REMEDIAL INVESTIGATION REPORT

SITE 0153

INDIANAPOLIS, INDIANA

U.S. EPA ID NUMBER: INN000510936

PREPARED BY:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF LAND QUALITY

SITE INVESTIGATION PROGRAM

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EXECUTIVE SUMMARY

The Indiana Department of Environmental Management (IDEM) has prepared this Remedial Investigation Report (RI) and follow-on documents {Feasibility Study (FS) and Human Health and Ecological Risk Assessment (HHERA)} to fulfill the requirements of the Memorandum of Agreement (MOA), which deferred listing of the Site ("Site 0153") on the Superfund National Priorities List (NPL).

Citizens Water (Citizens) operates the public drinking water supply for the City of Indianapolis, Marion County, Indiana. In 2013, Citizens notified IDEM that low levels of chlorinated volatile organic compounds (cVOCs) had been detected in the untreated ("raw") groundwater at certain wells located within the Riverside and White River Wellfields (the Wellfields). In 2014, IDEM sampled and found low levels of cVOCs in five of the 17 water production wells. Detected cVOC concentrations in the "raw" water samples were below the maximum contaminant levels (MCLs) allowed by the United States Environmental Protection Agency (U.S. EPA) under the Safe Drinking Water Act (SDWA).

On April 7, 2016, U.S. EPA published a Proposed Rule in the Federal Register, proposing to include the Site on the U.S. EPA's NPL. Following publication of the Proposed Rule, and in response to public and local government concerns, IDEM determined it would be in the best interests of the public, local citizens, the State, and the City of Indianapolis to address Site 0153 at the state level in IDEM's State Cleanup Program (SCP) rather than via the federal Superfund process. During 2016, IDEM officials, the Governor's Office, the Mayor's office, Citizens, and members of the general public requested in letters, meetings, and formal comments on U.S. EPA's proposed rule that U.S. EPA should not list the Site on the NPL, and instead allow IDEM to manage the investigation and remedial actions of Site 0153 pursuant to a state-lead "Alternative Plan." In an August 2016 letter, IDEM's former Commissioner, Carol Comer, formally withdrew support for and rescinded IDEM's August 2015 request to include Site 0153 on the NPL.

This IDEM withdrawal was based on many factors including additional historic Wellfield data not previously available to U.S. EPA leading up to the Proposed Rule. The additional data was made available by Citizens and identified that cVOC concentrations in the Wellfields were actually decreasing. Furthermore, with the exception of one well (WR-3), all cVOC concentrations in raw groundwater were below MCLs. IDEM's withdrawal request also identified that many of the surrounding sites potentially contributing impacts to the Wellfields

were already in an IDEM remediation program {e.g. SCP, Voluntary Remediation Program (VRP), Indiana Brownfields Program (BFP), etc.}, making a Superfund designation redundant and unnecessary. Many of the sites had already completed remediation or were on track to do so, which contributed to the decreasing concentrations observed in the Wellfields. IDEM noted that withdrawing Site 0153 from inclusion on the NPL did not eliminate the need to address the cVOC impacts but doing so through the SCP was potentially timelier and more effective than through the more formal Superfund process. To that end, the Alternative Plan was proposed by IDEM and Citizens to protect human health and the environment. The Alternative Plan, which outlined a plan for addressing Wellfield impacts, was included as an exhibit to the August 2016 IDEM withdrawal letter and to the MOA. The Alternative Plan is described in more detail below.

After receipt of public comments opposed to listing the Site on the NPL, U.S. EPA began discussions with IDEM in October 2016 to identify the criteria that IDEM would need to satisfy in order for U.S. EPA to consider allowing IDEM to manage Site 0153 in lieu of U.S. EPA. These discussions resulted in the execution of the Site 0153 MOA on June 8, 2017. The MOA specifies the expectations and obligations of each agency regarding Site 0153 and memorializes the agreements necessary to ensure that the response actions undertaken at Site 0153 achieve a "Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-protective cleanup". During this process, IDEM designated the area as Site 0153 and discontinued use of the title "Riverside Groundwater Contamination" for the Site.

The MOA includes programmatic expectations including implementation requirements, procedural requirements, community participation requirements, and completion of state response action requirements to support de-proposal from the NPL. The MOA also included the Alternative Plan for addressing impacts at Site 0153. As a part of the Alternative Plan, IDEM and Citizens committed to the following response actions to address detections of cVOCs in the Wellfields and ensure protection of human health and the environment:

- IDEM would conduct a comprehensive search for Potential Responsible Parties (PRPs) to identify the potential sources of cVOC impacts identified in the Wellfields.
- IDEM would oversee investigations of the potential sources of cVOC impacts and manage identified sources through one of the various remediation programs at IDEM to address their contributions to the Wellfields.
- Citizens would remove the only production well above an MCL, WR-3, from service, install aeration equipment to reduce cVOCs, and complete confirmatory sampling of post-treatment water before returning the well to service.

- Citizens would complete the same response action (removal from service, installation of aeration equipment, and completion of confirmatory sampling prior to returning the well to service) if any other production wells exceeded an MCL[1] in the future.
- Citizens would increase the frequency of sampling its production wells for VOCs from semi-annual to quarterly, and would develop and implement a revised Groundwater Monitoring Plan to monitor concentrations in the Wellfields, provide a plan to address potential detections, and ensure continued safety of the drinking water.

