

## **5.2 LABORATORY QA/QC PROCEDURES**

The laboratory QA/QC program will include the use of standards, spikes, duplicates, and laboratory blank samples for calibration and detection of potential matrix interferences. The laboratory will provide a summary of the analytical methods used, calibration results and anomalies, detection limits, dilution factors, and data qualifiers. Upon request, the raw data will be available for data validation. Commercial laboratories used to analyze water samples will maintain accreditation in accordance with the National Environmental Laboratory Accreditation Conference (NELAC).

As part of the GWSAP, during sampling, a series of QA/QC samples will be submitted to the laboratory to test the quality of analytical data and sampling procedures. Field QA/QC samples will include equipment blanks, duplicate samples, and matrix spike / matrix spike duplicate (MS/MSD) samples as described below.

### **5.2.1 Equipment Blanks**

Equipment blank samples are analyzed to check for potential contamination present on/in new, sealed, disposable (one-time use) sampling equipment (e.g., peristaltic tubing) as received from the manufacturer. Equipment blanks will be collected by pouring distilled water in or over the new sampling equipment upon removing the protective wrapping or sealing, and collecting water in the sample containers. One equipment blank will be collected during each sampling event.

Equipment blank samples may also be analyzed to check for procedural contamination that may cause sample contamination from reusable sampling equipment. The equipment blanks will be collected in the same manner as described above.

### 5.2.2 Duplicate Samples

Duplicate samples are analyzed to evaluate the reproducibility of the laboratory analytical results. One duplicate sample will be collected for every 20 or fewer samples per sampling event. Duplicate samples from a well will be collected for a parameter by alternately filling two bottles.

### 5.2.3 Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike / matrix spike duplicate samples are used to document the precision and bias of an analytical method in a given sample matrix. They are prepared in the laboratory by spiking an aliquot of sample with a known concentration of target analyte(s). One MS/MSD sample will be collected for every 20 or fewer samples per sampling event.

### 5.2.4 QA/QC Sample Number Format

Field duplicate samples should be numbered with a unique sample number to prevent laboratory bias of field QC samples. Equipment blanks selected for analysis will not be submitted to the laboratory in a blind manner.

The sample identification format for quality assurance/quality control samples is as follows:

SAMPLE NOMENCLATURE		
Duplicate	DUP-### / DDMMYY	Example: DUP-001 / 042512
Equipment Blank	EQB-### / DDMMYY	Example: EQB-005 / 042512
Matrix Spike/Matrix Spike Duplicate	MS/MSD-### / DDMMYY	Example: MS/MSD-001 / 042512

## 6.0 SCHEDULE

Implementation of this Groundwater Sampling and Analysis Plan will begin following IDEM approval of the Post-Closure Permit Renewal Application.

**APPENDIX A**  
**WELL INTEGRITY SURVEY FORM**

## WELL INTEGRITY SURVEY FORM

PROJECT INFORMATION	
Project Name: _____	Date(s) of Inspection: _____
Project No.: _____	Field Personnel: _____

WELL INTEGRITY INFORMATION																		
Well ID	Static Levels		Well Casing		Security		Flush Mount				Concrete Surface				Grade/Slope			Additional Comment(s) Below
	Depth to Water (FT BTOC)	Total Well Depth (FT BTOC)	Intact	Cracked	Well Secured/Locked	Well Cap Present	Present	Intact	Cracked	Rubber Seal Present	Present	Intact	Cracked	Gap Around Well	Away From Well	Facilitates Access	Standing Water	
MW-1																		
MW-2																		
MW-3																		
MW-4																		
MW-5																		
MW-6																		
MW-7R																		

ADDITIONAL COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**APPENDIX B**  
**FIELD DATA SHEET**

## GROUNDWATER DATA FORM

PROJECT INFORMATION																
EVENT		Well Development		Groundwater Sampling		Low-Flow Groundwater Sampling										
Project Name										Well ID						
Project No.										Start Date						
Field Personnel										End Date						
WELL AND DEVELOPMENT / PURGE INFORMATION																
Casing ID			Stick Up			Purging Method					Tube/Pump Intake Depth					
Screened Interval					Pump Make, Size, or Type					Pump Rate						
DEPTH MEASUREMENTS							VOLUME PRODUCTION INFORMATION									
							INITIAL		FINAL		Volume Type:		Borehole		Well Casing	
							Depth	Time	Depth	Time	Linear Feet of Water in Well					
Product							Amount Equal to One Volume									
Groundwater from Top of Casing							Total Volumes Produced									
Casing Base from Top of Casing							Well Purged Dry?									
Physical Characteristics (color, visual clarity, odor, viscosity):																
NOTES:																
PHYSICOCHEMICAL PARAMETERS																
Date	Time (24 hour)	Flow Rate (____)	No. of Vol Removed (#)	Volume Purged (gal)	Depth to Water (ft BTOC)	Drawdown (ft)	Temp (° C)	pH	Conduct. (mS/cm)	TDS (ppm)	Dissolved Oxygen (mg/L)	ORP / Eh (mV)	PID (ppm)	Turbid. (ntu)		

# Appendix F

## CHAPTER 52: WATER

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### Section

- 52.01 Definitions
- 52.02 Use of groundwater as a potable water supply prohibited
- 52.03 Enforcement
- 52.99 Penalty

### § 52.01 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

**PERSON.** Any individual, partnership, co- partnership, firm company, limited liability company, corporation, association, joint stock company, trust estate, political subdivision or any other legal entity, or their legal representatives, agents or assigns.

**POTABLE WATER.** Any water used for human or domestic consumption, including, but not limited to water used for drinking, bathing, swimming, washing dishes or preparing foods.

(Ord. 8581, passed 7-26-2004)

### § 52.02 USE OF GROUNDWATER AS A POTABLE WATER SUPPLY PROHIBITED.

The use, or attempt to use, as a potable water supply, groundwater from within the corporate limits of the city by the installation or drilling of wells or by any other method is hereby prohibited.

(Ord. 8581, passed 7-26-2004) Penalty, see § 52.99

### § 52.03 ENFORCEMENT.

This chapter shall be enforced by the Hammond Department of Environmental Management or its designated agent.

(Ord. 8581, passed 7-26-2004)

### § 52.99 PENALTY.

Any person violating any of the provisions of this chapter shall be subject to the penalties established in § 10.99 of this code of ordinances.

(Ord. 8581, passed 7-26-2004)

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# Appendix G

## FILE MEMORANDUM

**From:** Gary Perkowitz  
**Subject:** Private and Public Well Search  
**Date:** February 20, 2013

St. John-Mittelhauser and Associates, Inc. (SMA) conducted a search for private and public potable wells near the Hammond Pest Control site (the site), located at 702 State Street, Hammond, Indiana. The area covered by the well search was approximately 374 acres and bounded by the Calumet River to the north, 1,000 feet east of Columbia Avenue to the east, Fayette Street to the south and, 1,000 feet west of Hohman Avenue to the West. This search was conducted to verify the absence or presence of public and private groundwater wells within the search area. The site location and well search area are shown on Figure 1.

