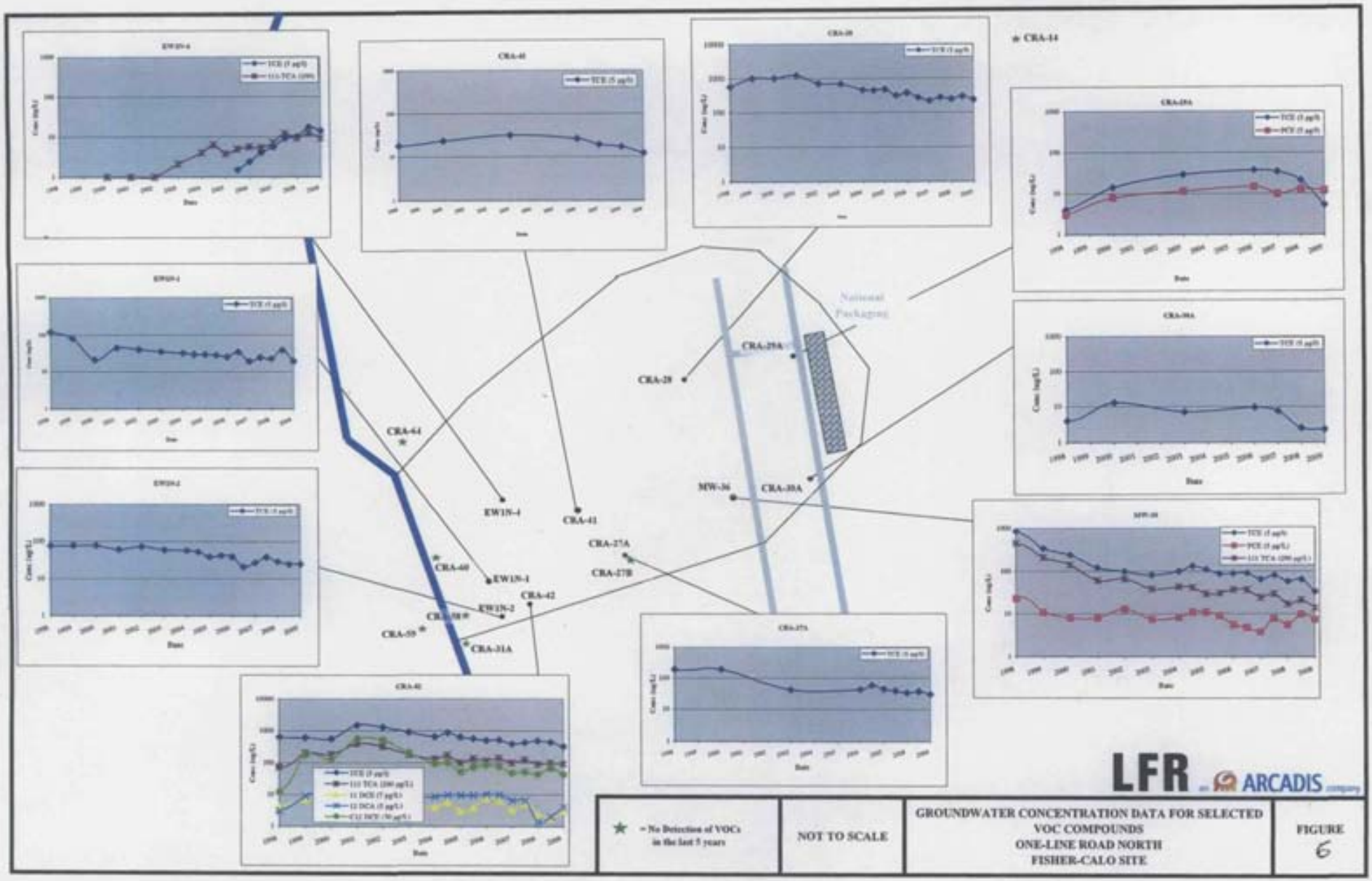
HYDRAULIC MONITORING NETWORK
SPACE LEASING AREA

ARCADIS

FIGURE
4

Figure 5. Combined Influent VOC Sample Results
Fisher Calo Site



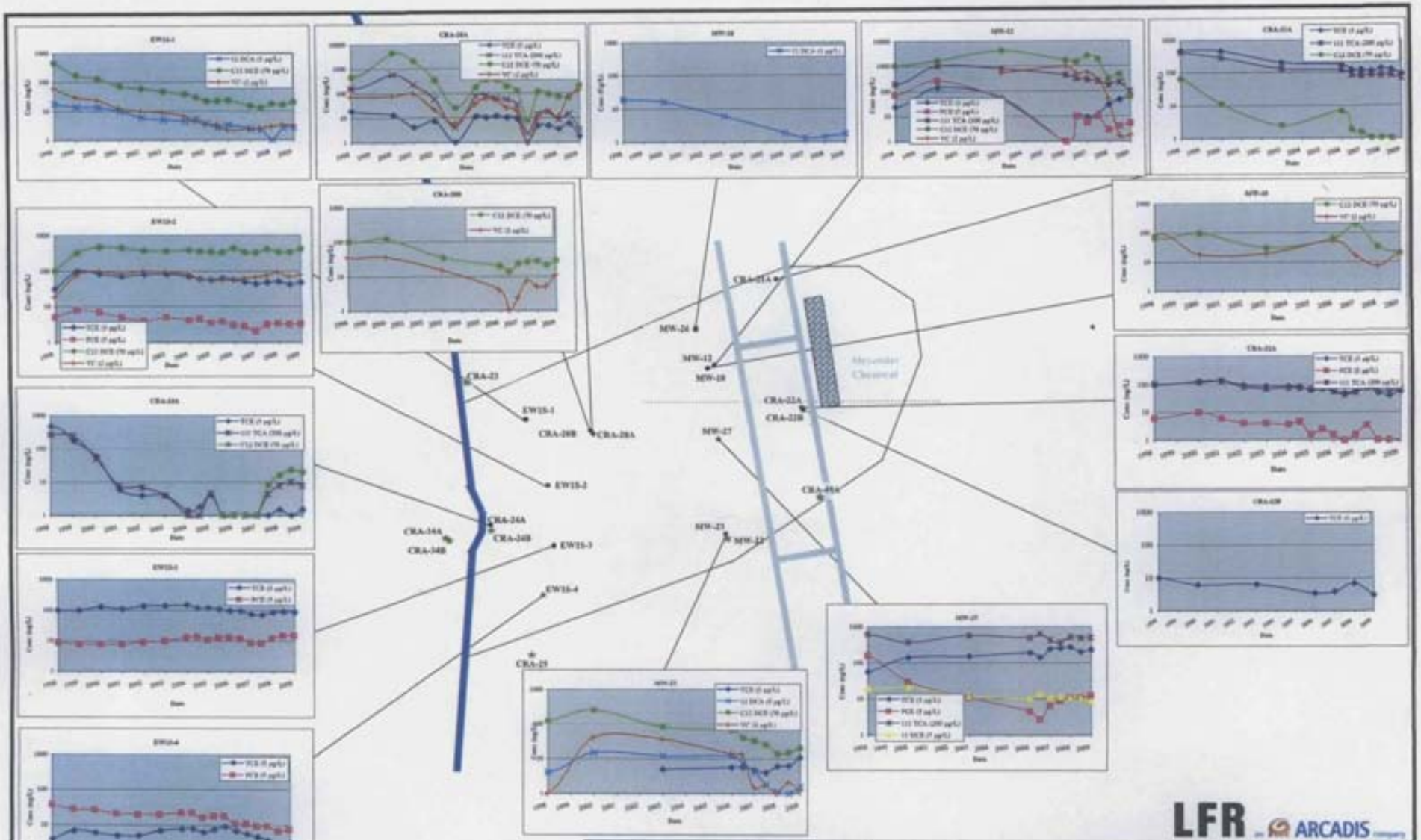


★ = No Detection of VOCs in the last 5 years

NOT TO SCALE

GROUNDWATER CONCENTRATION DATA FOR SELECTED VOC COMPOUNDS
ONE-LINE ROAD NORTH
FISHER-CALO SITE

FIGURE 6

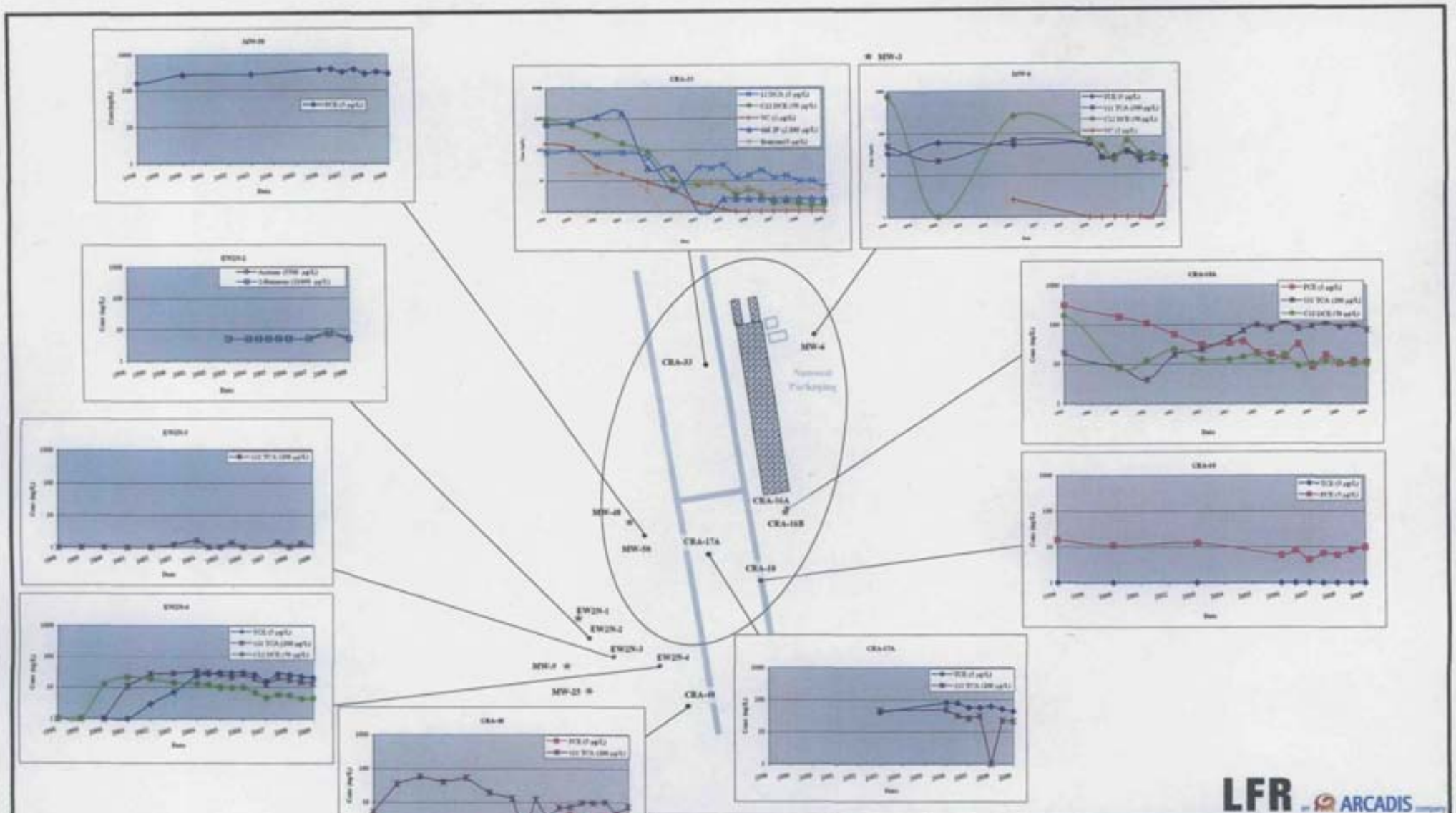


★ = No Detection of VOCs in the last 5 years

NOT TO SCALE

GROUNDWATER CONCENTRATION DATA FOR SELECTED VOC COMPOUNDS
ONE LINE ROAD SOUTH
FISHER-CALO SITE

FIGURE 7

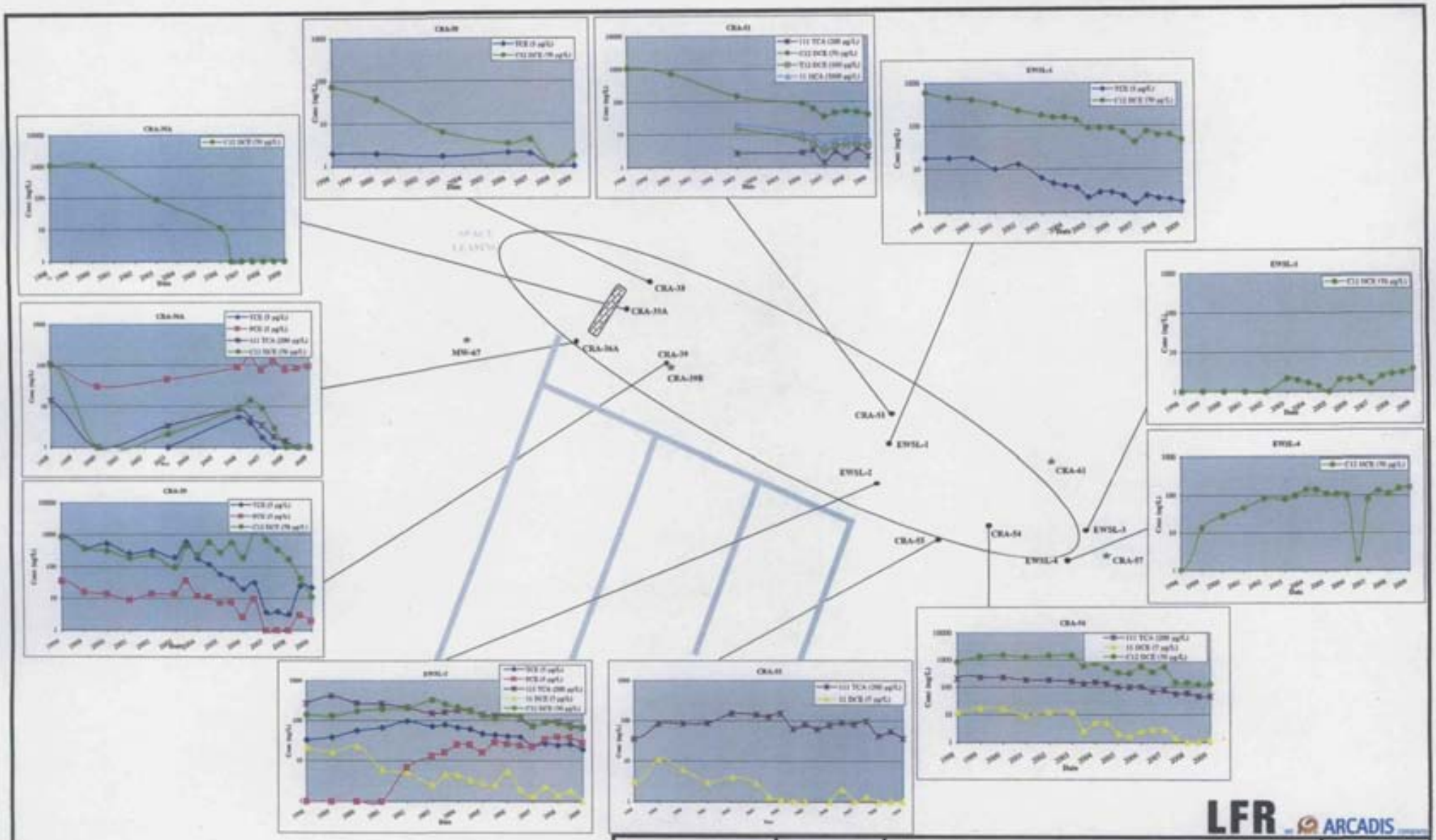


★ = No Detection of VOCs in the last 5 years

NOT TO SCALE

GROUNDWATER CONCENTRATION DATA FOR SELECTED COMPOUNDS
TWO LINE ROAD NORTH
FISHER-CALO SITE

FIGURE 8