IDEM has since taken the lead to investigate the definitive source of these low levels of cVOCs in groundwater and will oversee any necessary cleanup activities. Currently, a definitive source(s) of the cVOCs detected in the Wellfields has not been identified. It is likely that a number of individual sources may be contributing to a commingled groundwater plume, which is impacting the Wellfields. In order to address the impacts to the Wellfields, IDEM is managing individual releases within Site 0153 through one of the various remediation programs at IDEM.

Throughout this investigation, Citizens has continued to monitor cVOC levels within the production wells, while the IDEM has actively pursued identifying PRPs. PRPs were identified based on facilities that were located within or in close proximity to the five-year time of travel to the Wellfields, that were suspected or known to have used cVOCs. PRPs will be responsible for conducting their own site investigations and remediation, under directive from IDEM, to eliminate their potential cVOC impact contributions to the Wellfields. In addition, IDEM completed a Community Involvement Plan, held several public information meetings in various neighborhoods within Site 0153, and scheduled bi-monthly stakeholder meetings with the City of Indianapolis, Citizens, and the Marion County Public Health Department (MCPHD) to coordinate complete responses to public concerns.

IDEM also continues to support all stakeholders to ensure proposed developments in the area of Site 0153 continue while assuring any potential contamination that may be encountered is addressed responsibly. To facilitate development in the area, a number of production wells within the Riverside Wellfield have been removed from service and abandoned. Due to the loss of production capacity associated with these abandonments, Citizens may need to install additional production wells in the future to meet the needs of the community. These developments have created and will continue to create on-going changes to the composition and hydraulic dynamics of the Wellfields. Throughout development in the area of Site 0153 and the potential subsequent changes to the composition of the Wellfields, Citizens will continue its commitment to providing safe drinking water to the City of Indianapolis.

[1] Exceedances of an MCL will be determined through quarterly sampling conducted by Citizens Water. An MCL exceedance will be determined by a running annual average of all samples taken from an individual production well. If any sample result will cause the running annual average to exceed the MCL, the production well will be considered above the MCL. The MCL exceedance criteria is adapted from 327 Indiana Administrative Code (IAC) 8-2-5.5 (15)(A) and (C).

As noted above, IDEM is managing characterization and cleanup of potential sources within the area of Site 0153 under individual State Programs. By doing so, this allows for potentially timelier and more effective cleanups than through the more formal Superfund process. Prior to formation of Site 0153, several of the surrounding sites potentially contributing impacts to the Wellfields were already enrolled in an IDEM remediation program, making a Superfund designation redundant and unnecessary. Many of the sites had already completed remediation under a State Program or were on track to do so, which contributed to the decreasing concentrations observed in the Wellfields. Although a definitive source(s) has not been identified to date, individual potential sources to the Wellfields are currently being addressed through various State Programs. Additionally, further investigations of potential sources to the Wellfields will continue. As such, the purpose of this Remedial Investigation Report is to characterize Site conditions, summarize PRP investigations[2] and investigations within the Wellfields, discuss the fate and transport of chemicals affecting the Wellfields, evaluate the nature and extent of groundwater contaminants within the Wellfields, and summarize risk to human health and the environment. To that end, the "Study Area" of the RI is focused primarily on the Wellfields, as well as individual sites in the five-year time of travel.

Priority levels (low, medium, and high) were assigned to facilities/PRP sites within a "focused area of interest", based on degree of contamination and proximity to the impacted wells. This RI includes site summaries for all the high and medium priority sites completing investigation/remediation activities under a State Program, as well as other sites with relevant background information. To date, seven (7) high-priority and 13 medium-priority sites have been identified within the five-year time of travel, as potential contributors to the cVOC impacts in the Wellfields. All of the priority PRPs are currently enrolled in one of the IDEM remediation programs and are at various stages of the investigation/remediation process. Individual site investigations have consisted of identifying potential source areas of cVOCs in soil and evaluating groundwater impacts. Several individual site investigations have also included off-site soil and groundwater delineation activities, as well as vapor intrusion investigation/mitigation activities (both on- and off-site). Six (6) high and medium-priority sites have conducted remediation activities and/or are actively in the remediation process. Individual PRPs have been and will be responsible for conducting their own site investigations[3] and remediation, under directive from the IDEM, to eliminate their potential cVOC impact contributions to the Wellfields. Although not all investigation and remediation of discrete PRP sites are complete,

[2] PRP investigations are summarized in this RI. A complete record of correspondences and reports detailing investigations for each of these properties is maintained on the IDEM Virtual File Cabinet (VFC) under each of their respective Land Site ID numbers.

[3] The level, degree, and need for investigation of different mediums at individual sites will vary from site to site based on individual site conditions. Investigations at individual PRP sites may include (but not necessarily limited to): source identification, surface and subsurface soils, groundwater, impacts to private wells, soil gas and potential vapor intrusions, surface water, sediment, and ecological impacts. All investigations conducted by PRPs have been and will be conducted under the oversight of IDEM.

IDEM believes that adequate information is available to rely on for decision making purposes as it pertains to the overall protection of the Wellfields and safety of drinking water supply.

The U.S. EPA's Guidance for Conducting Remedial Investigations/Feasibility Studies under CERCLA (U.S. EPA, 1988) was used during the development of this report.