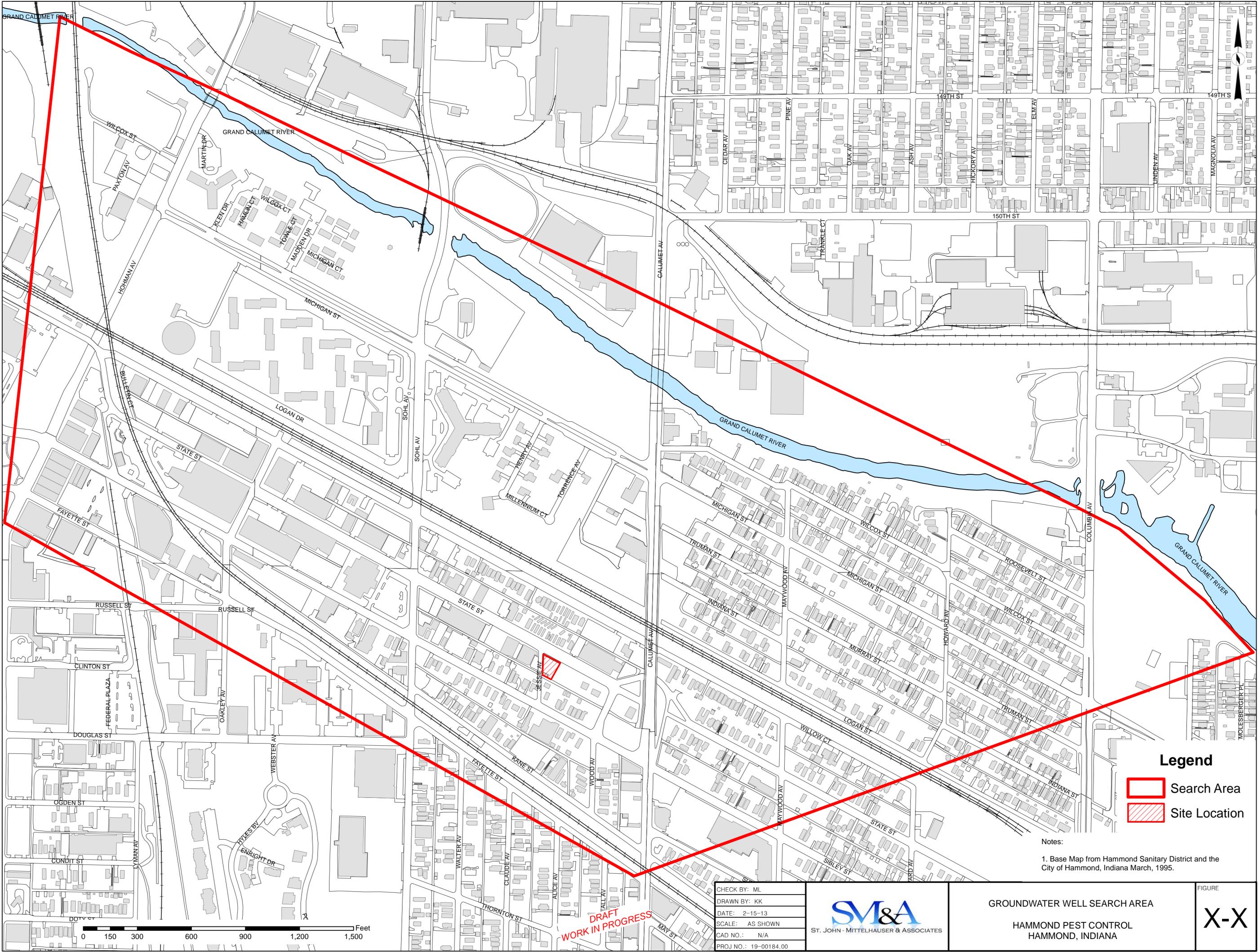
The well search consisted of contacting various local and state agencies that typically have information related to the location and use of groundwater wells. SMA contacted Indiana Department of Natural Resources (IDNR), Indiana State Department of Health (ISDH), City of Hammond Water Works District, City of Hammond Engineering Department and, City of Hammond Environmental Management Department. The various agencies that were contacted, and the information that each agency provided, are presented below.

- Indiana Department of Natural Resources (IDNR)
  - Used the IDNR website to perform a search of the “Water Well Record Database” (<http://www.in.gov/dnr/water/3595.htm>) to look within the search area for groundwater wells.
  - No wells were located within the search area boundary.
  - An email to the IDNR was responded by the head of Water Rights and Users, M. Basch, that informed SMA that the database does not include groundwater wells used for monitoring purposes.
- City of Hammond Water Works
  - Emailed about any knowledge of private groundwater wells within the search area.
  - Received call from water department representative stating they have no records or knowledge of and public/private wells within the search area.

- All buildings within the area are connected to and receive city water.
- Hammond Engineering Department
  - Called about location of water main lines within search area.
  - City engineer J. Parker stated that although they are not able to provide maps via e-mail that all buildings within the search area are connected to city water lines.
- City of Hammond Environmental Management Department
  - Emailed about any knowledge of public/private groundwater wells within the search area.
  - Received call from Director R. Novak stating they have no records or knowledge of any public/private wells within the search area.
  - SMA was informed that it is illegal to have a potable groundwater well within the corporate limits of the city which include the search area, as stated by Chapter 52 from the City of Hammond Code or ordinances (Attachment A).
- State Department of Health (ISDH)
  - Used the Indiana drinking water watch public water search (<https://myweb.in.gov/IDEM/DWW/>) for all recorded locations within Lake County Indiana receiving a regulated water supply.
  - List of all locations within Lake County Indiana that receives a regulated water supply is shown on Attachment B.

Based on the information presented above, it is apparent that no public or private water wells exist within 374 acres of the site, and that there is no current or expected future completed groundwater ingestion receptor.

**FIGURE**

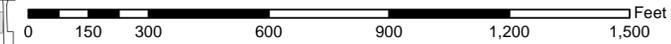


**Legend**

- Search Area
- Site Location

Notes:  
 1. Base Map from Hammond Sanitary District and the City of Hammond, Indiana March, 1995.

DRAFT  
WORK IN PROGRESS



CHECK BY: ML
DRAWN BY: KK
DATE: 2-15-13
SCALE: AS SHOWN
CAD NO.: N/A
PROJ NO.: 19-00184.00



GROUNDWATER WELL SEARCH AREA  
 HAMMOND PEST CONTROL  
 HAMMOND, INDIANA

FIGURE  
X-X

**ATTACHMENT A**

## CHAPTER 52: WATER

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### Section

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- 52.02 Use of groundwater as a potable water supply prohibited
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**ATTACHMENT B**

## ISDH Drinking Water Branch Database

Water System No.	Water System Name	Type	Status	Principal County Served	Primary Source Water Type
<a href="#">IN2450231</a>	AMERICAN LEGION POST #261	NC	A	LAKE	GW
<a href="#">IN2450035</a>	AMVETS POST 15	NC	A	LAKE	GW
<a href="#">IN5245001</a>	APPLE VALLEY UTILITIES, INC.	C	A	LAKE	GW
<a href="#">IN5245017</a>	AQUA INDIANA WATER COMPANY	C	A	LAKE	GWP
<a href="#">IN2450831</a>	BEER BARREL	NC	A	LAKE	GW
<a href="#">IN2450329</a>	BETHEL CHURCH CEDAR LAKE	NC	A	LAKE	GW
<a href="#">IN2450833</a>	BOYS AND GIRLS CLUB OF NW IN-CEDAR LAKE	NC	A	LAKE	GW
<a href="#">IN5245004</a>	BREMERTON MOBILE HOME PARK	C	A	LAKE	GW
<a href="#">IN2450841</a>	BUCKLEY HOMESTEAD - 1910 FARM	NC	A	LAKE	GW
<a href="#">IN2450043</a>	BUCKLEY HOMESTEAD - OBSERVATORY	NC	A	LAKE	GW
<a href="#">IN2450843</a>	BUCKLEY HOMESTEAD - SCHOOL HAND PUMP	NC	A	LAKE	GW
<a href="#">IN2450842</a>	BUCKLEY HOMESTEAD - VISITOR CENTER	NC	A	LAKE	GW
<a href="#">IN2450840</a>	BUCKLEY HOMESTEAD-PIONEER FARM HAND PUMP	NC	A	LAKE	GW
<a href="#">IN2450034</a>	CARLOS RESTAURANT	NC	A	LAKE	GW
<a href="#">IN2450003</a>	CARRIAGE PLAZA	NC	A	LAKE	GW
<a href="#">IN2450863</a>	CEDAR CREEK FAMILY GOLF CENTER	NC	A	LAKE	GW
<a href="#">IN5245050</a>	CEDAR GARDENS MHP	C	A	LAKE	GW
<a href="#">IN5245067</a>	CEDAR LAKE - ROBINS NEST	C	A	LAKE	GW
<a href="#">IN5245055</a>	CEDAR LAKE BIBLE CONFERENCE GROUNDS	C	A	LAKE	GW
<a href="#">IN5245005</a>	CEDAR LAKE MOBILE HOME PARK	C	A	LAKE	GW
<a href="#">IN2450056</a>	CEDAR LAKE UNITED METHODIST CHURCH	NC	A	LAKE	GW
<a href="#">IN2450030</a>	CEDAR LAKE WATER UTILITY MONASTERY	NC	A	LAKE	GW
<a href="#">IN5245047</a>	CEDAR LAKE WATER WORKS	C	A	LAKE	GW
<a href="#">IN2450044</a>	CEDAR LAKE YACHT CLUB	NC	A	LAKE	GW