★ = No Detection of VOCs in the last 5 years

NOT TO SCALE

GROUNDWATER CONCENTRATION DATA FOR SELECTED COMPOUNDS
SPACE LEASING AREA
FISHER-CALO SITE

FIGURE 9

Figure 10.1

FISHER-CALO SUPERFUND SITE
Five Year Review Report

Coverage Area of the Kingsbury Utility Company (KUC) Water Service and KUC Contact Information

Full Name:	Mr. Jeffrey L Johnson
Last Name:	Johnson
First Name:	Jeffrey
Job Title:	President
Company:	Kingsbury Utility Corporation
Business Address:	7523 South 1st Line Road Kingsbury, IN 46345
Business:	(219) 393-3576
Mobile:	219-363-3917
E-mail:	kuc@csinet.net
E-mail Display As:	Jeffrey L Johnson (kuc@csinet.net)

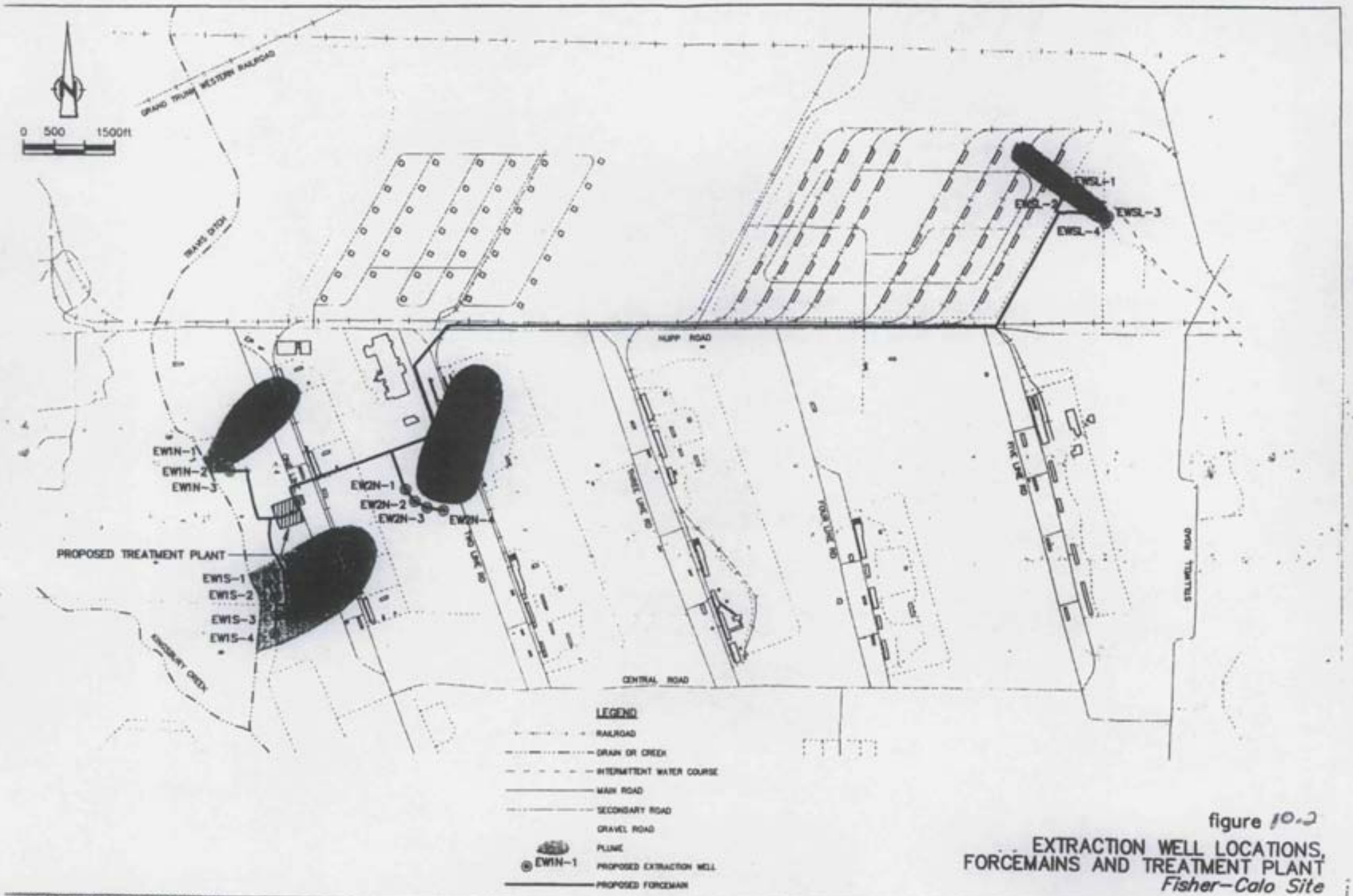


figure 10.2
EXTRACTION WELL LOCATIONS, FORCEMAINS AND TREATMENT PLANT
Fisher–Calo Site

9063 (3) JAN 22/97(W) REV.0 (P102)