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ABBREVIATIONS & ACRONYMS

1,1-DCA	1,1-Dichloroethane
1,1-DCE	1,1-Dichloroethene
1,1,1-TCA	1,1,1-Trichloroethane
AS	Air Sparge
AST	Above Ground Storage Tank
BFP	Indiana Finance Authority's Brownfields Program
bg.	Below Grade
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
cis-1,2-DCE	cis-1,2-Dichloroethene
CNTS	Covenant Not to Sue
COC	Chemical of Concern
COPCs	Constituents of Potential Concern
CSM	Conceptual Site Model
cVOC	Chlorinated Volatile Organic Compound
DNAPL	Dense Non-aqueous Phase Liquid
DNP	Division of Nature Preserves
ERC	Environmental Restrictive Covenant
ESA	Environmental Site Assessment
ETR	Endangered, Threatened, and/or Rare
EPC	Exposure Point Concentration
F	Fahrenheit
FS	Feasibility Study
FSI	Further Site Investigation
ft.	Feet
GIS	Geographic Information System
gpm	Gallons Per Minute
HHERA	Human Health and Ecological Risk Assessment
HP	Heritage Program
HPT	Hydraulic Profiling Tool
HRS	Hazard Ranking System
IC	Indiana Code
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resources
K_{oc}	Soil Adsorption Coefficient
LSI	Limited Subsurface Investigation
LUST	Leaking Underground Storage Tank
MCL	Maximum Contaminant Level
MCPHD	Marion County Public Health Department
mi^2.	Square Mile
MIP	Membrane Interface Probe
MOA	Memorandum of Agreement
MTG	Migration to Groundwater
NAPL	Non-aqueous Phase Liquid
NCP	National Contingency Plan

NFA	No Further Action
NOL	Notice of Liability
NPL	National Priorities List
OS	Ozone Sparge
PA	Preliminary Assessment
PC	Potential Contaminant
PCE	Perchloroethylene and Tetrachloroethene
ppb	Parts Per Billion
ppm	Parts Per Million
PRP	Potentially Responsible Party
QA/QC	Quality Assurance/Quality Control
RCG	Remediation Closure Guide
RFI	Request for Information
RI	Remedial Investigation
RISC	Risk Integrated System of Closure
RME	Reasonable Maximum Exposure
RSL	Regional Screening Level
RTW	Residential Tap Water
RWP	Remediation Work Plan
SCP	State Cleanup Program
SDWA	Safe Drinking Water Act
SI	Site Inspection
SL	Screening Level
SSI	Supplemental Site Investigation
SVE	Soil Vapor Extraction
TCE	Trichloroethylene
Trans-1,2-DCE	Trans-1,2-Dichlorethene
UCL	Upper Confidence Limit
UST	Underground Storage Tank
U.S. EPA	United States Environmental Protection Agency
U.S. FWS	United States Fish and Wildlife Service
VC	Vinyl chloride
VFC	Virtual File Cabinet
VIGWSL	Vapor Intrusion Groundwater Screening Level
VOC	Volatile Organic Compound
VRP	Voluntary Remediation Program
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Plan

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1.0 INTRODUCTION

The 0153/Riverside Groundwater Contamination Site ("Site 0153" or "Site") is located in Indianapolis, Marion County, Indiana and consists of an area of impacted groundwater in vicinity of the Riverside and White River Municipal Wellfields (Wellfields). The Wellfields are owned and operated by Citizens Water (Citizens). Low levels of chlorinated volatile organic compounds (cVOCs) have been detected in untreated "raw" groundwater samples collected from certain water production wells. Treated ("finished") water and the drinking water provided to customers by Citizens Water is safe. All drinking water provided to customers has met and continues to meet all requirements of the Safe Drinking Water Act (SDWA).

In order to address the impacts to the Wellfields, the Indiana Department of Environmental Management (IDEM) is managing potential individual sources within Site 0153 through one of the various State remediation programs. The IDEM initially identified 89 potential sources of cVOC impacts within a five-year time of groundwater travel to the Wellfields; however, a definitive source(s) of cVOCs impacting the Wellfields has not been identified to-date. It is likely that a number of individual sources may be contributing to a commingled groundwater plume, which are together, impacting the Wellfields. Individual Potentially Responsible Parties (PRPs) have been and will be responsible for conducting their own site investigations and remediation, under directive from the IDEM, to eliminate their potential cVOC impact contributions to the two Wellfields. During this investigation, Citizens has continued to monitor cVOC levels within the production wells, while the IDEM has actively pursued identifying PRPs within the boundary of Site 0153, narrowed the list of PRPs, and provided oversight to PRPs currently managed within a remediation program at the IDEM.

1.1 Purpose of the Report

In accordance with the *Memorandum of Agreement Between United States Environmental Protection Agency, Region 5 and the Indiana Department of Environmental Management for the 0153/Riverside Ground Water Contamination Site, Indianapolis, Indiana* (MOA), dated June 8, 2017, the IDEM has completed this Remedial Investigation (RI) Report for Site 0153 in Indianapolis, Marion County, Indiana. The United States Environmental Protection Agency (U.S. EPA) is no longer considering Site 0153 for inclusion on the National Priorities List (NPL) and is allowing the IDEM to ensure necessary investigations and response actions are completed at the Site under the IDEM's State Cleanup Program (SCP) {or similar program e.g. Voluntary Remediation Program (VRP)}. As indicated in the MOA, IDEM response actions for the Site must be substantially similar to that of the Comprehensive Environmental Response,

Compensation, and Liability Act (CERCLA) of 1980 and the National Contingency Plan (NCP). This RI has been conducted in a manner necessary to meet the requirements of a "CERCLA-protective cleanup" (MOA, June 8, 2017). A copy of the MOA is provided as **Appendix A**.