## ISDH Drinking Water Branch Database

<a href="#">IN245062</a>	CHICAGOLAND CHRISTIAN VILLAGE	C	A	LAKE	GW
<a href="#">IN2450823</a>	CHINA HOUSE	NC	A	LAKE	GW
<a href="#">IN2450884</a>	CHURCH OF ST. ANDREW THE EVANGELIST INC.	NC	A	LAKE	GW
<a href="#">IN2450045</a>	COFHEN, INC. DBA THE GREAT OAKS CENTER	NC	A	LAKE	GW
<a href="#">IN2450053</a>	CORKYS DOGG HOUSE	NC	A	LAKE	GW
<a href="#">IN2450021</a>	CORNERSTONE COMMUNITY CHURCH	NC	A	LAKE	GW
<a href="#">IN2450017</a>	CORNERSTONE PROTESTANT REFORMED	NC	A	LAKE	GW
<a href="#">IN2450008</a>	CRESTVIEW INN & SUITES	NC	A	LAKE	GW
<a href="#">IN5245014</a>	CROSSINGS MOBILE HOME PARK	C	A	LAKE	GW
<a href="#">IN2450049</a>	CROWN POINT CHURCH OF GOD	NC	A	LAKE	GW
<a href="#">IN5245008</a>	CROWN POINT WATER WORKS	C	A	LAKE	SWP
<a href="#">IN2450800</a>	DAIRY QUEEN EAST	NC	A	LAKE	GW
<a href="#">IN2450278</a>	DALECARLIA BIBLE CHURCH	NC	A	LAKE	GW
<a href="#">IN2450062</a>	DC COUNTRY JUNCTION	NC	A	LAKE	GW
<a href="#">IN2450071</a>	DEEP RIVER CHURCH OF CHRIST	NC	A	LAKE	GW
<a href="#">IN2450876</a>	DEEP RIVER CO. PARK - INDOOR VISIT. CTR.	NC	A	LAKE	GW
<a href="#">IN2450877</a>	DEEP RIVER COUNTY PARK - OUTDOOR UNIT	NC	A	LAKE	GW
<a href="#">IN2450886</a>	DYER INDOOR SOCCER ARENA	NC	A	LAKE	GW
<a href="#">IN5245011</a>	DYER WATER DEPARTMENT	C	A	LAKE	SWP
<a href="#">IN5245012</a>	EAST CHICAGO WATER WORKS	C	A	LAKE	SW
<a href="#">IN5245009</a>	FAIRWAY REGIONAL WATER DISTRICT	C	A	LAKE	GW
<a href="#">IN2450258</a>	FINDLEYS SHELBY INN	NC	A	LAKE	GW
<a href="#">IN2450803</a>	FLYING J #653	NTNC	A	LAKE	GW
<a href="#">IN2450872</a>	FLYING J - J CARE	NC	A	LAKE	GW
<a href="#">IN2450039</a>	FOE 2529	NC	A	LAKE	GW
<a href="#">IN2450037</a>	GOODFELLAS	NC	A	LAKE	GW
<a href="#">IN2450005</a>	GRACE EVANGELICAL LUTHERAN CHURCH	NC	A	LAKE	GW
<a href="#">IN2450889</a>	GRACE LUTHERAN CHURCH	NC	A	LAKE	GW
<a href="#">IN2450178</a>	GREAT OAKS AFTER 4	NC	A	LAKE	GW

## ISDH Drinking Water Branch Database

	SUPPER CLUB				
<a href="#">IN5245019</a>	GRIFFITH WATER DEPARTMENT	C	A	LAKE	SWP
<a href="#">IN5245020</a>	HAMMOND WATER WORKS DEPARTMENT	C	A	LAKE	SW
<a href="#">IN2450882</a>	HANOVER NORTH PROFESSIONAL BUILDING	NTNC	A	LAKE	GW
<a href="#">IN2450825</a>	HARRY OS	NC	A	LAKE	GW
<a href="#">IN5245021</a>	HIGHLAND WATER WORKS	C	A	LAKE	SWP
<a href="#">IN2450308</a>	HILLSIDE COMMUNITY CHURCH	NC	A	LAKE	GW
<a href="#">IN2450009</a>	HOLY NAME PARISH/GRAND TOTS	NC	A	LAKE	GW
<a href="#">IN5245022</a>	HONEYSUCKLE MOBILE HOME PARK	C	A	LAKE	GW
<a href="#">IN2450232</a>	HUNLEYS RESTAURANT	NC	A	LAKE	GW
<a href="#">IN5245057</a>	IN WATER SERVICES, INC.	C	A	LAKE	SWP
<a href="#">IN2450036</a>	INDIAN RIDGE GOLF COURSE	NC	A	LAKE	GW
<a href="#">IN5245015</a>	INDIANA AMERICAN WATER - NORTHWEST	C	A	LAKE	SW
<a href="#">IN2450811</a>	JOLLY ROGERS	NC	A	LAKE	GW
<a href="#">IN2450029</a>	LAKE DALE ALE LLC	NC	A	LAKE	GW
<a href="#">IN2450069</a>	LAKE HILLS BAPTIST CHURCH & FAMILY CTR	NC	A	LAKE	GW
<a href="#">IN2450014</a>	LAKE PRAIRIE ELEMENTARY	NTNC	A	LAKE	GW
<a href="#">IN2450855</a>	LAKE REGION CHRISTIAN ASSEMBLY	NTNC	A	LAKE	GW
<a href="#">IN5245027</a>	LAKE STATION WATER DEPARTMENT	C	A	LAKE	SWP
<a href="#">IN5245053</a>	LAKESHORE SUBDIVISION ASSOCIATION, INC.	C	A	LAKE	GW
<a href="#">IN2450063</a>	LIGHTHOUSE RESTAURANT AT PARADISE COVE	NC	A	LAKE	GW
<a href="#">IN2450059</a>	LOWELL COMMONS	NC	A	LAKE	GW
<a href="#">IN5245029</a>	LOWELL WATER DEPARTMENT	C	A	LAKE	GU
<a href="#">IN2450875</a>	LUKE OIL	NC	A	LAKE	GW
<a href="#">IN2450038</a>	MARTELL/POLITE DENTAL CENTER	NC	A	LAKE	GW
<a href="#">IN2450866</a>	MCDONALDS - #13735	NC	A	LAKE	GW
<a href="#">IN5245031</a>	MUNSTER WATER COMPANY	C	A	LAKE	SWP
<a href="#">IN5245032</a>	NEW CHICAGO WATER	C	A	LAKE	SWP

## ISDH Drinking Water Branch Database

	WORKS				
<a href="#">IN2450887</a>	NEW HOPE COMMUNITY CHURCH	NC	A	LAKE	GW
<a href="#">IN5245054</a>	NOBLE OAKS SUBDIVISION WATER ASSOCIATION	C	A	LAKE	GW
<a href="#">IN2450055</a>	NORTHWEST INDIANA ISLAMIC CENTER	NTNC	A	LAKE	GW
<a href="#">IN2450807</a>	OAK KNOLL GOLF COURSE	NC	A	LAKE	GW
<a href="#">IN5245034</a>	OAKWOOD MOBILE HOME PARK	C	A	LAKE	GW
<a href="#">IN2450816</a>	PALMIRA GOLF & COUNTRY CLUB	NC	A	LAKE	GW
<a href="#">IN2450052</a>	PHEASANT VALLEY COUNTRY CLUB	NC	A	LAKE	GW
<a href="#">IN2450801</a>	PIER 74	NC	A	LAKE	GW
<a href="#">IN2450878</a>	PILOT/MCDONALDS #448	NTNC	A	LAKE	GW
<a href="#">IN2450022</a>	PRIDE TRUCK WASH LLC	NC	A	LAKE	GW
<a href="#">IN2450067</a>	R & P DEVELOPMT DBA COMFORT INN	NC	A	LAKE	GW
<a href="#">IN2450040</a>	RANGE LINE PRESBYTERIAN CHURCH	NC	A	LAKE	GW
<a href="#">IN2450820</a>	REICHERTS TAVERN	NC	A	LAKE	GW
<a href="#">IN2450070</a>	RIVER POINTE COUNTRY CLUB	NC	A	LAKE	GW
<a href="#">IN5245002</a>	ROCKWELL SHORES APARTMENTS	C	A	LAKE	GW
<a href="#">IN2450068</a>	ROSS BAPTIST CHURCH	NC	A	LAKE	GW
<a href="#">IN2450236</a>	SCHANES BAR & GRILL	NC	A	LAKE	GW
<a href="#">IN5245041</a>	SCHERERVILLE WATER DEPARTMENT	C	A	LAKE	SWP
<a href="#">IN5245042</a>	SCHNEIDER WATER DEPARTMENT	C	A	LAKE	GW
<a href="#">IN2450054</a>	SIKH RELIGIOUS SOCIETY OF INDIANA	NC	A	LAKE	GW
<a href="#">IN2450172</a>	SOUTH SHORE COUNTRY CLUB, INC.	NC	A	LAKE	GW
<a href="#">IN2450337</a>	SOUTHERN LAKE COUNTY CONSERVATION CLUB	NC	A	LAKE	GW
<a href="#">IN5245043</a>	ST. JOHN MUNICIPAL WATER UTILITY	C	A	LAKE	GW
<a href="#">IN2450072</a>	ST. MICHAEL THE ARCHANGEL CHURCH	NC	A	LAKE	GW
<a href="#">IN2450065</a>	STAR FOOD CORP	NC	A	LAKE	GW
<a href="#">IN2450851</a>	STONEY RUN COUNTY PARK/PICNIC AREA	NC	A	LAKE	GW