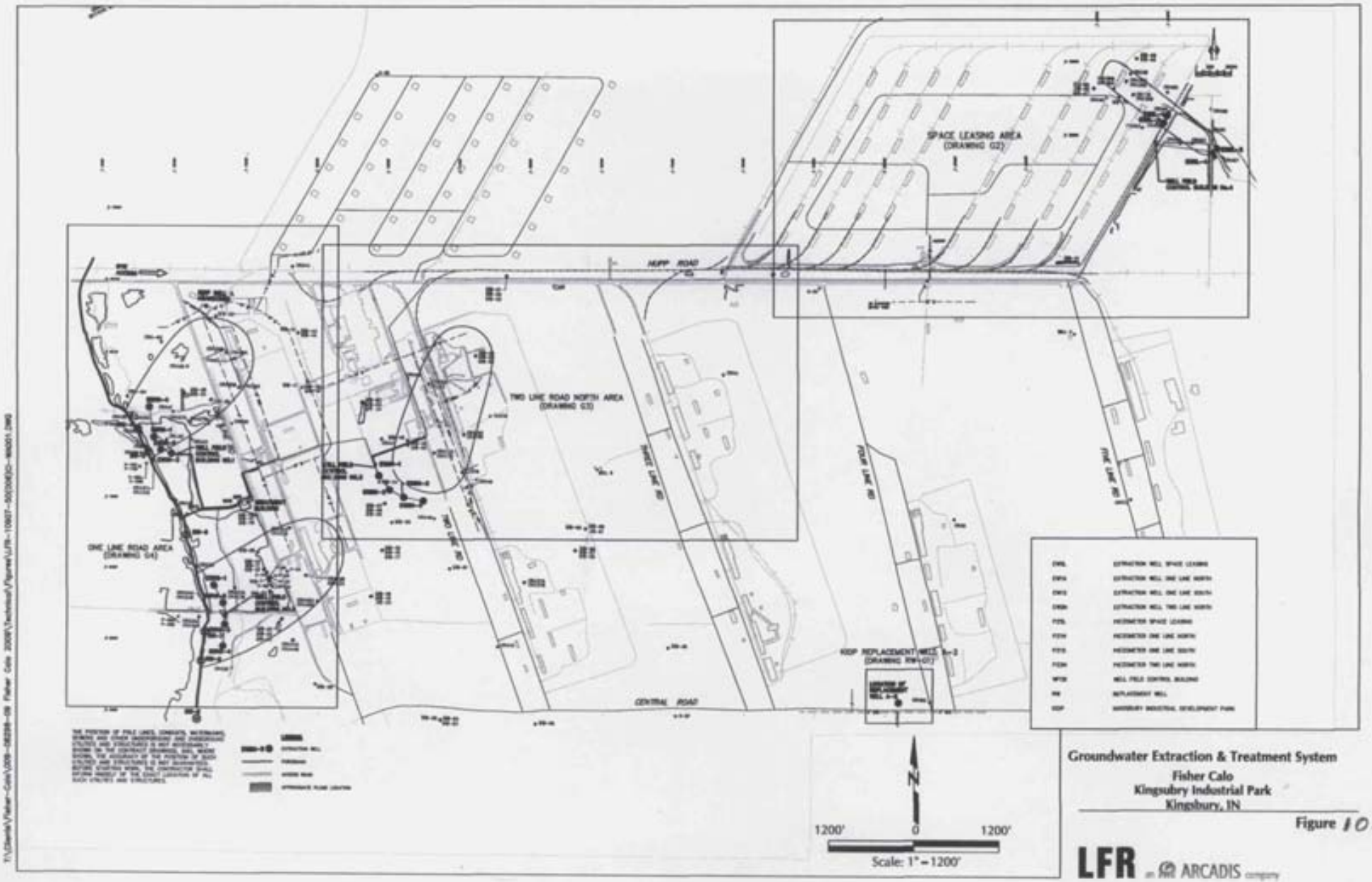
figure 10.3

WELL FIELD CONTROL BUILDING LOCATIONS

Fisher–Calo Site

CRA

10907-60(004)GN-WA004 MAY-16/2000

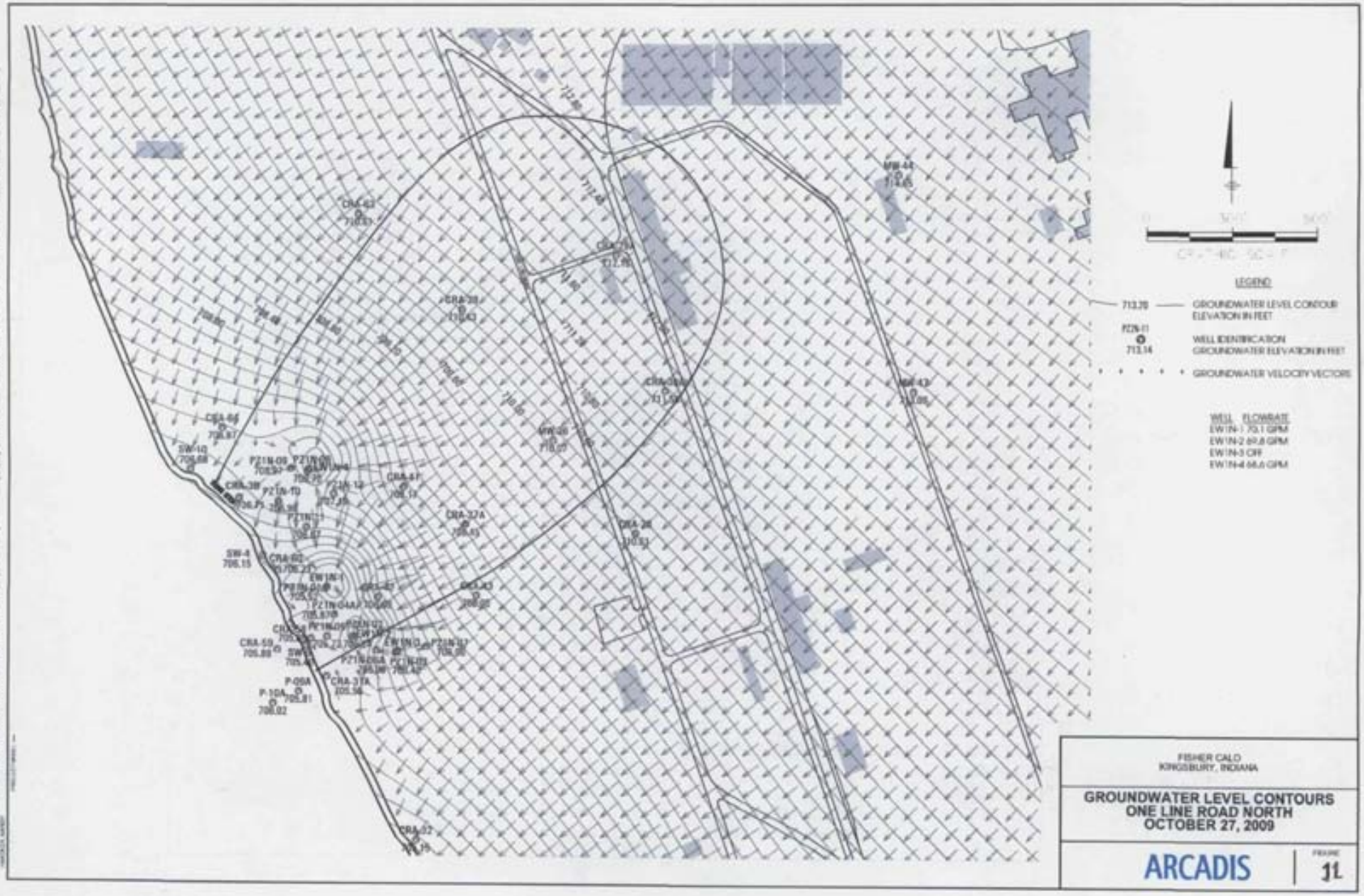


Groundwater Extraction & Treatment System

Fisher Calo
Kingsbury Industrial Park
Kingsbury, IN

Figure 10.4

LFR an ARCADIS company

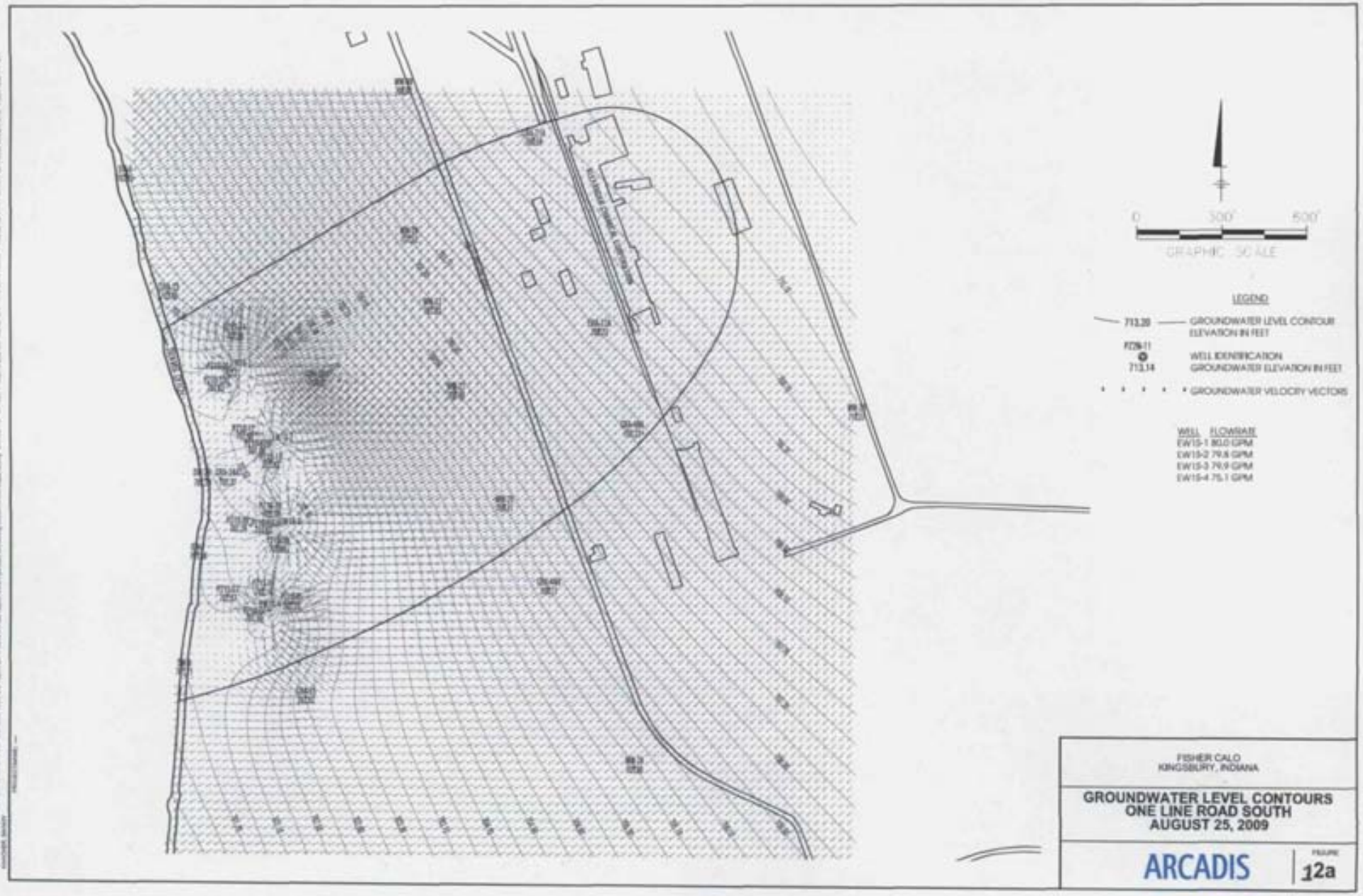


FISHER CALO
KINGSBURY, INDIANA

GROUNDWATER LEVEL CONTOURS
ONE LINE ROAD NORTH
OCTOBER 27, 2009

ARCADIS

FIGURE 1L

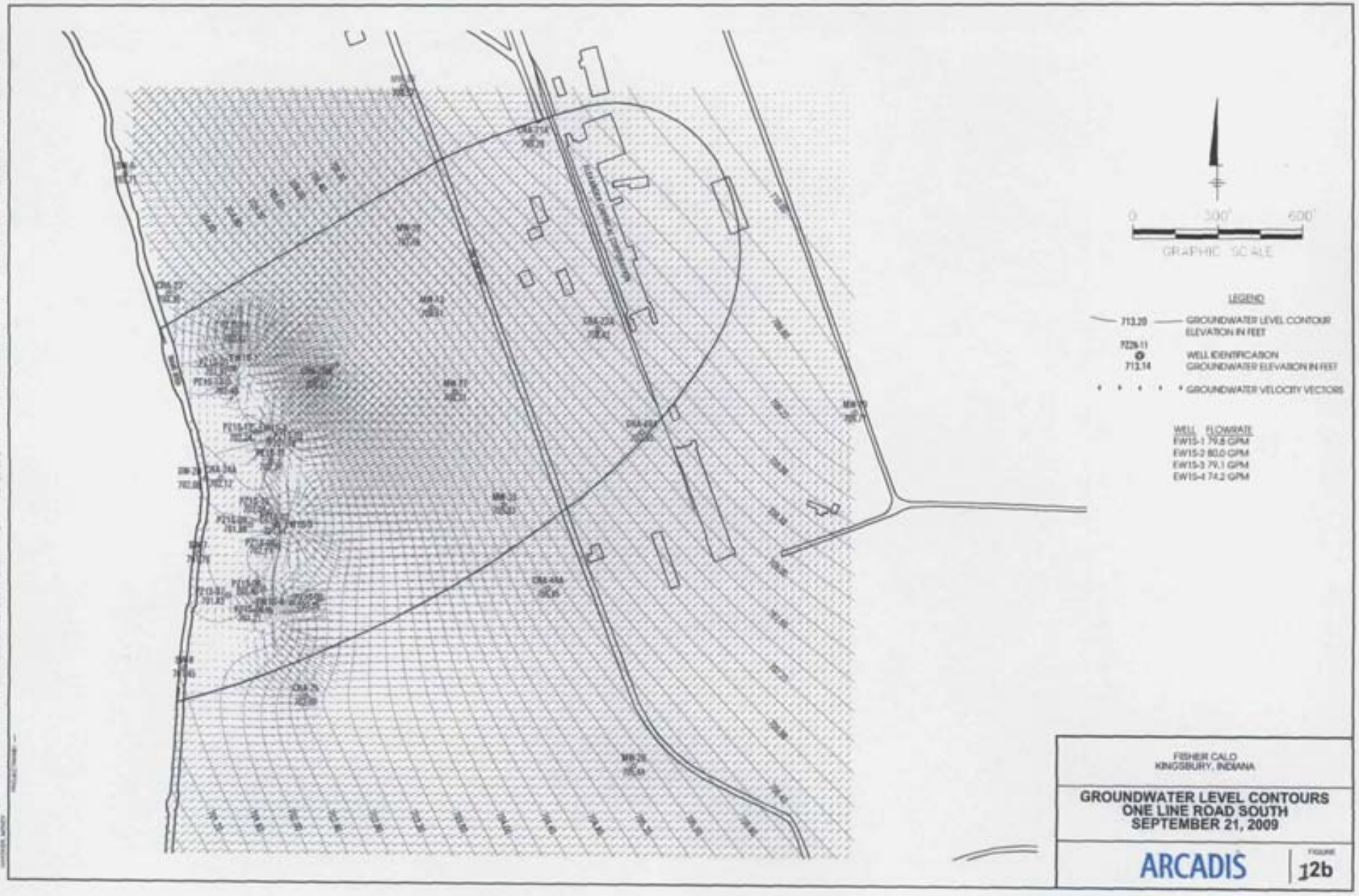