IDEM is managing characterization and cleanup of potential sources within the area of Site 0153 under individual State Programs. The purpose of this RI is to characterize Site conditions, summarize PRP investigations and investigations within the Wellfields, discuss the fate and transport of chemicals affecting the Wellfields, evaluate the nature and extent of groundwater contaminants within the Wellfields, and summarize risk to human health and the environment. To that end, the RI is focused primarily on the Wellfields. Additionally, this RI summarizes potential off-Site contaminant sources from properties in close proximity to the Wellfields. A Vicinity Map for Site 0153 is provided as **Figure 1**.

1.2 Site Background

1.2.1 Site Description

Site 0153 consists of an area of impacted groundwater in vicinity of the Wellfields. Site 0153 is depicted on **Figure 1**. In addition to the Wellfields, Site 0153 contains a mix of residential, commercial, industrial, and recreational properties. Major water bodies within the Site include the White River, Fall Creek, and the Indianapolis Water Company Canal.

1.2.2 Study Area (Riverside and White River Wellfields)

The general location of the Wellfields is depicted on **Figure 1.**

1.2.2.1 Riverside Wellfield Description

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1.2.2.2 White River Wellfield Description

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1.2.3 Site History

Citizens operates the public drinking water supply for the City of Indianapolis, Indiana. As part of its drinking water operations, Citizens mixes groundwater from its Wellfields with surface water from the Indianapolis Central Canal. The mixed water is then treated and filtered "finished". This "finished" drinking water is then distributed to customers. To ensure the safety of the drinking water, Citizens routinely samples the "finished" water for over 300 constituents, including cVOCs. In addition, Citizens has routinely collected and analyzed untreated groundwater samples from individual production wells.

On February 20, 2013, IDEM staff received notice from Citizens that cVOCs were being detected in the "raw" groundwater prior to treatment at the Riverside Municipal Wellfield. Citizens was concerned that the increasing levels of vinyl chloride (VC) in production well RS-29 were approaching the Maximum Contaminant Level (MCL), which is the drinking water standard established by the U.S. EPA pursuant to the SDWA. Citizens expressed concern that the increasing VC levels might adversely impact the use of the well to supply drinking water to residents in Indianapolis. The Riverside Wellfield lies adjacent to the White River Wellfield. Both Wellfields have been impacted by cVOCs migrating to their respective production wells.

As part of the Superfund site assessment process and under a Cooperative Agreement with the U.S. EPA, the IDEM prepared a Preliminary Assessment Report (PA Report), dated November 1, 2013 and a Site Inspection Report (SI Report), dated October 23, 2014. A copy of the PA Report and the SI Report are provided in **Appendix B** and **Appendix C,** respectively (**APPENDICES REDACTED DUE TO CLAIM OF CONFIDENTIALITY – CONFIDENTIAL – NOT SUBJECT TO PUBLIC DISCLOSURE FOR REASONS OF PUBLIC SAFETY, AND CONFIDENTIAL BUSINESS INFORMATION)**. Using data collected during the SI, a Hazard Ranking System (HRS) documentation record was submitted to U.S. EPA determining that the Site qualified for inclusion on the NPL.

In a letter dated August 13, 2015, IDEM's former Commissioner, Thomas Easterly, requested inclusion of the Site on the NPL of hazardous waste sites. In April 2016, U.S. EPA published a Proposed Rule in the Federal Register, proposing to include Site 0153 on the U.S. EPA's NPL. The IDEM, responsive to public requests, subsequently determined that it would be in the best interests of the State and the City of Indianapolis to address the Site in the IDEM's SCP rather than via the federal Superfund Process. During 2016, IDEM officials, the Governor's Office, the Mayor's office, Citizens, and members of the general public requested in letters, meetings, and formal comments on U.S. EPA's proposed rule that U.S. EPA should not list the Site on the NPL, and instead allow IDEM to manage the investigation and remedial actions of Site 0153 pursuant to a state-lead

"Alternative Plan." In a letter dated August 18, 2016, the IDEM's former Commissioner, Carol Comer, formally withdrew support for and rescinded IDEM's August 2015 request to include the Site 0153 on the NPL.

After receipt of public comments opposed to listing the Site on the NPL, U.S. EPA began discussions with IDEM in October 2016 to identify the criteria that IDEM would need to satisfy in order for U.S. EPA to consider allowing IDEM to manage Site 0153 in lieu of U.S. EPA. These discussions resulted in the execution of the Site 0153 MOA on June 8, 2017. The MOA specifies the expectations and obligations of each agency regarding Site 0153 and memorializes the agreements necessary to ensure that the response actions undertaken at Site 0153 achieve a "CERCLA-protective cleanup".

In accordance with the Alternative Plan included in the MOA, production well WR-3 was shut down in 2016 due to trichloroethylene (TCE) concentrations that exceeded the MCL. Citizens subsequently installed an aeration system on production well WR-3 beginning in September 2019 with construction completion in late January 2020. Citizens conducted testing efforts on well WR-3 from February through April 2020. Well WR-3 is currently back in service and all "raw" water generated from the production well is below MCLs.