## ISDH Drinking Water Branch Database

<a href="#">IN2450853</a>	STONE Y RUN PARK - MEMORIAL RESTROOM	NC	A	LAKE	GW
<a href="#">IN2450031</a>	SUBWAY/AUSTGEN COMPLEX	NC	A	LAKE	GW
<a href="#">IN2450153</a>	SUMMER TREE RESTAURANT	NC	A	LAKE	GW
<a href="#">IN5245028</a>	SUNSET HARBOR CONDOMINIUMS	C	A	LAKE	GW
<a href="#">IN2450869</a>	SUPER 8 MOTEL DIVERSIFIED HOSPITALITY	NC	A	LAKE	GW
<a href="#">IN5245052</a>	SURPRISE PARK WATER ASSOCIATION	C	A	LAKE	GW
<a href="#">IN2450821</a>	TASTEE TOP	NC	A	LAKE	GW
<a href="#">IN2450019</a>	THE APOSTOLIC FELLOWSHIP, INC.	NC	A	LAKE	GW
<a href="#">IN2450020</a>	THE HARBOR	NC	A	LAKE	GW
<a href="#">IN2450234</a>	THE HILL TAVERN	NC	A	LAKE	GW
<a href="#">IN2450879</a>	THE PROTECTION OF THE VIRGIN MARY ORTH.	NC	A	LAKE	GW
<a href="#">IN2450170</a>	THE SANDBAR GRILL	NC	A	LAKE	GW
<a href="#">IN2450237</a>	TOWN CLUB TAVERN	NC	A	LAKE	GW
<a href="#">IN2450033</a>	TOWN OF CEDAR LAKE - COMPLEX & PUMPHOUSE	NC	A	LAKE	GW
<a href="#">IN2450883</a>	TRINITY FREE METHODIST CHURCH	NC	A	LAKE	GW
<a href="#">IN5245046</a>	TWIN LAKES UTILITIES, INC.	C	A	LAKE	GW
<a href="#">IN2450023</a>	VIRK BP - CEDAR LAKE	NC	A	LAKE	GW
<a href="#">IN2450026</a>	WATERS EDGE CONDO ASSOCIATION	NC	A	LAKE	GW
<a href="#">IN5245048</a>	WHITING WATER DEPARTMENT	C	A	LAKE	SWP
<a href="#">IN2450060</a>	WINDY HILL PROPERTIES, LLC	NC	A	LAKE	GW
<a href="#">IN2450012</a>	WINFIELD ELEMENTARY SCHOOL	NTNC	A	LAKE	GW
<a href="#">IN2450066</a>	WINFIELD WOODS MEDICAL ONE	NC	A	LAKE	GW
<a href="#">IN2450808</a>	YOUCHE COUNTRY CLUB	NC	A	LAKE	GW
<a href="#">IN2450804</a>	ASSEMBLEA CHRISTIANA	NC	I	LAKE	GW
<a href="#">IN2450007</a>	AUTOMOTIVE SERVICE CENTER II	NC	I	LAKE	GW
<a href="#">IN5245003</a>	AVENUE MOBILE HOME PARK	C	I	LAKE	GW
<a href="#">IN2450822</a>	BUOY'S & GALLIES	NC	I	LAKE	GW
<a href="#">IN2640892</a>	CAMP MEADOWBROOK	NC	I	LAKE	GW

## ISDH Drinking Water Branch Database

<a href="#">IN2450050</a>	CEDAR LAKE FISH & GAME	NC	I	LAKE	GW
<a href="#">IN5245065</a>	CEDAR SPRINGS APARTMENT	C	I	LAKE	GW
<a href="#">IN5245006</a>	CHAR EL MOBILE HOME PARK LLC	C	I	LAKE	GW
<a href="#">IN2450002</a>	CHRISTIAN ASSEMBLY CHURCH	NC	I	LAKE	GW
<a href="#">IN2450266</a>	CHURCH OF GOD	NC	I	LAKE	GW
<a href="#">IN2450344</a>	COFFINS SHADY BEACH	NC	I	LAKE	GW
<a href="#">IN2450100</a>	COKENERGY	NTNC	I	LAKE	GW
<a href="#">IN2450182</a>	COLEMAN RESTAURANT	NC	I	LAKE	GW
<a href="#">IN2450830</a>	COLES MART	NC	I	LAKE	GW
<a href="#">IN5245007</a>	COLONIAL MOBILE HOME PARK	C	I	LAKE	GW
<a href="#">IN2450813</a>	CONELAS RESTAURANT	NC	I	LAKE	GW
<a href="#">IN2450181</a>	COOK'S LOUNGE	NC	I	LAKE	GW
<a href="#">IN2450046</a>	COUNTY LINE ORCHARD	NC	I	LAKE	GW
<a href="#">IN2450006</a>	CROWN POINT ASSEMBLY OF GOD	NC	I	LAKE	GW
<a href="#">IN2450888</a>	DEEP RIVER PARK (PICNIC AREA)	NC	I	LAKE	GW
<a href="#">IN2450180</a>	DICKS RESTAURANT	NC	I	LAKE	GW
<a href="#">IN2450827</a>	DONELLIS PIZZA	NC	I	LAKE	GW
<a href="#">IN2450011</a>	DOUGLAS MACARTHUR ELEMENTARY	NTNC	I	LAKE	GW
<a href="#">IN2450001</a>	DYER GAS & FOOD D/B/A ALWAYS OPEN	NC	I	LAKE	GW
<a href="#">IN5245013</a>	ED'S TRAILER PARK	C	I	LAKE	GW
<a href="#">IN2450004</a>	FAMILY EXPRESS #14	NC	I	LAKE	GW
<a href="#">IN2450280</a>	FIRST CHURCH OF THE NAZARENE	NC	I	LAKE	GW
<a href="#">IN2450874</a>	FLYING J - GAS MART	NC	I	LAKE	GW
<a href="#">IN2450885</a>	GAS CITY LTD. #101	NC	I	LAKE	GW
<a href="#">IN5245069</a>	GLEN VIEW MOBILE HOME PARK/EAST 100	C	I	LAKE	GW
<a href="#">IN5245016</a>	GLEN VIEW MOBILE HOME PARK/WEST 200	C	I	LAKE	GW
<a href="#">IN5245051</a>	GOOD SHEPARD HOME, INC	C	I	LAKE	GW
<a href="#">IN2450859</a>	GOOD SHEPHERD DAY CARE	NTNC	I	LAKE	GW
<a href="#">IN2450832</a>	GRACE FELLOWSHIP CHURCH	NTNC	I	LAKE	GW
<a href="#">IN2450027</a>	GRAND TOTS	NC	I	LAKE	GW
<a href="#">IN5245018</a>	GREENHILL MANOR MHP	C	I	LAKE	GW
<a href="#">IN2450829</a>	GRILLED ONION	NC	I	LAKE	GW