FISHER CALO
KINGSBURY, INDIANA

GROUNDWATER LEVEL CONTOURS
ONE LINE ROAD SOUTH
AUGUST 25, 2009

ARCADIS

FIGURE 12a

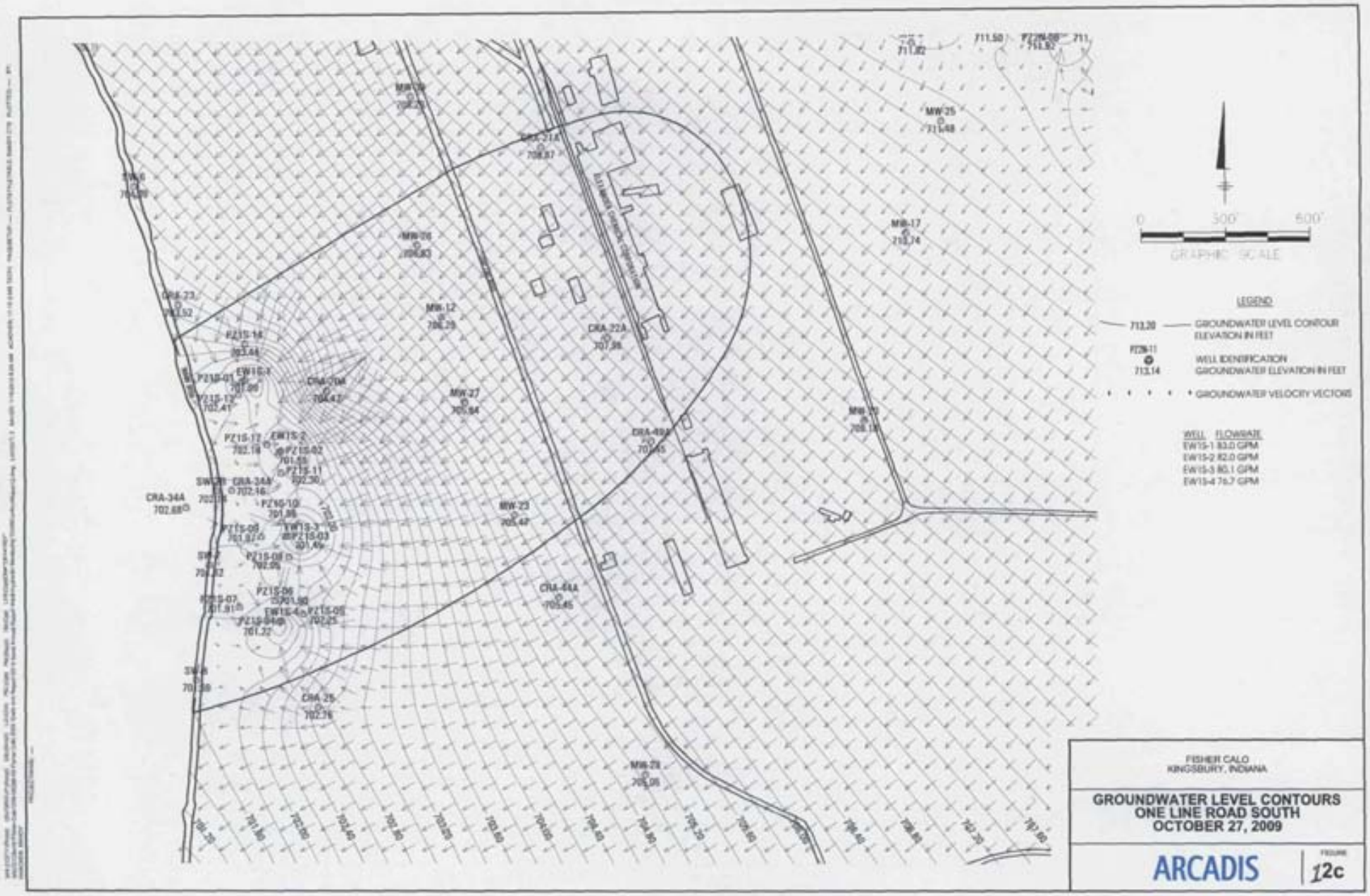


FISHER CALO
KINGSBURY, INDIANA

GROUNDWATER LEVEL CONTOURS
ONE LINE ROAD SOUTH
SEPTEMBER 21, 2009

ARCADIS

FIGURE 12b

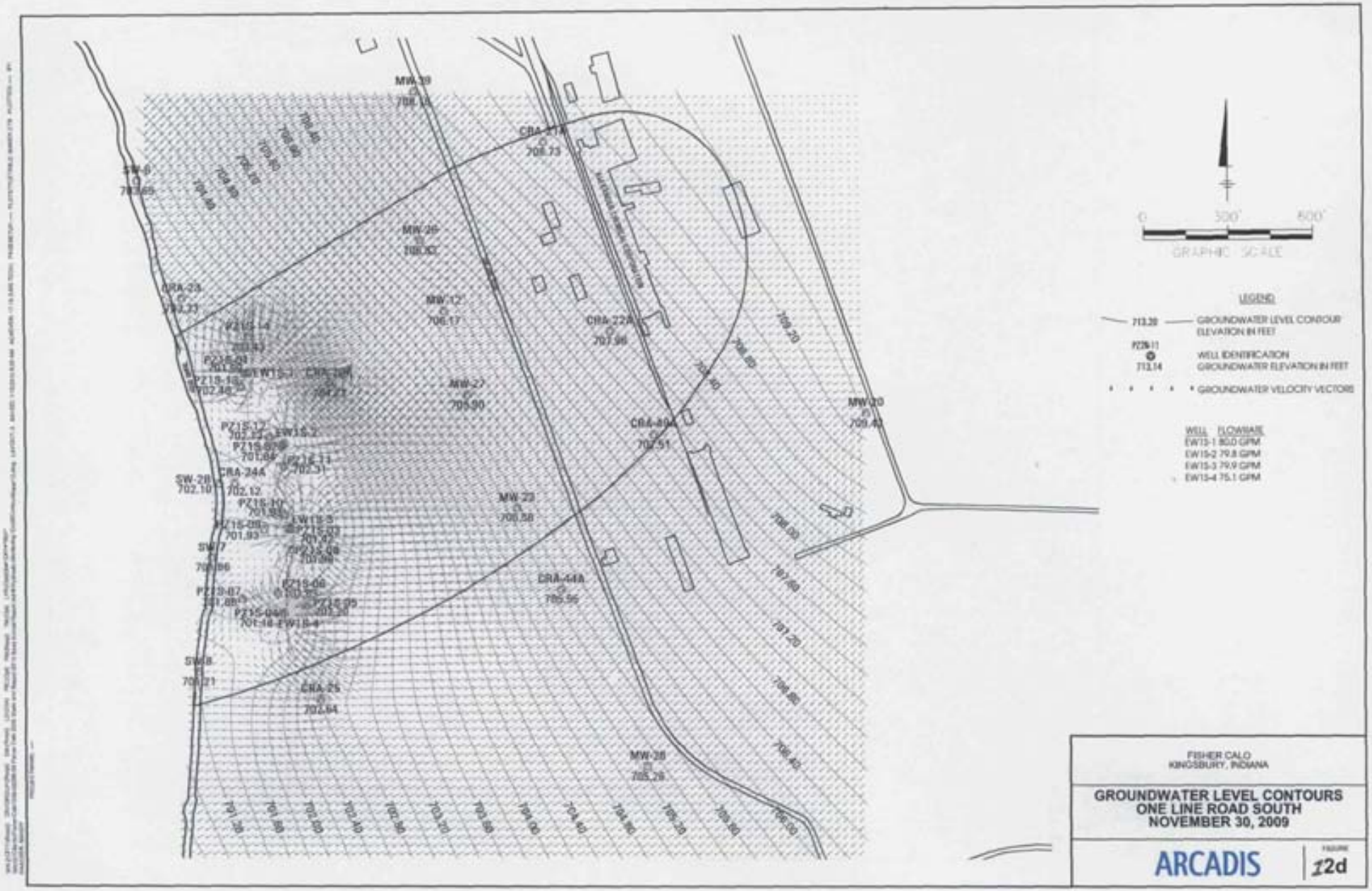


FISHER CALO
KINGSBURY, INDIANA

GROUNDWATER LEVEL CONTOURS
ONE LINE ROAD SOUTH
OCTOBER 27, 2009

ARCADIS

FIGURE 12c

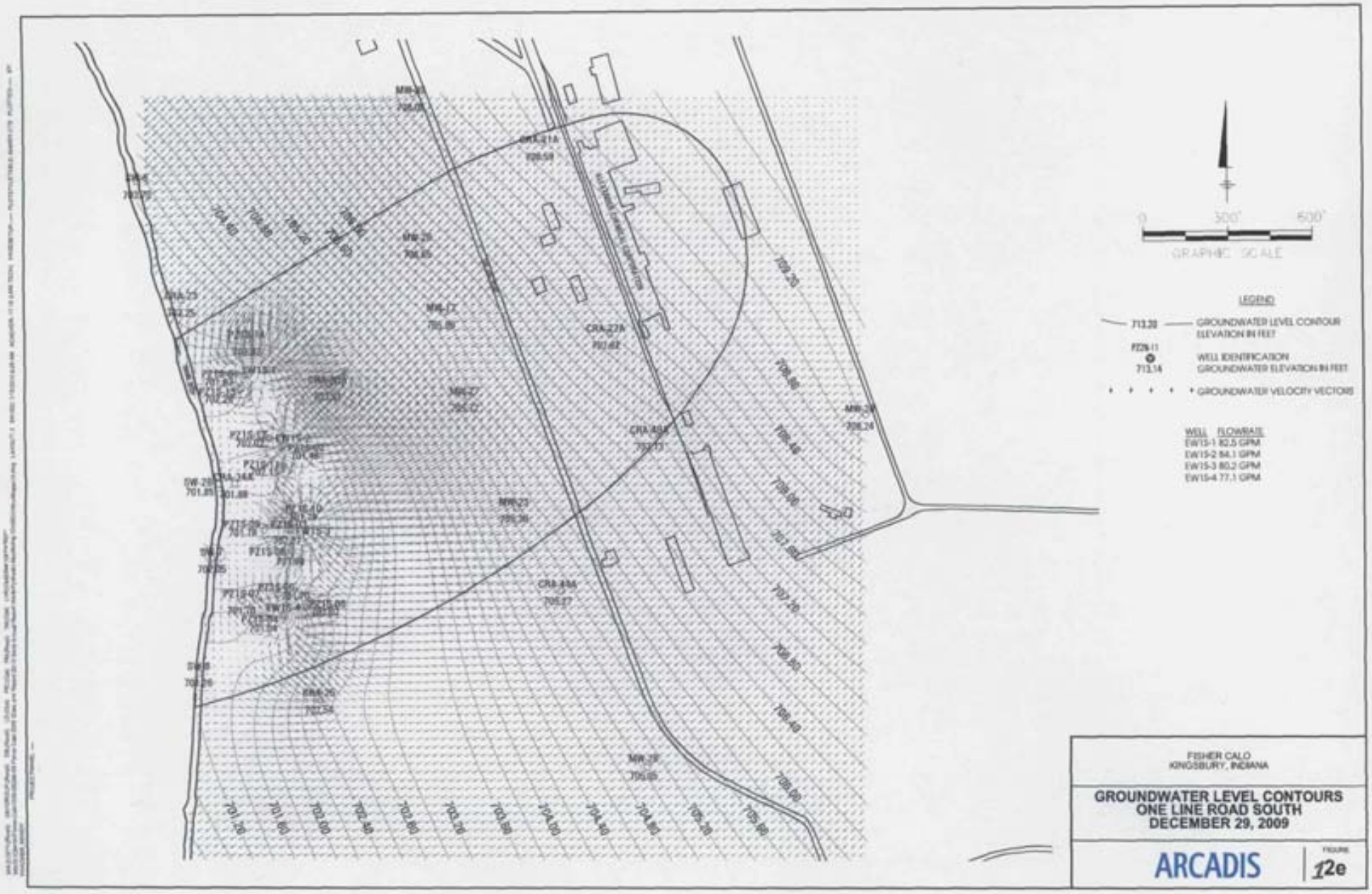