1.2.4 Previous Investigations

As part of the Superfund site assessment process and under a Cooperative Agreement with the U.S. EPA, the IDEM prepared a PA Report, dated November 1, 2013 (**Appendix B**). The primary objectives of a PA under the Superfund program are to:

- Collect readily available information and conduct a site and environmental reconnaissance;
- Distinguish between sites that pose little or no risk to human health and the environment and sites that require further investigation; and
- Identify sites, after assessment, for possible emergency response actions.

The PA Report summarized findings during a Site reconnaissance conducted by the IDEM, the U.S. EPA, and Citizens representatives on June 18, 2013:

- Identified potential source facilities with known groundwater contamination in the immediate vicinity of the Site;
- Summarized management activities by IDEM at the potential sources, and;
- Evaluated potential migration pathways.

Following the PA, the Site continued in the Superfund site assessment process to the next step of conducting an SI to determine if the Site warranted further investigation under the CERCLA. The primary objectives of an SI under the Superfund program are to:

- Collect data for the HRS. The HRS is required to make the determination of whether the Site should be placed on the NPL, and;
- Identify sites that may require removal actions to address immediate threats to human health and/or the environment.

The SI Report, dated October 23, 2014, summarized analytical results of groundwater samples collected from 17 production wells in the Wellfields on May 20 & 21, 2014 (**Appendix C**). Several groundwater samples contained detectable concentrations of cVOCs, however, cVOC concentrations did not exceed any drinking water MCLs set by the U.S. EPA. The SI Report also summarized potential sources identified within the 5-year time of travel for the Wellfields and evaluated potential migration pathways.

1.3 Report Organization

This RI Report has seven main sections. Section 1.0 describes the Site and Site history. Section 2.0 summarizes investigations conducted within the Wellfields and surrounding area. Section 3.0 describes the physical characteristics of the Study Area. Section 4.0 covers the nature and extent of contamination. Section 5.0 covers contaminant fate and transport. Section 6.0 summarizes the Human Health and Ecological Risk Assessment (HHERA). Section 7.0 provides a summary and conclusions regarding the RI.

2.0 STUDY AREA INVESTIGATIONS

As previously stated, the primary focus of the RI is the Wellfields (**Figure 1**). Additionally, this RI summarizes potential off-Site contaminant sources from properties in close proximity to the Wellfields.

Impacts to groundwater have migrated to the production wells from source(s) within the Site 0153 boundary. As proposed by the IDEM as an alternative plan (IDEM, August 18, 2016) and accepted by the U.S. EPA in Section IV. *Procedural Requirements* subpart B. *Schedule of Performance* of the MOA, individual PRPs are responsible for conducting investigations (and remediation) at their facility under the direction of the IDEM. During this investigation the IDEM has actively pursued identifying PRPs, narrowed the list of PRPs, and provided oversight to PRPs currently managed within a remediation program at the IDEM.

The IDEM reviewed records for every commercial/industrial property located within the Site 0153 five-year time of travel boundary to identify PRPs. The Site was divided into manageable sections among IDEM Project Managers and an initial review using city directories, beginning as early as 1950 and ending with the most recent available directory (2017), was conducted to identify properties of potential concern. This resulted in further review of over 3,929 PRPs, most of which had no environmental issues (i.e., no history of a documented release, cVOC usage, or cVOC related waste generation). In general, the records investigation area for Site 0153 is

bordered by 35th Street to the north, Holt Road to the west, Washington Street to the south, and Central Avenue to the east. The records investigation area, along with the most recent IDEM action completed at each facility, is depicted on **Figure 2.**

Records reviewed for properties of potential concern included: IDEM records, Sanborn Fire Insurance Maps, aerial photographs, property ownership records, Marion County Public Health Department (MCPHD) records, and hazardous waste manifest records. Activities on these properties and suspected chemical use were evaluated to determine which properties should be further evaluated. Properties that warranted further investigation and which were not currently in an IDEM remediation program were sent a Request for Information (RFI) letter. All properties that received an RFI letter are depicted on **Figure 3** and listed on **Table 3**. The IDEM RFI letters requested the PRP to furnish information relating to the past or present use of cVOCs or products containing tetrachloroethene (PCE) and/or TCE at the property in question. To date, the IDEM has sent approximately 140 RFI letters to current/historic owners and operators of a total of 104 properties. Information provided in response to the RFI letters and other information available to IDEM was used to determine next steps (if any) necessary for each PRP. A record of all RFIs mailed and responses received is maintained on the IDEM Virtual File Cabinet (VFC) under Land Site ID 0000635.

If warranted, PRPs were then assigned individual site numbers and issued a Notice of Liability (NOL) letter, which triggered liability of property owners or responsible persons. All properties that received an NOL letter are depicted on **Figure 4** and listed on **Table 3**. The NOL requires the PRP to confirm the potential for release or spill of chemicals, and requires completion of an investigation and cleanup, if necessary. The IDEM has sent a total of 25 NOL letters, including sites that were already enrolled in an IDEM remediation program prior to the formation of Site 0153. Of the 25 facilities that received NOLs, 17 facilities are actively investigating contamination and 8 have received a No Further Action (NFA) or similar closure letter. Sites that have received an NFA (or similar closure letter) are also listed on **Table 3**. Prior to issuing NOLs, unique Land Site ID numbers were assigned for each of the 17 properties. A record of correspondences and reports for each of these properties is maintained on the VFC under each of their respective Land Site ID numbers.