## ISDH Drinking Water Branch Database

<a href="#">IN2450177</a>	HERITAGE RESTAURANT	NC	I	LAKE	GW
<a href="#">IN2450806</a>	HERR FARMS AG. CAMP	NC	I	LAKE	GW
<a href="#">IN2450316</a>	HOPE LUTHERAN CHURCH	NC	I	LAKE	GW
<a href="#">IN2370816</a>	HORSEHEAD SALOON	NC	I	LAKE	GW
<a href="#">IN2450805</a>	HUBER RANCH LABOR CAMP	NTNC	I	LAKE	GW
<a href="#">IN5245023</a>	IDEAL MOBILE HOME PARK	C	I	LAKE	GW
<a href="#">IN5245024</a>	INDEPENDENCE HILL WATER	C	I	LAKE	GW
<a href="#">IN2450115</a>	JANE BALL ELEMENTARY SCHOOL	NTNC	I	LAKE	GW
<a href="#">IN2450174</a>	JO-JOS RESTAURANT	NC	I	LAKE	GW
<a href="#">IN2450016</a>	JOHN WOOD ELEMENTARY	NTNC	I	LAKE	GW
<a href="#">IN5245025</a>	KINGS MOBILE HOME COURT	C	I	LAKE	GW
<a href="#">IN2450817</a>	LAKE HILLS GOLF & COUNTRY CLUB	NC	I	LAKE	GW
<a href="#">IN2450856</a>	LAKE REGION CHRISTIAN ASSEMBLY	NC	I	LAKE	GW
<a href="#">IN2450857</a>	LAKE REGION CHRISTIAN ASSEMBLY	NC	I	LAKE	GW
<a href="#">IN2450858</a>	LAKE REGION CHRISTIAN ASSEMBLY	NC	I	LAKE	GW
<a href="#">IN2450868</a>	LAKES OF THE FOUR SEASONS-WELSH MART 189	NC	I	LAKE	GW
<a href="#">IN2450047</a>	LAKESIDE MARINA, INC.	NC	I	LAKE	GW
<a href="#">IN2450339</a>	LEMON LAKE COUNTY PARK	NC	I	LAKE	GW
<a href="#">IN2450850</a>	LEMON LAKE COUNTY PARK	NC	I	LAKE	GW
<a href="#">IN2450849</a>	LEMON LAKE COUNTY PARK - AREA 2	NC	I	LAKE	GW
<a href="#">IN2450848</a>	LEMON LAKE COUNTY PARK - SHELTERS 1&9	NC	I	LAKE	GW
<a href="#">IN2450847</a>	LEMON LAKE COUNTY PARK - SHELTERS 4&5	NC	I	LAKE	GW
<a href="#">IN2450846</a>	LEMON LAKE COUNTY PARK - SHELTERS 6&7	NC	I	LAKE	GW
<a href="#">IN2450828</a>	LOVE THE VIEW	NC	I	LAKE	GW
<a href="#">IN2450881</a>	LUKE OIL CO., INC. #232	NC	I	LAKE	GW
<a href="#">IN2450860</a>	MACARTHUR SCHOOL	NTNC	I	LAKE	GW
<a href="#">IN5245026</a>	MAPLE MANOR RESIDENCE HO	C	I	LAKE	GW
<a href="#">IN2450867</a>	MARTY'S INC	NC	I	LAKE	GW
<a href="#">IN2450873</a>	MCDONALD'S - CROWN	NC	I	LAKE	GW

## ISDH Drinking Water Branch Database

	POINT				
<a href="#">IN2450223</a>	MICHAELS CAFÉ	NC	I	LAKE	GW
<a href="#">IN2080823</a>	MONTICELLO SUB DISTRICT	NC	I	LAKE	GW
<a href="#">IN2450341</a>	MR. C. ROSE	NC	I	LAKE	GW
<a href="#">IN2450175</a>	NARSHALL'S LOUNGE	NC	I	LAKE	GW
<a href="#">IN2450317</a>	NEW LIFE BIBLE BAPTIST CHURCH	NC	I	LAKE	GW
<a href="#">IN2450013</a>	NORTHERN INDIANA MATERIAL	NC	I	LAKE	GW
<a href="#">IN2450854</a>	OAK RIDGE PRAIRIE COUNTY PARK	NC	I	LAKE	GW
<a href="#">IN2450880</a>	ONE STOP #228	NC	I	LAKE	GW
<a href="#">IN5245039</a>	PAIGES MHP/INACTIVE	C	I	LAKE	GW
<a href="#">IN2450189</a>	PAULINE'S HIDE-A-WAY	NC	I	LAKE	GW
<a href="#">IN5245036</a>	PEOPLES WATER COMPANY, INC.	C	I	LAKE	SWP
<a href="#">IN2450834</a>	PHARMACY	NC	I	LAKE	GW
<a href="#">IN2450048</a>	PINE CREST RESORT AND MARINA	NC	I	LAKE	GW
<a href="#">IN2450024</a>	PROEDGE INC.	NC	I	LAKE	GW
<a href="#">IN2450010</a>	RANGE LINE PRESBYTERIAN CHURCH	NC	I	LAKE	GW
<a href="#">IN2450812</a>	RED ROCK TRADING, INC.	NC	I	LAKE	GW
<a href="#">IN2450051</a>	RESTAWHILE CONFERENCE GRO	NC	I	LAKE	GW
<a href="#">IN2450028</a>	RESURRECTION LUTHERAN CHURCH	NC	I	LAKE	GW
<a href="#">IN5245038</a>	RIDGE MOBILE HOME PARK	C	I	LAKE	GW
<a href="#">IN5245040</a>	ROSS MOBILE HOME COURT	C	I	LAKE	GW
<a href="#">IN2450819</a>	SHORE LINE FOODS	NC	I	LAKE	GW
<a href="#">IN2450235</a>	SILVER DOLLAR TAVERN	NC	I	LAKE	GW
<a href="#">IN2450818</a>	SNACK SHOP	NC	I	LAKE	GW
<a href="#">IN2450824</a>	SNACKS & POP	NC	I	LAKE	GW
<a href="#">IN2450835</a>	SPENCER BISCUIT	NC	I	LAKE	GW
<a href="#">IN2450058</a>	ST. CHRISTOPHER EPISCOPAL CHURCH	NC	I	LAKE	GW
<a href="#">IN2450802</a>	STATE POLICE DISTRICT 13	NTNC	I	LAKE	GW
<a href="#">IN2450826</a>	STEVE PIZZA PALACE	NC	I	LAKE	GW
<a href="#">IN2450340</a>	STONEY RUN COUNTY PARK	NC	I	LAKE	GW
<a href="#">IN2450852</a>	STONEY RUN COUNTY PARK (CAMPGROUND)	NC	I	LAKE	GW
<a href="#">IN5245061</a>	SUNRISE TRAILER PARK	C	I	LAKE	GW
<a href="#">IN5264034</a>	SUNRISE TRAILER PARK	C	I	LAKE	GW
<a href="#">IN2450865</a>	THE MONON DEPOT	NC	I	LAKE	GW
<a href="#">IN2450200</a>	THE PANTRY	NC	I	LAKE	GW

## ISDH Drinking Water Branch Database

<a href="#">IN2450870</a>	TINY TOWN PRE-SCHOOL & CCC	NTNC	I	LAKE	GW
<a href="#">IN2450168</a>	TOBES RESTAURANT	NC	I	LAKE	GW
<a href="#">IN2450042</a>	TOOMEY PARK RESORT	NC	I	LAKE	GW
<a href="#">IN5245045</a>	TURKEY CREEK UTILITY CORPORATION	C	I	LAKE	SWP
<a href="#">IN2450203</a>	USA FAMILY RESTAURANT	NC	I	LAKE	GW
<a href="#">IN2450815</a>	USA INTERSTATE RESTAURANT	NC	I	LAKE	GW
<a href="#">IN5245063</a>	UTILITIES INC. II	C	I	LAKE	GW
<a href="#">IN2450814</a>	WAGON WHEEL INN/WELSH OIL CO.	NC	I	LAKE	GW
<a href="#">IN2450871</a>	WESTPOINT TOLL PLAZA-INDOT	NTNC	I	LAKE	GW
<a href="#">IN2450057</a>	WILKE'S MOBILE STATION	NC	I	LAKE	GW
<a href="#">IN5245060</a>	WRIGHTS MOBILE HOME PARK #2	C	I	LAKE	GW
<a href="#">IN5245049</a>	WRIGHTS TRAILER PARK #1	C	I	LAKE	GW

### Water System No.

Water System No. is the public water system identification number assigned by the state, territory, or EPA Region plus seven digits (e.g., IN2750869).

### Water System Name

Water System Name is the name of the public water system

### Water System Type

Water systems are classified according to rules developed by the U.S. Environmental Protection Agency (EPA) and each state. Water Systems fall into two broad categories: public and non-public. A public water system can be further classified as one of the following:

C - Community	Serves at least 15 service connections used by year-round residents or regularly serves 25 year-round residents.
NTNC - Non-Transient Non-Community	Serves at least the same 25 non-residential individuals during 6 months of the year.
NC - Transient Non-Community	Regularly serves at least 25 non-residential individuals (transient) during 60 or more days per year.

# **ISDH Drinking Water Branch Database**

This classification is based on information in each of the following five areas:

1. Quantity and type of population served (e.g., transient, residential).
2. Number of days served (or annual operating period (i.e., the period(s) of the year that the water system is in operation)).
3. Number of service connections (i.e., the number of connections for each service area such as commercial, agricultural, residential).
4. Activity status of the water system (i.e., active or inactive).
5. Sources of water (e.g., reservoir, well. Sources of water may be active or inactive depending on whether the source is seasonal or year-round. The current date determines active or inactive status).

## **Status**

Status indicates whether the public water system is active (A) or inactive (I).

## **Principal County Served**

Principal County Served is the name of the county principally served by the public water system.