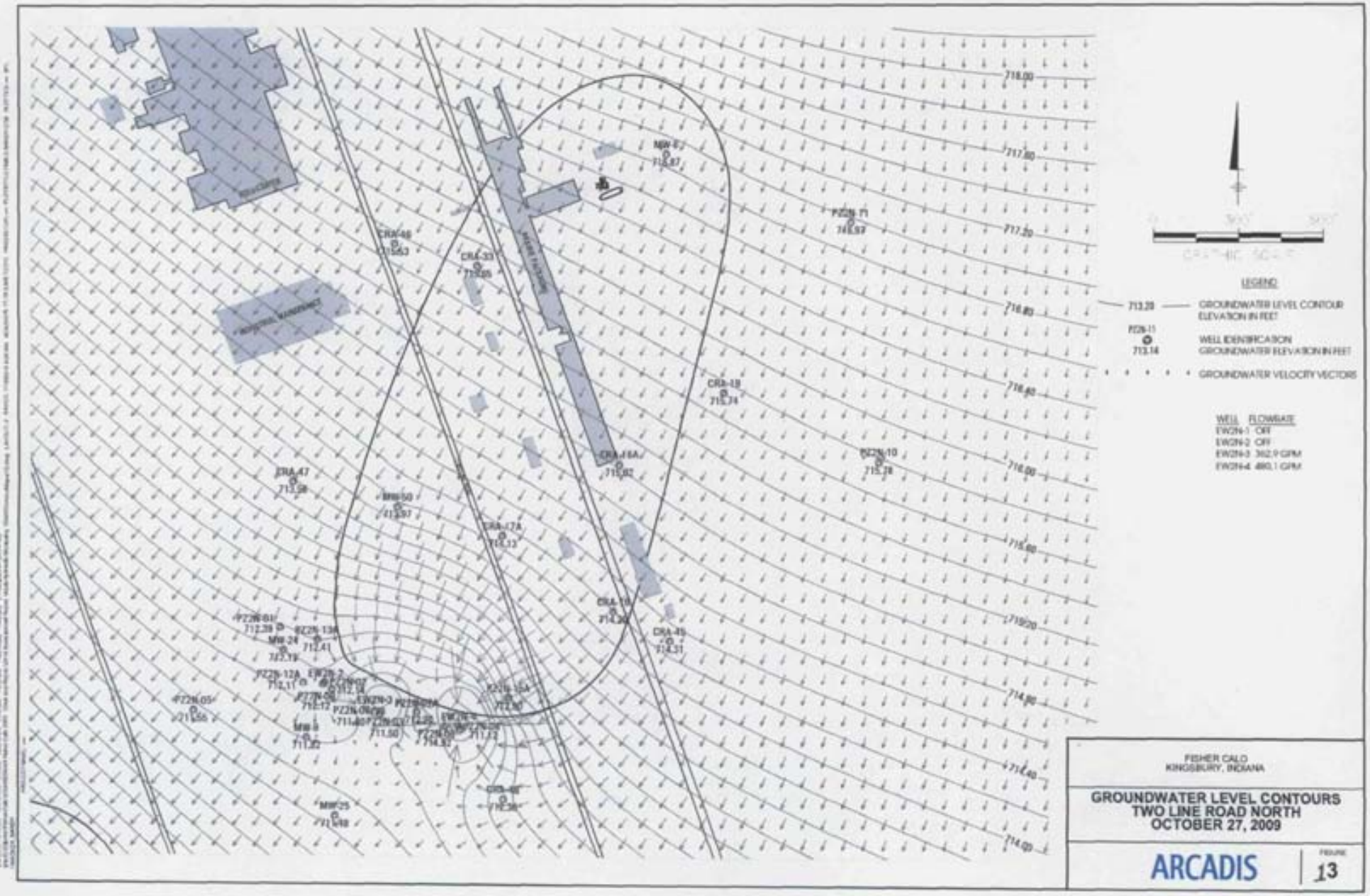
FISHER CALO
KINGSBURY, INDIANA

GROUNDWATER LEVEL CONTOURS
ONE LINE ROAD SOUTH
NOVEMBER 30, 2009

ARCADIS

FIGURE 12d


0
300'
600'
GRAPHIC SCALE
LEGEND
713.20 GROUNDWATER LEVEL CONTOUR ELEVATION IN FEET
PZ26-11
713.14
WELL IDENTIFICATION
GROUNDWATER ELEVATION IN FEET
GROUNDWATER VELOCITY VECTORS
WELL FLOWRATE
EW15-1 82.5 GPM
EW15-2 84.1 GPM
EW15-3 80.2 GPM
EW15-4 77.1 GPM
FISHER CALO
KINGSBURY, INDIANA
GROUNDWATER LEVEL CONTOURS
ONE LINE ROAD SOUTH
DECEMBER 29, 2009
ARCADIS
FIGURE
12e