In addition, multiple facilities in the records investigation area were already enrolled in an IDEM remediation program. Facilities with known releases within the area of records investigation were evaluated to determine their potential contribution to impacts migrating to the wellfields. IDEM's SCP, Leaking Underground Storage Tank (LUST) Section, and VRP, and the Indiana Finance Authority's Brownfields Program (BFP) (through due diligence investigation and Comfort Letter issuance) have been conducting management activities regarding the investigation of known groundwater contamination at multiple facilities located within the records investigation area.

As discussed above, IDEM has identified numerous sites in the area surrounding the Wellfields where cVOCs may have been used at some time. The majority of the sites with known cVOC use are already being addressed (to some extent) in one of the IDEM's remediation programs.

For the majority of sites identified as PRPs through this process, including sites that were previously in a State Program, and/or sites that received RFI or NOL letters, IDEM has determined that no further evaluation for contribution of Wellfield impacts is warranted. This determination is based on sampling data, information provided to IDEM in response to an RFI or NOL, and/or other information available to the IDEM. All sites that do not require further evaluation for wellfield impacts are depicted on **Figure 5.** It should be noted that a "no further evaluation" determination is distinct from an NFA letter, as formal NFA letters are only sent to parties that have been issued a NOL letter and completed site work to IDEM's satisfaction. A no further evaluation determination was made for many sites based on information already available to IDEM and/or information provided as part of an RFI, without any issuance of an NOL.

While all facilities with known impacts in the records investigation area will be addressed through an IDEM remediation program, a "focused area of interest" was created by identifying and prioritizing facilities with significant contamination[4]. Facilities with significant contamination (or suspected of having significant contamination) in close proximity to the Wellfields are considered high-priority properties. Facilities with significant contamination (or suspected of having significant contamination) within Site 0153 but located farther from the Wellfields, are considered medium-priority properties. Facilities in which investigation results have identified limited or less significant contamination are considered low-priority properties. All facilities within the focused area of interest are currently enrolled in one of the IDEM remediation programs and are at various stages of the investigation/remediation process.

The location of priority sites in the focused area of interest are depicted on **Figure 6.** Information regarding the investigation/remediation status of the priority sites identified in the focused area of interest is provided on **Table 4.**

Site summaries including details of the investigations conducted at each site for all high- and medium–priority sites, where information is available, are provided in **Appendix D**. Site Summaries for some example low-priority sites have also been provided in **Appendix D.** Since all priority properties are enrolled in an IDEM remediation program with investigation and remediation currently ongoing under State Programs, no additional efforts are needed under the federal Superfund process. Although not all investigation and remediation activities at discrete PRP sites are complete, IDEM believes that adequate information is available to rely on for decision making purposes for Site 0153 as it pertains to the overall protection of the Wellfields

[4] In general, significant contamination was determined using the concentration and depth of dissolved cVOCs identified in groundwater, proximity to the Wellfields, and geologic conditions identified during investigation.

and safety of drinking water supply. sites are complete, IDEM believes that adequate information is available to rely on for decision making purposes for Site 0153 as it pertains to the overall protection of the Wellfields and safety of drinking water supply.

2.1 Surface Feature Investigations

Site inspections of the Wellfields were performed and documented in the PA Report, dated November 1, 2013 (**Appendix B**), and the SI Report, dated October 23, 2014 (**Appendix C**). The following observations were noted during the inspections:

Riverside Wellfield

- **INFORMATION REDACTED DUE TO CLAIM OF CONFIDENTIALITY – CONFIDENTIAL – NOT SUBJECT TO PUBLIC DISCLOSURE FOR REASONS OF PUBLIC SAFETY, AND CONFIDENTIAL BUSINESS INFORMATION**
- The Riverside Municipal Wellfield encompasses approximately 40 acres.
- The lawn surrounding the municipal wells were well manicured.
- Some of the wells are located and moderately dispersed on properties not controlled by Citizens Water (i.e. right of way, private property).
- The Riverside Wellfield is located within a light to moderate industrial/commercial business area.

White River Wellfield

- **INFORMATION REDACTED DUE TO CLAIM OF CONFIDENTIALITY – CONFIDENTIAL – NOT SUBJECT TO PUBLIC DISCLOSURE FOR REASONS OF PUBLIC SAFETY, AND CONFIDENTIAL BUSINESS INFORMATION**
- A locked chain link fence surrounds each municipal well.
- Many municipal wells in the White River Wellfield are located near light industrial facilities, warehouses, and school buildings.
- **INFORMATION REDACTED DUE TO CLAIM OF CONFIDENTIALITY – CONFIDENTIAL – NOT SUBJECT TO PUBLIC DISCLOSURE FOR REASONS OF PUBLIC SAFETY, AND CONFIDENTIAL BUSINESS INFORMATION**

No additional surface feature investigations have been performed for the Wellfields.