## **Primary Source Water Type**

Source Water Type categorizes the primary source water used by a water system. Permitted entries include the following: Primary Source categorizes the primary water source for the public water system. The source of water determines treatment requirements, or other standards. For example, the presence of any surface water sources in a public water system's inventory forces a surface water (SW) classification, even though more groundwater may be supplied than surface water. Any groundwater under the influence of surface water sources in a water system inventory necessitates a Ground Water Under the Influence of Surface Water (GUISW) classification. These higher classifications dictate higher monitoring requirements for the water system and greater public health protection.

## **ISDH Drinking Water Branch Database**

GU - Groundwater UDI Surface Water – System has a source that provides water under the direct influence of surface water (e.g., unprotected well or springs) and no surface water sources.

GUP - Purchased Groundwater UDI Surface Water – System purchases water that originates from source that provides water under the direct influence of surface water (e.g., unprotected well or springs) and no surface water sources.

GW - Groundwater – System has a groundwater source that is not under the direct influence of surface water (e.g., protected wells) and no surface water or groundwater under the influence of surface water sources.

GWP - Purchased Groundwater – System purchases water that originates from groundwater source that is not under the direct influence of surface water (e.g., protected wells) and no surface water or groundwater under the influence of surface water sources.

SW - Surface Water – System has a surface source (e.g., river, reservoir, intake).

SWP - Purchased Surface Water – System purchases water that originates from a surface source (e.g., river, reservoir, intake).

### **Address**

Address displays the complete address of the point-of-contact type selected on the Drinking Water Watch search page.

# Appendix H

PROJECT NO: 15-97010	PROJECT NAME: Hammond Pest Control	BORING NO: P-11/MW-1
BORING LOCATION: West property boundary		COORDINATES: na
DRILLING CO: CS Drilling	G.S. ELEVATION: na	LOGGED BY: S. Hoppel
DRILLER: P. Collins	STICKUP: 0.25' bgs	CHECKED BY:
DRILLING EQUIP: Geoprobe	TOP of CASING ELEVATION: 94.47'	START DATE: July 16, 2002
STATIC WATER LEVEL: 7.40' bgs	SCREEN INTERVAL: 5 to 15' bgs	START TIME (hours): 1235
BOREHOLE DIA: 6.25"	SCREEN MTL/SLOT: PVC / .010"	FINISH DATE: July 16, 2002
BORING CLOSURE: Monitoring well	RISER DIA/MTL/LGTH: 2" / PVC / 10'	FINISH TIME (hours): 1400

DEPTH	Description	GRAPHIC	WELL	SAMPLES			PID (ppm)		REMARKS
				NUMBER	RECOVERY	MOISTURE	SCAN	HEADSPACE	
0									Boring log revised on 8/22/02: description of 8' to 16' added
0 - 16.0'	Sand (0.5 - 16.0') Tan, slightly moist, fine and medium								
2		Bentonite		A	2.0	sl m	0.4	1.8	
			PVC Riser						
4	grades orange @ 4'								
6	wet @ 6.2'			B	3.7	m/w	0.5	1.5	
8	grades light brown / tan @ 8'								
10				C	3.5	w	0.0	0.0	
			PVC Screen						
12	grades light brown, well sorted @ 12'	Filter Pack Sand							
14				D	3.5	w	0.0	0.0	
16	End of Boring @ 16'								
18									

PROJECT NO:	PROJECT NAME:	BORING NO: P-9 / MW-2
BORING LOCATION: Center of former storage shed foundation		COORDINATES: na
DRILLING CO: CS Drilling	G.S. ELEVATION: na	LOGGED BY: S. Hoppel
DRILLER: P. Collins	STICKUP: 0.25' bgs	CHECKED BY:
DRILLING EQUIP: Geoprobe	TOP of CASING ELEVATION: 94.59'	START DATE: July 16, 2002
STATIC WATER LEVEL: 7.56' bgs	SCREEN INTERVAL: 5 to 15' bgs	START TIME (hours): 1200
BOREHOLE DIA: 6.25"	SCREEN MTL/SLOT: PVC / .010"	FINISH DATE: July 17, 2002
BORING CLOSURE: Monitoring well	RISER DIA/MTL/LGTH: 2" / PVC / 10'	FINISH TIME (hours): 900

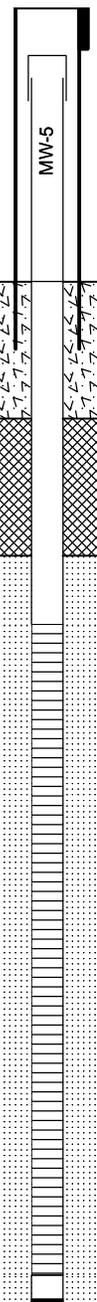
DEPTH	Description	GRAPHIC	WELL	SAMPLES			PID (ppm)		REMARKS
				NUMBER	RECOVERY	MOISTURE	SCAN	HEADSPACE	
0	Sand (0 - 16.0') Tan and black, slightly moist fine and medium, wood pieces								Boring log revised on 8/22/02: description of 8' to 16' added
2	grades orange, slightly moist @ 2'			A	10	sl m	75	195	
4	grades tan @ 4'								
6	grades gray / brown, wet @ 6 7'			B	30	m/w	48	40	
8	grades light brown @ 8'								
10				C	30	w	00	00	
12									
14		D	25	w	00	00			
16	End of Boring @ 16'								
18									

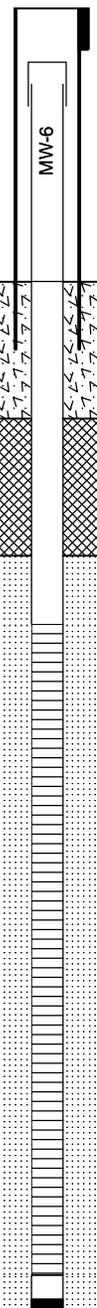
PROJECT NO: 15-97010	PROJECT NAME: Hammond Pest Control	BORING NO: P-10/MW-3
BORING LOCATION: East property boundary		COORDINATES: na
DRILLING CO: CS Drilling	G.S. ELEVATION: na	LOGGED BY: S. Hoppel
DRILLER: P. Collins	STICKUP: 0.25' bgs	CHECKED BY:
DRILLING EQUIP: Geoprobe	TOP of CASING ELEVATION: 94.52'	START DATE: July 16, 2002
STATIC WATER LEVEL: 7.52' bgs	SCREEN INTERVAL: 5 to 15' bgs	START TIME (hours): 1220
BOREHOLE DIA: 6.25'	SCREEN MTL/SLOT: PVC / .010"	FINISH DATE: July 17, 2002
BORING CLOSURE: Monitoring well	RISER DIA/MTL/LGTH: .2" / PVC / 10'	FINISH TIME (hours): 815

DEPTH	Description	GRAPHIC	WELL	SAMPLES			PID (ppm)		REMARKS
				NUMBER	RECOVERY	MOISTURE	SCAN	HEADSPACE	
0	Sand (0 - 16.0') Black and brown, dry, fine and medium, gray material grades gray / tan slightly moist @ 9'							Boring log revised on 8/22/02: description of 8' to 16' added	
2			A	28	sl m	05	18		
4	grades orange @ 4'								
6	wet @ 6.3'			B	24	m / w	04		21
8									
10				C	20	w	00	00	
12	grades light brown / tan @ 12'								
14				D	20	w	00	00	
16	End of Boring @ 16'								
18									

PROJECT NO: 15-97010	PROJECT NAME: Hammond Pest Control	BORING NO: P-2 / MW-4
BORING LOCATION: North property boundary		COORDINATES: na
DRILLING CO: CS Drilling	G.S. ELEVATION: na	LOGGED BY: S. Hoppel
DRILLER: P. Collins	STICKUP: 0.25' bgs	CHECKED BY:
DRILLING EQUIP: Geoprobe	TOP of CASING ELEVATION: 94.64'	START DATE: July 16, 2002
STATIC WATER LEVEL: 7.66' bgs	SCREEN INTERVAL: 5 to 15' bgs	START TIME (hours): 915
BOREHOLE DIA: 6.25'	SCREEN MTL/SLOT: PVC / .010'	FINISH DATE: July 17, 2002
BORING CLOSURE: Monitoring well	RISER DIAM/MTL/LGTH: 2" / PVC / 10'	FINISH TIME (hours): 730