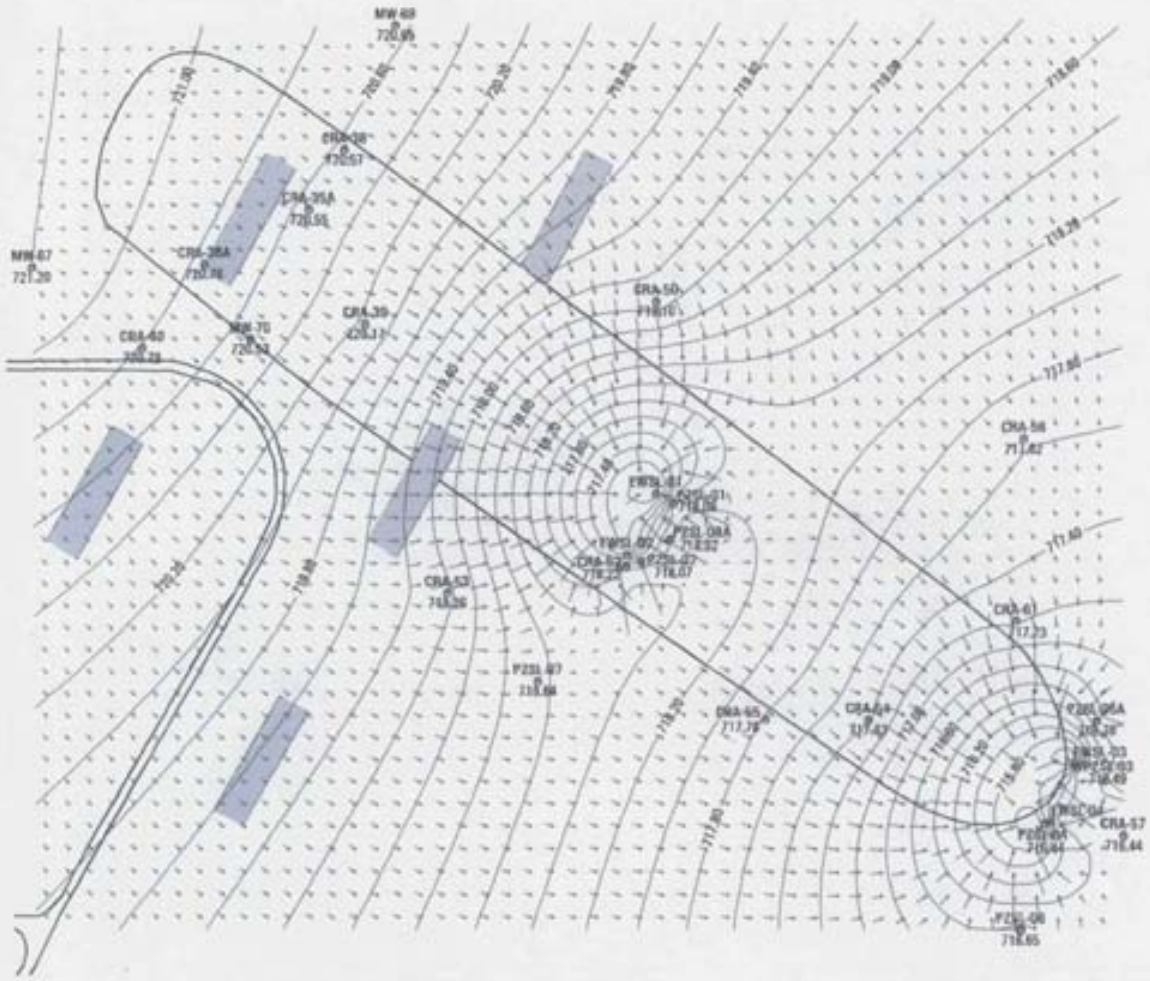


FISHER CALO
KINGSBURY, INDIANA

GROUNDWATER LEVEL CONTOURS
TWO LINE ROAD NORTH
OCTOBER 27, 2009

ARCADIS

FIGURE 13



FISHER CALO
KINGSBURY, INDIANA

GROUNDWATER LEVEL CONTOURS
SPACE LEASING
OCTOBER 27, 2009

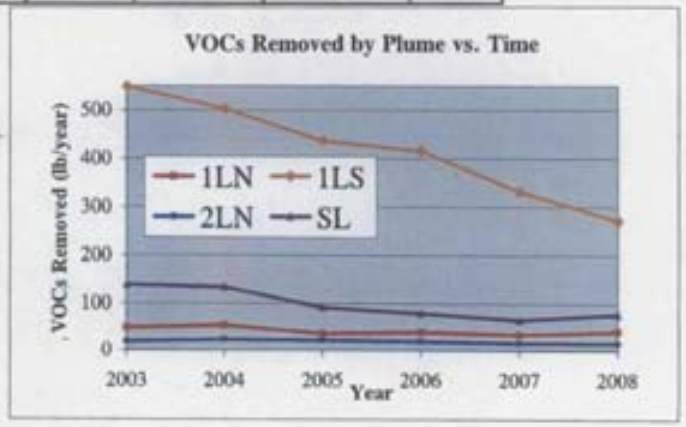
ARCADIS

FIGURE 14

TABLE 6

MASS OF VOCs REMOVED BY PLUME
FISHER-CALO SITE
KINGSBURY, INDIANA

Year	Plume	Total Gallons Treated	Total VOCs Removed [1] (µg/L)	Average Daily Flow [2] gpm	Average Daily Flow [2] lpm	Total Daily flow (litres)	VOCs Removed per day kg	VOCs Removed per day lb.	VOCs Removed gal/lb	VOCs Removed lb/year
2003-2004	1LN	112,411,333	50.5	213.9	809.5	1165690.1	0.06	0.13	2,369,217	47
6	1LS	162,067,288	405.6	308.3	1167.1	1680615.6	0.68	1.50	295,146	549
	2LN	99,311,910	21.6	188.9	715.2	1029850.9	0.02	0.05	5,537,007	18
	SL	61,406,268	270.7	116.8	442.2	636774.6	0.17	0.38	442,234	139
2004-2005	1LN	112,682,858	56.8	214.4	811.5	1168505.8	0.07	0.15	2,109,189	53
7	1LS	162,458,755	371.1	309.1	1169.9	1684675.0	0.63	1.38	322,607	503
	2LN	99,551,794	26.8	189.4	716.9	1032338.5	0.03	0.06	4,459,065	22
	SL	61,554,593	259.3	117.1	443.3	638312.7	0.17	0.36	461,717	133
2005-2006	1LN	108,895,085	38.4	207.2	784.2	1129227.1	0.04	0.10	3,116,406	35
8	1LS	156,997,792	332.5	298.7	1130.6	1628045.6	0.54	1.19	360,018	436
	2LN	96,205,414	26.1	183.0	692.8	997637.0	0.03	0.06	4,587,187	21
	SL	59,485,469	183.9	113.2	428.4	616856.2	0.11	0.25	650,830	91
2006-2007	1LN	112,629,815	40.4	214.3	811.1	1167955.7	0.05	0.10	2,961,284	38
9	1LS	151,919,285	327.0	289.0	1094.0	1575382.2	0.52	1.14	366,148	414
	2LN	69,411,397	33.4	132.1	499.9	719786.7	0.02	0.05	3,585,163	19
	SL	61,553,503	153.5	117.1	443.3	638301.4	0.10	0.22	779,780	79
2007-2008	1LN	111,526,824	34.4	212.2	803.1	1156517.9	0.04	0.09	3,481,303	32
10	1LS	150,431,529	263.8	286.2	1083.3	1559954.4	0.41	0.91	453,832	331
	2LN	68,731,647	26.6	130.8	495.0	712737.8	0.02	0.04	4,505,179	15
	SL	60,950,706	126.6	116.0	438.9	632050.5	0.08	0.18	945,868	64
2008-2009	1LN	112,265,412	41.3	213.6	808.5	1164176.9	0.05	0.11	2,898,403	39
11	1LS	151,427,765	214.8	288.1	1090.5	1570285.2	0.34	0.74	557,375	271
	2LN	69,186,824	25.2	131.6	498.2	717457.9	0.02	0.04	4,744,615	15
	SL	61,354,353	148.3	116.7	441.8	636236.2	0.09	0.21	807,441	76



Notes:

[1] Total VOCs removed based on weighted average of VOCs detected in Extraction Wells.

[2] Average daily flow obtained from archived data from weekly inspections.

gpm gallons per minute
kg kilograms
µg/L micrograms/liter

TABLE 7

SUMMARY OF VOLUME OF WATER TREATED AND VOCs REMOVED
FISHER-CALO SITE
KINGSBURY, INDIANA

Year	Total Gallons Treated	Total VOC [1] Influent Concentration (µg/L)	Total VOC [2] Effluent Concentration (µg/L)	Total VOCs Removed (µg/L)	Average Daily Flow [3]		Total Daily flow (litres)	VOCs Removed per day [4]		VOCs Removed [5]	
					gpm	lpm		kg	lb.	gal/lb	lb/year
1998-1999 1	311,785,920	399.2	0.8	398.4	593.2	2245.3	3233177.3	1.29	2.84	300,487	1,037
1999-2000 2	303,796,800	324.0	1.2	322.8	578.0	2187.7	3150331.2	1.02	2.24	370,862	818
2000-2001 3	404,922,240	302.0	5.5	296.5	770.4	2916.0	4199040.0	1.25	2.74	403,758	1,002
2001-2002 4	416,254,176	237.0	9.0	228.0	792.0	2997.6	4316498.8	0.98	2.17	525,062	792
2002-2003 5	433,094,400	219.0	4.1	214.9	824.0	3118.8	4491129.6	0.97	2.13	557,069	777
2003-2004 6	435,196,800	194.6	5.7	188.9	828.0	3134.0	4512931.2	0.85	1.88	633,744	686
2004-2005 7	436,248,000	171.6	4.5	167.1	830.0	3141.6	4523832.0	0.76	1.67	716,422	608
2005-2006 8	421,583,760	158.8	3.2	155.6	802.1	3035.9	4371765.8	0.68	1.50	769,371	547
2006-2007 9	395,514,000	161.3	3.5	157.8	752.5	2848.2	4101426.0	0.65	1.43	758,645	521
2007-2008 10	396,828,000	117.5	4.1	113.4	755.0	2857.7	4115052.0	0.47	1.03	1,055,401	376
2008-2009 11	399,456,000	107.2	1.8	105.4	760.0	2876.6	4142304.0	0.44	0.96	1,135,808	351
Five Year Total	2,049,629,760										
Eleven Year Total	4,354,864,641										

Total VOCs removed over past five years [6] 2,403

Total VOCs removed over past eleven years [6] 7,515

Notes:

[1] Total VOCs for Influent Concentrations obtained by adding all detected VOCs.