2.2 Contaminant Source Investigations

As stated above, IDEM is currently managing characterization and cleanup of potential sources within the area of Site 0153 under individual State remediation programs. All of the facilities within the focused area of interest are currently enrolled in one of the IDEM remediation programs and are at various stages of their investigation/remediation process. Individual site

investigations have consisted of identifying potential source areas of cVOCs in soil and evaluating groundwater impacts to depths as deep as 100 feet below grade (ft. bg.). Several individual site investigations have also included off-site soil and groundwater delineation activities, as well as vapor intrusion investigation activities and mitigation both on- and off-site. Six (6) high/medium priority sites have conducted remediation activities and/or are actively in the remediation process. Remedial technologies have included soil excavation, injection of a chemical oxidizer, and different combinations of air sparge (AS), soil vapor extraction (SVE), ozone, and pump and treat remediation systems. Site summaries of the high/medium priority and some example low-priority sites, including details of the investigations conducted at each, are provided in **Appendix D.** The location and priority level of all facilities within the focused area of interest are depicted on **Figure 6**. Information regarding the investigation/remediation status of the priority sites identified in the focused area of interest is provided on **Table 4.**

2.3 Meteorological Investigations

CVOCs have migrated to the production wells from source(s) within the Site 0153 boundary and the impacted groundwater medium within the Wellfields is the focus of this RI. Since the target risk for the Site is groundwater ingestion and municipal wells are screened at depths greater than 50 feet, meteorological events and seasonal weather variations do not directly affect the impacted medium in the Wellfields. Therefore, meteorological investigations are not applicable to this RI.

2.4 Surface-water and Sediment Investigations

CVOCs have migrated to the production wells from source(s) within the Site 0153 boundary and the impacted groundwater medium within the Wellfields is the focus of this RI. The target risk for the Site is groundwater ingestion and municipal wells are screened at depths greater than 50 feet. Therefore, an investigation of surface water and sediments is not applicable to the Wellfields. To date, investigation and remediation of individual PRP sites has not identified the need to investigate surface water or sediments. If necessary, impacted surface water and sediments from potential sources within the 0153 boundary will be addressed in individual site investigations conducted by PRPs under the direction of IDEM.

2.5 Geological Investigations

In collaboration with Citizens, IDEM has reviewed water supply well records for the Wellfields in order to investigate geological conditions beneath the Wellfields. The types of records reviewed include well construction diagrams, well abandonment diagrams, well cleaning records (*i.e.*, "Video Log" and "Well Survey Analysis") and soil lithology records. These records are not attached to this report since they are subject to confidential treatment pursuant to Indiana Code (IC) § 5-14-3-4(b)(19) (infrastructure related to community drinking water wells). If made public, this information, either alone or in combination with other records, could be used to

threaten the safety of the public water supply and/or assess potential vulnerabilities of these structures.

A review of monitoring well logs advanced within the Wellfields indicate the subsurface geology to be generally comprised of either clay/gravelly clay to depths of approximately 2 to 12 ft. bg. or sand/gravel to depths of approximately 21 to 42 ft. bg[5]. The clay/gravelly clay layer transitions into variations of sand, gravel, and gravelly sand which extends to depths of approximately 38 to 47 ft. bg[6]. A second clay/gravelly clay layer is present at depths of 39 to 68 ft. bg. and continues to depths of approximately 43 to 70 ft. bg. The deeper clay layer is again underlain by variations of sand, gravel, and gravelly sand to bedrock or termination of boring ranging between 59 and 103 ft. bg. Bedrock is noted at depths ranging from 70 to 103 ft. bg. and is described as limestone/carbonate rock.

In addition, local geologic cross sections were prepared for the general area surrounding the Wellfields. These figures were adapted from cross sectional maps provided in the Indianapolis Water Company Wellhead Protection Plan (WHPP). The location of local geologic cross sections is provided on **Figure 7A** and local geologic cross sections are provided as **Figures 7B** (A-A'), **7C** (B-B'), and **7D** (C-C').

As noted above, individual sites within area surrounding Site 0153 are completing investigations under IDEM program supervision. Geologic data from the investigations have been assimilated into the overall geologic understanding of the Study Area.

2.6 Soil and Vadose Zone Investigations

CVOCs have migrated to the production wells from source(s) within the Site 0153 boundary and the impacted groundwater medium within the Wellfields is the focus of this RI. The target risk for the Site is groundwater ingestion and municipal wells are screened at depths greater than 50 feet. Information regarding the soil and vadose zone investigations completed to date at priority sites is provided on **Table 4.** Full results from these investigations can be found on the IDEM's VFC. Impacted soils from potential sources within the 0153 boundary will be addressed, if necessary, in individual site investigations conducted by PRPs under the direction of IDEM.

2.7 Groundwater Investigations

Citizens has routinely collected and analyzed untreated groundwater samples from individual production wells and "finished" drinking water samples, prior to distribution to customers. On February 20, 2013, the IDEM staff received notice from Citizens that cVOCs were being detected in the groundwater prior to treatment at the Riverside Municipal Wellfield. In response,

[5] A gravelly clay layer was encountered within the sand/gravel unit from 22 to 25 ft. bg. at two well locations.
[6] This sand, gravel, and gravelly sand layer extends to bedrock or boring termination at two well locations.

the IDEM collected 17 untreated groundwater samples from production wells, the results are documented in the SI Report dated October 23, 2014 (**Appendix C**). Since notification of the cVOC impacts, Citizens has regularly provided the "finished" water and untreated groundwater sample results to IDEM for review. Citizens has a long history of sampling both the "finished" water and the "raw" untreated groundwater from individual production wells, but in order to more closely monitor the identified cVOC impacts in the Wellfields, Citizens increased its sampling frequency for both the "finished" water and the "raw" untreated groundwater from individual production wells to quarterly sampling, beginning in 2017. In addition, the IDEM conducted a split-sampling event with Citizens in February and March of 2018 to verify validity of Citizen's results.