DEPTH	Description	GRAPHIC	WELL	SAMPLES			PID (ppm)		REMARKS	
				NUMBER	RECOVERY	MOISTURE	SCAN	HEADSPACE		
0	Sand (0 - 16.0') Black, dry, fine and medium, roots grades orange slightly moist @ 5'								Boring log revised on 8/22/02: description of 8' to 16' added	
2				A	28	d	05	19		
4	grades tan @ 4'									
6	wet @ 6 5'			B	20	m/w	05	16		
8	grades light brown / tan, well sorted @ 8'									
10				C	35	w	00	00		
12										
14				D	30	w	00	00		
16	End of Boring @ 16'									
18										

<b>BORING NO.:</b> MW-5		<b>WELL NO.:</b> MW-5		<b>PROJECT NO.:</b> 19-00184		<b>PROJECT NAME:</b> Hammond Pest Control						
<b>SITE ID. NO.:</b>			<b>FEDERAL ID. NO.:</b>			<b>SITE LOCATION:</b>						
<b>COORDINATES:</b>				<b>LATITUDE: °</b>		<b>LONGITUDE: °</b>						
<b>DRILLING CO.:</b> Earth Solutions			<b>QUAD. SEC.:</b>		<b>T:</b>		<b>R:</b>		<b>G.S. ELEVATION:</b>			
<b>DRILLER:</b> L. Robles			<b>DRILLING EQUIP.:</b> Geoprobe 6610DT			<b>BOREHOLE DIA.:</b> 2 inches/4.25 inches						
<b>START DATE:</b> 7/16/2013			<b>FINISH DATE:</b> 7/16/2013			<b>LOGGED BY:</b> M. Lyter			<b>CHECKED BY:</b> G. Perkowski			
<b>START TIME (hours):</b> 0820			<b>FINISH TIME (hours):</b> 0835									
<b>STICKUP:</b> 3.3' AGS		<b>TOP OF CASING ELEVATION:</b>				<b>SCREEN INTERVAL:</b> 5.0'-14.5'						
<b>RISER DIA./MTL./LGTH.:</b> 2.0"/PVC/8.3'					<b>SCREEN MTL./SLOT:</b> PVC/0.010"							
DEPTH (ft)	DESCRIPTION	GRAPHIC	ELEVATION	WELL	SAMPLES					PID (ppm)		REMARKS
					NUMBER	RECOVERY (ft)	METHOD	MOISTURE	BLOW CNT (6")	SCAN	HEADSPACE	
-4												
0	<b>FILL (0.0'-1.0')</b> Gravel from 0.0'-0.3' Grades to sand; dark brown, moist, fine grained, some clay, trace fine gravel, roots from 0.3'-1.0'				A	3/5	HP	M	--	0.0	0.1	
2	<b>SAND (1.0'-15.0') SP</b> Tan, moist, fine grained				B		HP	M	--	0.0	0.3	
4	Orange streaking from 4.2'-4.6'				C	4/5	HP	M/W	--	0.0	0.3	
6					D		HP	W/S	--	0.0	0.4	
8	Grades wet at 7.5' Grades saturated at 7.9' trace medium grained sand from 7.9'-8.3'				E	5/5	HP	S	--	0.0	0.2	
10					F		HP	S	--	0.0	0.2	
14	Trace medium grained sand at 14.0'											
	<b>End of Boring at 15.0'</b>											
16												

<b>BORING NO.:</b> MW-6		<b>WELL NO.:</b> MW-6		<b>PROJECT NO.:</b> 19-00184		<b>PROJECT NAME:</b> Hammond Pest Control						
<b>SITE ID. NO.:</b>			<b>FEDERAL ID. NO.:</b>			<b>SITE LOCATION:</b>						
<b>COORDINATES:</b>				<b>LATITUDE: °</b>		<b>LONGITUDE: °</b>						
<b>DRILLING CO.:</b> Earth Solutions			<b>QUAD. SEC.:</b>		<b>T:</b>		<b>R:</b>		<b>G.S. ELEVATION:</b>			
<b>DRILLER:</b> L. Robles			<b>DRILLING EQUIP.:</b> Geoprobe 6610DT			<b>BOREHOLE DIA.:</b> 2 inches/4.25 inches						
<b>START DATE:</b> 7/16/2013			<b>FINISH DATE:</b> 7/16/2013			<b>LOGGED BY:</b> M. Lyter			<b>CHECKED BY:</b> G. Perkowski			
<b>START TIME (hours):</b> 1110			<b>FINISH TIME (hours):</b> 1120									
<b>STICKUP:</b> 3.2' AGS		<b>TOP of CASING ELEVATION:</b>				<b>SCREEN INTERVAL:</b> 5.0'-14.5'						
<b>RISER DIA./MTL./LGTH.:</b> 2.0"/PVC/8.2'				<b>SCREEN MTL./SLOT:</b> PVC/0.010"								
DEPTH (ft)	DESCRIPTION	GRAPHIC	ELEVATION	WELL	SAMPLES					PID (ppm)		REMARKS
					NUMBER	RECOVERY (ft)	METHOD	MOISTURE	BLOW CNT (6")	SCAN	HEADSPACE	
-4												
0	<b>FILL (0.0'-1.3')</b> Gravel, trace clay, some roots from 0.0'-0.5' Grades to sand; black, fine grained, trace fine gravel, some concrete fragments from 0.5'-1.3'				A	3/5	HP	M	--	0.0	0.1	
2	<b>SAND (1.3'-15.0') SP</b> Tan, moist, fine grained, trace clay No clay at 1.6'				B		HP	M	--	0.0	0.0	
4	Orange streaking from 4.0'-5.2'				C	4.2/5	HP	MW/S	--	0.0	0.1	
6					D		HP	S	--	0.0	0.1	
8	Grades wet at 7.0' Grades saturated at 7.4' Trace medium grained sand from 7.7'-7.9'				E	5/5	HP	S	--	0.0	0.1	
10	Black streaking from 8.7'-10.0'				F		HP	S	--	0.0	0.4	
12												
14												
16	<b>End of Boring at 15.0'</b>											

<b>BORING NO.:</b> MW-7R		<b>WELL NO.:</b> MW-7R		<b>PROJECT NO.:</b> 19-00184		<b>PROJECT NAME:</b> Hammond Pest Control					
<b>SITE ID. NO.:</b>			<b>FEDERAL ID. NO.:</b>			<b>SITE LOCATION:</b> Hammond, IN					
<b>COORDINATES:</b>				<b>LATITUDE:</b> °		<b>LONGITUDE:</b> °					
<b>DRILLING CO.:</b> C.S. Drilling Inc.			<b>QUAD.:</b>		<b>SEC.:</b>		<b>T:</b>		<b>R:</b>		<b>G.S. ELEVATION:</b> 97.76 ft (Relative Elev.)
<b>DRILLER:</b> M. Natali			<b>DRILLING EQUIP.:</b> Geoprobe 7822DT				<b>BOREHOLE DIA.:</b> 2 inches/ 6 inches				
<b>START DATE:</b> 2/27/2018			<b>FINISH DATE:</b> 2/27/2018				<b>LOGGED BY:</b> M. Lyter				
<b>START TIME (hours):</b> 0930			<b>FINISH TIME (hours):</b> 1210				<b>CHECKED BY:</b> J. Depa				
<b>STICKUP:</b> 3.03' AGS		<b>TOP OF CASING ELEVATION:</b> 100.79 ft (Relative Elev.)				<b>SCREEN INTERVAL:</b> 4.85'-14.95'					
<b>RISER DIA./MTL./LGTH.:</b> 2.0"/SS/7.88'						<b>SCREEN MTL./SLOT:</b> SS/0.010"					
DEPTH (ft)	DESCRIPTION	GRAPHIC	ELEVATION	WELL	SAMPLES					REMARKS	
					NUMBER	RECOVERY (ft)	METHOD	MOISTURE	BLOW CNT (6")		SCAN
-4											
0	<b>TOPSOIL (0.0'-0.5')</b> Brown, moist, soft, with fine grained sand, organics and roots		97.76								
0			97.3								
2	<b>SAND (0.5'-15.0') SP</b> Tan with brown, moist, medium loose, fine grained sand Grades to no brown at 1.4' Grades with orange mottles at 2.5'				A	3.8/5	HP	M	--	--	--
6	Grades with trace medium grained sand at 6.5' Grades dense, wet at 7.0'				B	4/5	HP	M/W/S	--	--	--
8	Grades brown, saturated at 7.7'										
10	Medium grained sand seams and black organic seams from 8.8'-9.0' Snail shell fragments at 9.1' Grades gray at 9.8'				C	4.1/5	HP	S	--	--	--
15.0	<b>End of Boring at 15.0'</b>		82.8								
16											