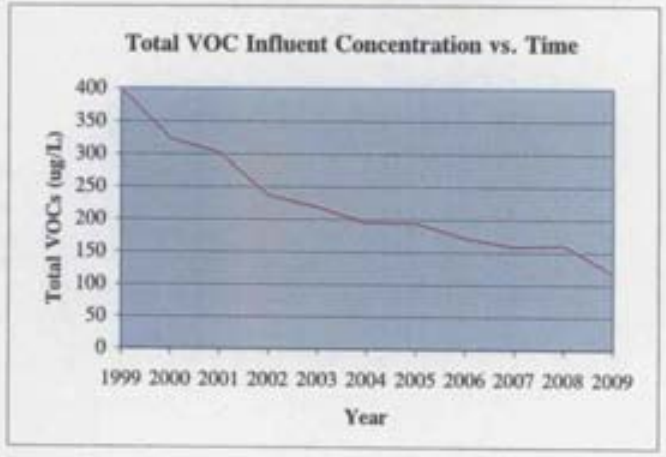
[2] Total VOCs for Effluent Concentrations obtained by adding all detected VOCs.

[3] Average daily flow obtained from archived data from weekly inspections.

[4] Assumes 100% of removed VOCs are discharged to the atmosphere from the treatment plant.

[5] VOCs removed based on treatment plant analytical data from the beginning of each year.

gpm gallons per minute
kg kilograms
lbs pounds
µg/L micrograms/liter



FISHER-CALO SUPERFUND SITE
Five-Year Review Report

ATTACHMENTS

United States
Environmental Protection
Agency

EPA Promotes Greener Cleanup Practices

Interim Greener Cleanup Policy
Region 5 – Ill., Ind., Minn., Mich., Ohio, Wis. August 2010

U.S. Environmental Protection Agency Region 5 is advancing the goal of achieving greener environmental cleanups. Region 5's Superfund Greener Cleanup Coordinators have collaborated with other agencies to develop the Region 5 Interim Greener Cleanup Policy, hold a widely attended Greener Cleanup Workshop, and are developing several white papers to assist with implementing the various practices outlined in the interim policy. Region 5 has been training its remediation staff to recognize opportunities for using greener techniques and has begun several greener cleanup pilot studies.

Interim Greener Cleanup Policy

In November 2009 the directors of the Superfund and Land and Chemicals divisions signed the Region 5 Interim Greener Cleanup Policy (http://www.epa.gov/reg5rcra/wptdiv/cars/remediation/).

The Interim Policy identified 12 greener cleanup practices that Region 5 will promote and utilize to reduce the environmental footprint of its environmental work. Region 5 is currently developing white papers to assist with applying three of these practices:

- Employing energy conservation and efficiency approaches, including Energy Star equipment and renewable forms of energy.
- Using cleaner fuels, diesel emission controls and retrofits, and emission reduction strategies.

EPA Region 5 is performing several greener cleanup pilot studies. One of the greening/optimizing pilots is at the Fisher-Calo Superfund site in Kingsbury, Ind., where this ground water extraction system has been operating for a decade.

For more information

For questions, comments or more information about Region 5's Greener Cleanup Activities, contact:

Brad Bradley
Superfund Greener Cleanup Coordinator
Community & Land Revitalization Branch
Superfund Division
EPA Region 5 (SE-7J)
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RCRA Land Reuse Coordinator
Remediation and Reuse Branch
Land and Chemical Division
EPA Region 5 (L-9J)
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Chicago, IL 60604
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victorine.gary@epa.gov

Region 5 toll-free:
800-621-8431, 8:30 a.m. – 4:30 p.m., Chicago time, weekdays

ATTACHMENT 1
FISHER-CALO SUPERFUND SITE
Five-Year Review

- Diverting from landfills, via reuse and recycling, at least 50 percent by weight of the uncontaminated construction and demolition materials generated at cleanup sites.

Greener cleanup workshop

On Feb. 9, 2010, EPA Region 5 hosted a Greener Cleanup Workshop (photo above) that was attended by 60 people with another 300 people participating via a webinar. Attendees representing state and local governments, consultants, developers, planners and industry were briefed on the status of current greener cleanup programs and practices in each of the six Region 5 states (Illinois, Indiana, Minnesota, Michigan, Ohio and Wisconsin) and nationally. The agenda also included several case studies presented by state cleanup program specialists and consultants, and an open session for feedback regarding the Region 5 Interim Greener Cleanup Policy.

Pilot studies and other actions

Region 5 completed two greener cleanup pilot studies and has one more under way. The first two studies involved the inclusion of greener cleanup considerations as one of the factors in an "Analysis of Brownfields Cleanup Alternatives" for two projects in Oshkosh, Wis., that were completed in March 2010. The grantee reported the cost for this extra analysis was negligible. The study resulted in a cleanup alternative being selected that minimized waste sent to the landfill and incorporated vapor barriers and bioswales into the construction.

A pilot study is currently being conducted to optimize and green up a 13-well ground water extraction system that has been operating for a decade at the Fisher-Calo Superfund site in Kingsbury, Ind. Suggestions for optimization and inclusion of greener cleanup practices are being compiled and will be presented to the Site Steering Committee. The steering committee will then decide which activities will be pursued. Data will be collected with respect to pre- and post-greening energy and water usage as well as air emissions including greenhouse gases.

Other greener cleanup actions in Region 5 have included:

- Developed language indicating which greener cleanup activities would be eligible expenses under brownfields assessment, cleanup and revolving loan fund grants (completed).
- Provided comments regarding inclusion of greener cleanup considerations in national brownfields grant guidelines for 2011 (completed).
- Applied for and received special Innovation Funds for a current project involving the capture and beneficial use in microturbines of lower-concentration methane emissions from landfills (under way).

Next steps

Following is an approximate timetable for completion of greener cleanup activities currently under way in Region 5:

- Develop white papers for implementation of several practices in the Interim Policy -- **End of 2010.**
- Completion of Fisher-Calo pilot study -- **Construction by Early 2011.**
- Innovation Funds project, full-scale application of microturbines -- **Summer 2011.**
- Application for additional funding for pilot projects – **Ongoing.**

Wind farm near Fond du Lac, Wisconsin

The La Porte Hospital Foundation Office (first floor of La Porte Hospital)

The Lubeznik Center for the Arts in Michigan City

The La Porte Civic Auditorium

Angelo Bernacchi Greenhouses

the community," said Maria Fruth, executive vice president and COO of the La Porte Hospital Foundation, philanthropic arm of the La Porte Regional Health System.

Having battled a combination of lung cancer and multiple myeloma for eight years, Marian Bernacchi didn't want to spend her last days

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Tuesday to Saturday 6:30 am to 8 pm
Sunday 6:30 am to 3 pm
TIN CITY GRILL
Your New Favorite
Our Third Year

Barker Mansion Holiday Tour
Open House Dec. 5th to 20th
Mon. through Fri. at 12pm to 3pm (CST)
Sat. & Sun. at 12pm to 4pm (CST)
After Dark Self-Gu

ATTACHMENT 2
FISHER-CALO SUPERFUND SITE
Five-Year Review

LaPorteCounty Herald-Argus
December 9, 2009
Page A3

ICE CO
861 W US Hwy. 30 - Valparaiso
YOUR HOLIDAY PARTY
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6PM- 11PM
Appetizers
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Coffee and Dessert, Cash Bar, DJ and Dancing
$24.95/ Person
Call 219-362-4585 for your group reservations.
Discounted hotel rooms are available
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EPA Begins Review of Fisher-Calo Superfund Site

Kingsbury, Indiana

U.S. Environmental Protection Agency is conducting a five-year review of the Fisher-Calo Superfund site in the Kingsbury Industrial Development Park In LaPorte County, IN. The Superfund law requires regular checkups of sites that have been cleaned up with waste managed on-site - to make sure the cleanup continues to protect people and the environment. This is the third five-year review of this site.

EPA's cleanup of the site included soil and ground water that will allow for eventual unlimited use of ground water at the Fisher-Calo site.

More information is available at the LaPorte County Library, 904 Indiana St., LaPorte, IN. The review should be completed by the end of March 2010.

The five-year review is an opportunity for you to tell EPA about site conditions and any concerns you have. Contact:

Sheri Bianchin
Remedial Project Manager
(312)886-4745
bianchin.sheri@epa.gov

You may also call Region 5 toll-free at 800-621-8431, 9:30 a.m. to 5:30 p.m., weekdays.

ATTACHMENT 3
FISHER-CALO SUPERFUND SITE
Five-Year Review

One Line North
Hydraulic Monitoring Data

Date:_____

By:_____

Well ID	TOC Elev	Depth Elev	Depth	Depth to Water	Well Condition
CRA-26	727.85	691.2	36.7		
CRA-27A	725.30	689.3	36.0		
CRA-27B	725.48	643.8	81.7		
CRA-28	728.48	692.0	36.5		
CRA-29A	733.41	694.9	38.5		
CRA-29B	732.89	638.9	94.0		
CRA-30A	729.43	694.3	35.1		
CRA-30B	729.25	651.0	78.3		
CRA-31A	712.66	687.7	25.0		
CRA-31B	712.77	650.7	62.1		
CRA-32	712.25	687.3	25.0		
CRA-3B	715.91	696.5	19.4		
CRA-41	718.19	683.1	35.1		
CRA-42	716.50	686.6	29.9		
CRA-43	723.81	689.3	34.5		
CRA-58	714.20	685.3	28.9		
CRA-59	712.49	684.6	27.9		
CRA-60	713.70	686.6	27.1		
CRA-63	725.02	689.7	35.3		
CRA-64	717.03	682.1	34.9		
MW-34	725.33	651.3	74.0		
MW-36	725.09	695.1	30.0		
MW-44	735.40	698.4	37.0		
MW-47	733.67	698.7	35.0		
P-09A	713.06	690.1	23.0		
P-09B	713.22	643.9	69.3		
P-10A	719.54	691.9	27.6		
P-10B	719.60	645.2	74.4		
PZ1N-01	715.27	651.1	64.2		
PZ1N-02	715.13	652.7	62.4		
PZ1N-03	716.81	657.0	59.8		
PZ1N-04A	715.05	651.1	63.9		
PZ1N-04B	715.05	651.1	63.9		
PZ1N-05	713.44	685.0	28.4		
PZ1N-06A	716.98	652.5	64.5		
PZ1N-06B	716.93	652.5	64.4		
PZ1N-07	716.71	684.9	31.8		
PZIN-08	718.61	652.4	66.2		
PZIN-09	717.67	655.2	62.5		
PZIN-10	715.89	653.8	62.1		
PZIN-11	716.67	654.3	62.4		
PZIN-12	717.12	655.0	62.1		
SW-1	720.62				
SW-10	704.63				
SW-4	704.35				
SW-5	703.65				
EW1N-1	715.14	675.0	40.1		
EW1N-2	715.14	676.1	39.0		
EW1N-3	715.95	677.0	39.0		
EW1N-4	718.71	680.1	38.6		

One Line South
Hydraulic Monitoring Data

Date:_____

By:_____

Well ID	TOC Elev	Depth Elev	Depth	Depth to Water	Well Condition
CRA-20A	712.78	687.7	25.1		
CRA-20B	713.02	664.7	48.3		
CRA-21A	732.34	692.0	40.3		
CRA-21B	731.78	658.5	73.3		
CRA-22A	729.74	689.6	40.1		
CRA-22B	729.57	658.6	71.0		
CRA-23	710.23	685.4	24.8		
CRA-24A	708.87	684.3	24.6		
CRA-24B	708.22	662.3	45.9		
CRA-25	711.79	685.2	26.6		
CRA-34A	711.52	681.9	29.6		
CRA-34B	711.25	664.6	46.7		
CRA-44A	729.15	686.5	42.7		
CRA-44B	728.17	668.2	60.0		
CRA-49A	727.91	685.8	42.1		
CRA-49B	728.09	661.8	66.3		
MW-10	731.90	661.8	70.1		
MW-12	731.27	696.3	35.0		
MW-20	725.22	694.2	31.0		
MW-22	729.88	654.9	75.0		
MW-23	730.17	690.2	40.0		
MW-26	732.81	694.8	38.0		
MW-27	731.10	691.1	40.0		
MW-28	726.70	690.7	36.0		
MW-39	730.08	693.1	37.0		
P-08A	715.48	687.9	27.6		
P-08B	715.45	650.9	64.6		
PZ1S-01	712.67	656.4	56.3		
PZ1S-02	713.34	658.8	54.5		
PZ1S-03	713.32	650.8	62.5		
PZ1S-04	712.78	656.2	56.6		
PZ1S-05	712.46	678.7	33.8		
PZ1S-06	712.31	679.7	32.6		
PZ1S-07	712.98	681.6	31.4		
PZ1S-08	713.01	676.6	36.4		
PZ1S-09	710.33	675.3	35.0		
PZ1S-10	712.95	676.7	36.3		
PZ1S-11	713.12	679.7	33.4		
PZ1S-12	713.08	680.3	32.8		
PZ1S-13	709.11	678.4	30.7		
PZ1S-14	712.45	679.0	33.5		
SW-2B	700.60				
SW-6	702.35				
SW-7	700.46				
SW-8	699.81				
SW-9	698.87				
EW1S-1	712.26	663.6	48.7		
EW1S-2	712.37	665.2	47.2		
EW1S-3	712.85	658.9	54.0		
EW1S-4	711.87	662.5	49.4		

Two Line North
Hydraulic Monitoring Data

Date:_____

By:_____

Well ID	TOC Elev	Depth Elev	Depth	Depth to Water	Well Condition
CRA-14	740.34	707.9	32.4		
CRA-16A	735.71	696.7	39.0		
CRA-16B	736.00	659.1	76.9		
CRA-17A	731.19	696.5	34.7		
CRA-17B	731.03	653.0	78.0		
CRA-18	734.84	696.9	37.9		
CRA-19	736.31	697.7	38.6		
CRA-33	735.94	697.7	38.2		
CRA-33B	735.78	645.6	90.2		
CRA-45	733.99	695.3	38.7		
CRA-46	732.79	692.7	40.1		
CRA-47	731.74	694.1	37.6		
CRA-48	732.44	692.4	40.0		
MW-3	737.07	707.1	30.0		
MW-4	736.20	659.2	77.0		
MW-6	736.84	700.2	36.6		
MW-7	726.69	631.7	95.0		
MW-9	726.43	695.4	31.0		
MW-17	731.43	689.4	42.0		
MW-24	732.35	697.4	35.0		
MW-25	729.81	699.8	30.0		
MW-48	727.97	640.0	88.0		
MW-50	727.53	697.5	30.0		
MW-61	730.18	696.2	34.0		
PZ2N-01	732.54	636.6	41.5		
PZ2N-02	726.27	630.2	38.5		
PZ2N-03	723.43	600.0	49.0		
PZ2N-04	727.28	651.0	37.0		
PZ2N-05	733.03	685.4	45.0		
PZ2N-06	726.37	683.0	40.5		
PZ2N-07A	724.26	626.1	27.0		
PZ2N-07B	724.31	626.1	84.0		
PZ2N-08	723.46	682.0	39.5		
PZ2N-09	726.38	685.0	38.5		
PZ2N-10	736.59	687.5	46.5		
PZ2N-11	736.58	687.4	46.5		
PZ2N-12A	727.16	633.4	93.8		
PZ2N-12B	727.16	633.4	93.8		
PZ2N-13A	730.56	636.8	93.8		
PZ2N-13B	730.56	636.8	93.8		
PZ2N-14	735.60	684.0	51.6		
PZ2N-15A	731.36	658.7	72.7		
PZ2N-15B	731.25	658.7	72.6		
EW2N-1	731.08	667.7	63.4		
EW2N-2	726.04	662.8	63.2		
EW2N-3	722.34	675.2	47.1		
EW2N-4	727.12	675.2	51.9		

Space Leasing
Hydraulic Monitoring Data

Date:_____

By:_____

Well ID	TOC Elev	Depth Elev	Depth	Depth to Water	Well Condition
CRA-35A	732.02	703.1	28.9		
CRA-35B	732.16	671.2	61.0		
CRA-36A	736.99	701.3	35.7		
CRA-36B	737.71	673.2	64.5		
CRA-38	730.75	701.5	29.3		
CRA-39	729.31	699.7	29.6		
CRA-39B	729.54	673.8	55.7		
CRA-40	737.96	703.5	34.5		
CRA-50	729.40	699.5	29.9		
CRA-51	728.02	698.2	29.8		
CRA-52	729.73	700.1	29.6		
CRA-53	729.26	702.2	27.1		
CRA-54	729.87	700.1	29.8		
CRA-55	729.29	699.5	29.8		
CRA-56	728.84	697.1	31.7		
CRA-57	724.46	696.6	27.9		
CRA-61	722.62	697.9	24.7		
MW-67	738.31	704.3	34.0		
MW-69	729.62	704.6	25.0		
MW-70	734.31	704.3	30.0		
PZSL-01	725.77	667.7	58.1		
PZSL-02	729.42	669.3	60.1		
PZSL-03	724.39	660.0	64.4		
PZSL-04	728.23	660.3	67.9		
PZSL-05A	723.81	649.0	74.8		
PZSL-05B	723.81	649.0	74.8		
PZSL-06	729.90	696.4	33.5		
PZSL-07	733.54	698.6	34.9		
PZSL-08A	727.01	667.6	59.4		
PZSL-08B	727.05	667.6	59.4		
EWSL-1	725.11	688.1	37.0		
EWSL-2	728.28	689.8	38.5		
EWSL-3	723.82	682.0	41.8		
EWSL-4	727.87	684.3	43.6		

Name	Company	Email	Phone
Dick Paulen	Barnes & Thornburg	rpaulen@btlaw.com	800.821.0861
Wei-Lin Feng	LFR	weilin.feng@lfr.com	847.649.2022
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Aravind Marella	LFR	aravind.marella@lfr.com	847.902.1521
Rob Olian	Sidley Austin	rolian@sidley.com	312.853.7208
Resa Ramsey	IDEM	RRAMSEY@idem.IN.gov	217.234-0353
Sheri Bianchin	EPA	bianchin.sheri@epa.gov	312.886.4745

Attendees for Fisher-Calo Five-Year Review Site Inspection on 10.27.09

Name	Company	Email	Phone
Dick Paulen	Barnes & Thornburg	rpaulen@btlaw.com	800.821.0861
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Sheri Bianchin	EPA	bianchin.sheri@epa.gov	312.886.4745
Wei-Lin Feng	LFR	weilin.feng@lfr.com	847.649.2022
Dale Ellingson	LFR	dale.ellingson@lfr.com	847.902.1525
Aravind Marella	LFR	aravind.marella@lfr.com	847.902.1521
Rob Olian	Sidley Austin	rolian@sidley.com	312.853.7208
Krista Richardson	Weston Solutions, Inc.	krista.richardson@westonsolutions.com	847.918.4066
Rick Mehl	Weston Solutions, Inc.	rick.mehl@westonsolutions.com	312.424.3312

Attendees for Fisher-Calo Site Visit on 12.15.09

ATTACHMENT 5
FISHER-CALO SUPERFUND SITE
Five-Year Review

ATTACHMENT 6

FIVE YEAR REVIEW REPORT
LIST OF DOCUMENTS REVIEWED
AUGUST 2010

FISHER-CALO SUPERFUND SITE

KINGSBURY,
INDIANA

1) Five Year Review Reports, Fisher-Calo Site, September 2000 & September 2005;

2) Record of Decision Amendment, Fisher-Calo Site, September 1997;

3) RD/RA Consent Decree, Fisher-Calo Site, February 1992;

4) Record of Decision, Fisher-Calo Site, August 1990;

5) Fisher-Calo Site file, and operation & maintenance documents;

6) LRF/ Aracadis- December 2009 Response to U.S. EPA's Request for Information;

7) Arcadis – February 25, 2010; Semi-Annual Groundwater Treatment System Progress Report July 1, 2009 through December 31, 2009

FISHER-CALO SUPERFUND SITE
Five-Year Review Report

ATTACHMENT 7

LFR
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TELECONFERENCE MINUTES

Date: August 3, 2004

Time: 10:00 am CDT

Participants: Jeff Gore, USEPA
Resa Ramsey, IDEM
Richard Paulen, Fisher-Calo Trustee
Rob Olian, Fisher Calo Trustee
Bruce White, Fisher Calo Trustee
Wei-Lin Feng, LFR
Dale Ellingson, LFR

Subject: **Fisher-Calo Superfund Site - Minutes of Monthly Teleconference**

During the teleconference the following items were discussed:

Groundwater Treatment O&M

Wei-Lin Feng stated the system operated smoothly during July except for two shutdowns because of power outages. Routine maintenance completed in July included cleaning flow meters at One North and One South well field control buildings and well maintenance at Space Leasing.

The Annual Progress Report was sent to IDEM and EPA on July 17.

LFR installed surge suppressors at all well field control buildings during July.

Jeff Gore asked if there is a relationship between CO2 injection and analytical data. Wei-Lin Feng stated we are going to compare the rate of decrease in the full open flows with and without CO2 injection. Jeff asked that we state the CO2 injection has been shut off in our next progress report.

Jeff Gore stated the soil remediation is completed and a letter has been sent to the Trustees.

No concerns noted by USEPA or IDEM.

Next Call Tuesday September 7, 2004. 10 am Central Daylight Savings Time