PROJECT NO: 15-97010	PROJECT NAME: Hammond Pest Control	BORING NO: P-12
BORING LOCATION: East of HWMU		COORDINATES: na
DRILLING CO: CS Drilling	G.S. ELEVATION: na	LOGGED BY: S. Hoppel
DRILLER: B. Mitchell	STICKUP: na	CHECKED BY:
DRILLING EQUIP: Geoprobe	TOP of CASING ELEVATION: na	START DATE: July 28, 2003
STATIC WATER LEVEL: na	SCREEN INTERVAL: na	START TIME (hours): 1000
BOREHOLE DIA: 2.5"	SCREEN MTL/SLOT: na	FINISH DATE: July 28, 2003
BORING CLOSURE: Bentonite Chips	RISER DIAM/TL/LGTH: na	FINISH TIME (hours): 1030

DEPTH	Description	GRAPHIC	WELL	SAMPLES			PID (ppm)		REMARKS
				NUMBER	RECOVERY	MOISTURE	SCAN	HEADSPACE	
0	Grass / Topsoil (0.0 - 0.5')								
2	Sand (0.5 - 12.0') Dark brown and black, damp, fine and medium, some fine and medium gravel fill grades tan, no gravel fill @ 1'			A	40	dp	00	00	
4	grades orange @ 4'								
6	some iron staining @ 6'			B	34	m	00	00	
7	grades moist @ 7'								
8	wet @ 8'								
10				C	40	w	00	00	
12	End of Boring @ 12 258'								
14									

PROJECT NO:	PROJECT NAME:	BORING NO: P-13
BORING LOCATION: Northeast of HWMU		COORDINATES: na
DRILLING CO: CS Drilling	G.S. ELEVATION: na	LOGGED BY: S. Hoppel
DRILLER: B. Mitchell	STICKUP: na	CHECKED BY:
DRILLING EQUIP: Geoprobe	TOP of CASING ELEVATION: na	START DATE: July 28, 2003
STATIC WATER LEVEL: na	SCREEN INTERVAL: na	START TIME (hours): 1036
BOREHOLE DIA: 2.5"	SCREEN MTL/SLOT: na	FINISH DATE: July 28, 2003
BORING CLOSURE: Bentonite Chips	RISER DIA/MTL/LGTH: na	FINISH TIME (hours): 1100

DEPTH	Description	GRAPHIC	WELL	SAMPLES			PID (ppm)		REMARKS
				NUMBER	RECOVERY	MOISTURE	SCAN	HEADSPACE	
0	Grass / Topsoil (0 0 - 0.5')								
2	Fill (0.5 - 4.0') Sand (f,m), paper, plastic, root material, dark brown slightly moist			A	20	sl m	00	00	
4	Sand (4.0 - 8.0') Brown slightly moist fine and medium								
6	wet @ 6'			B	37	m/w	00	00	
8	End of Boring @ 8'								
10									
12									
14									

PROJECT NO: 15-97010	PROJECT NAME: Hammond Pest Control	BORING NO: P-14
BORING LOCATION: North of HWMU		COORDINATES: na
DRILLING CO: CS Drilling	G.S. ELEVATION: na	LOGGED BY: S. Hoppel
DRILLER: B. Mitchell	STICKUP: na	CHECKED BY:
DRILLING EQUIP: Geoprobe	TOP of CASING ELEVATION: na	START DATE: July 28, 2003
STATIC WATER LEVEL: na	SCREEN INTERVAL: na	START TIME (hours): 1109
BOREHOLE DIA: 2.5"	SCREEN MTL/SLOT: na	FINISH DATE: July 28, 2003
BORING CLOSURE: Bentonite Chips	RISER DIA/MTL/LGTH: na	FINISH TIME (hours): 1130

DEPTH	Description	GRAPHIC	WELL	SAMPLES			PID (ppm)		REMARKS
				NUMBER	RECOVERY	MOISTURE	SCAN	HEADSPACE	
0	Crushed Stone (0.0 - 0.5')								
	Fill (0.5 - 1.3') Sand and gravel (f,m), slag, black slightly moist								
2	Sand (1.3 - 12.0') Tan and black, damp, fine and medium			A	29	dp	00	00	
	grades brown @ 3'								
4	grades orange @ 5'								
6				B	38	m	00	00	
8	grades moist @ 8'								
	wet @ 9'								
10				C	35	w	00	00	
12	End of Boring @ 12'								
14									

# Appendix I

## **STATISTICAL EVALUATION PLAN FOR EVALUATION OF POST-CLOSURE GROUNDWATER MONITORING DATA**

### **Hammond Pest Control, Hammond, Indiana**

Pursuant to the Post Closure Permit for this site, Hammond Pest Control (HPC) initiated post-closure quarterly monitoring of its closed hazardous waste unit in November 2015. The existing monitoring wells MW-1 through MW-7R (see Figure D-10 in the Post-Closure Permit Application) are being sampled quarterly until a plume stabilization determination has been made. (Post Closure Permit Section D-5h(5)(a)).

HPC will utilize the Mann-Kendall (MK) trend test at the 95% confidence level (U.S. EPA, 2014) or equivalent to evaluate the stability of the detected hazardous constituents in the monitoring wells (Post Closure Permit Section D-5h(7)). The MK trend test is the default approach cited in the *IDEM RISC Technical Guide* (2001) for plume stability monitoring. The MK trend test is an individual well comparison method which is an appropriate type of test to use for this project because only three hazardous constituents have been detected in four wells. This method is a non-parametric test and thus is not dependent on assumptions of distribution. Quarterly sampling will address any potential seasonal variability as the groundwater is being sampled during each of the four quarters of the year. Spatial variability is not a concern since only four wells have had detectable concentrations of hazardous constituents.

The MK trend test involves computing a statistic  $S$ , which is the difference of the number of pairwise slopes that are positive minus the number that are negative. If  $S$  is a large positive value, there is evidence of an increasing concentration trend. If  $S$  is a large negative value, there is evidence of a decreasing concentration trend. If  $S$  is close to zero (i.e., similar number of negative and positive slopes), then the concentration trend is stable.

The USEPA ProUCL statistical software, or equivalent, will be used to conduct the trend tests. When the dataset includes results below the detection limit, those results will be evaluated at half the lowest detection limit of the dataset. When the dataset includes duplicate sample data, the highest concentration of the normal and duplicate sample will be used.

In accordance with the Post-closure Permit, if monitoring wells MW-2, MW-3, MW-6, and MW-7R demonstrate a statistically stable/no trend or decreasing trend, a request will be submitted to

IDEM for closure with the intent that no additional monitoring would occur within the plume and/or individual wells within the plume. If this demonstration cannot be made, quarterly groundwater monitoring will continue.

The general procedures for conducting the MK trend test are detailed in Appendix 3 to the *RISC Technical Guide* (see Attachment). To demonstrate how the calculation of the S statistic is conducted, a matrix adapted from Appendix 3 of the *RISC Technical Guide* is presented below. An example calculation of the S statistic and the determination of the concentration trend follows.

**Data Matrix for Calculating Mann-Kendall Statistic (S)**

Time	T1	T2	T3	T4	T5	T6	T7	T8	No. of +	No. of -
Conc.	C1	C2	C3	C4	C5	C6	C7	C8		
C1		C2-C1	C3-C1	C4-C1	C5-C1	C6-C1	C7-C1	C8-C1		
C2			C3-C2	C4-C2	C5-C2	C6-C2	C7-C2	C8-C2		
C3				C4-C3	C5-C3	C6-C3	C7-C3	C8-C3		
C4					C5-C4	C6-C4	C7-C4	C8-C4		
C5						C6-C5	C7-C5	C8-C5		
C6							C5-C6	C8-C6		
C7								C8-C7		
								<b>Totals</b>	<b>Total +'s</b>	<b>Total -'s</b>

Statistic S equals the absolute value of the total +'s minus total -'s

**ATTACHMENT**

# Appendix J

## **REFERENCES**

- Cohen, D.A., T.K. Greeman and P.M. Buszka. 2002. Surface-Water and Ground-Water Hydrology and Contaminant Detections in Ground Water for a Natural Resource Damage Assessment of the Indiana Harbor Canal and Nearshore Lake Michigan Watersheds, Northwest Indiana. U.S. Geological Survey – Administrative Report.
- Domenico, P.A. and F.W. Schwartz, 1990. *Physical and Chemical Hydrogeology*, John Wiley & Sons, New York, 824 p.
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- Indiana Department of Environmental Management, 1997. *Hazardous Waste Management Unit Closure Guidance*. Office of Solid and Hazardous Waste Management.
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- United States Geological Survey, 2012. *Calumet City, Illinois-Indiana Quadrangle, Illinois-Indiana. 7.5-Minute Series Topographic Map*.
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