Riverside and White River production well samples are collected in the following manner:

1. Prior to sampling, if a well is not in operation, it is turned on and pumped for at least 24 hours.
2. Each well is fitted with a petcock, which allows for diversion of water flow in the production well for sample collection. Samples are collected by purging the stagnant water within the petcock fittings, reducing the flow to approximately the width of a pencil, and slowly filling the laboratory-provided sample bottles by tilting sideways to prevent aeration.
3. Once field-preserved with hydrochloric acid and evaluated for headspace, the samples are placed on ice before submission to the laboratory.

Samples collected by Citizens are analyzed at the Citizens Water laboratory, which is an Indiana certified drinking water chemistry laboratory[7]. Samples are collected and analyzed in accordance with U.S. EPA Method 524.2, measurement of organic compounds for analysis of drinking water. Standard quality assurance/quality control (QA/QC) protocols as required by Citizens' laboratory certification are followed throughout the analysis process.

"Finished" water and untreated groundwater sample results are discussed in Section 4.0 of this RI. Historic untreated "raw" groundwater sample results are provided in **Table 1.** Historic "finished" water sample results are provided in **Table 2**.

Individual sites, potentially contributing to the groundwater impacts observed in the Wellfields, are completing groundwater investigations under IDEM programs. High-priority, medium–, and low- priority sites within the focused area of interest are depicted on **Figure 6** and summarized in **Appendix D**. Individual site assessments completed to date have not identified a definitive source to the wellfield contamination. Information regarding the groundwater investigations

[7] Drinking water chemistry laboratories are certified by the Indiana State Department of Health Laboratories.

completed to date at priority sites is provided on **Table 4.** Full results from these investigations can be found on the IDEM's VFC.

Seven private wells have been identified within the Site 0153 investigation area. The MCPHD has investigated these wells to determine the status of the private wells and requested owner access to sample. All wells that MCPHD was granted access by the owner to sample were found to be non-detect for cVOCs. The MCPHD will continue to address private well issues and conduct sampling in the future (if needed). Given the lack of impact observed in the private wells sampled to date and numerous investigation well networks available at PRP sites, IDEM has not included the private wells in the RI. The investigation well networks currently present at PRP sites are more representative of contamination at or near a potential source, and therefore, a more effective indicator for Site 0153 enforcement, investigation, or remediation efforts.

2.8 Human-populations Surveys

According to 2010 census data, Marion County has a total population of 903,393 people, with a density of 2,279.6 people per square mile (mi^2) and a total land area of 369.30 mi^2 (US Census Bureau, 2010). Drinking water for a majority of residents of Marion County is supplied by one of four surface water treatment plants (White River, White River North, Fall Creek, and T.W. Moses) and is derived from a combination of surface and groundwater. Historic (approximately 2004 – through current) Wellfield production water and surface water intake volume data were provided by Citizens and used to calculate approximate Wellfield production water and surface water mixing ratios. Based on annual averages, the drinking water distributed from the White River Treatment Plant is a mixed water supply composed of approximately 89% surface water and approximately 11% groundwater. **INFORMATION REDACTED DUE TO CLAIM OF CONFIDENTIALITY – CONFIDENTIAL – NOT SUBJECT TO PUBLIC DISCLOSURE FOR REASONS OF PUBLIC SAFETY, AND CONFIDENTIAL BUSINESS INFORMATION**. Groundwater from the Wellfields is always mixed with surface water or "finished" water reserves to produce the "finished" drinking water supplied to customers.
As part of the groundwater pathway assessment for Site 0153 *Hazard Ranking System Documentation Record*, a population factor was calculated for the Wellfields production wells to evaluate the number of people served by these wells. While calculating population for each well is required as part of the HRS scoring process, the assumption that one specific production well is the sole supplier of drinking water for a set number of people is not only conservative, it does not accurately represent the process and product of the White River Treatment Plant. As documented in the SI Report, the Riverside Wellfield was calculated to supply drinking water to approximately 11,640 people and the White River Wellfield was calculated to supply drinking water to approximately 5,537 people in Indianapolis for a total population of 17,177 people served through groundwater sources. However, in reality there is no dedicated population that is directly served by groundwater from the Riverside and White River Wellfields alone.

PCE/TCE and associated daughter products have never been detected in the "finished" water samples and "finished" water samples have always met the requirements for the SDWA standards. Therefore, there is no complete exposure pathway for human ingestion of cVOCs detected in the untreated production well samples. Based on the lack of exposure, a human population survey is not applicable to this RI.

2.9 Ecological Investigations

As documented in the PA Report (IDEM, November, 1, 2013), a survey conducted by the Indiana Department of Natural Resources (IDNR)/Division of Nature Preserves (DNP)/Heritage Program (HP) indicated there are endangered or threatened species and sensitive environments within the surface water pathway of Site 0153 and within a 4-mile radius of the Site. Sensitive environments along the White River could be adversely impacted by cVOCs if a groundwater to surface water migration route were present. CVOCs have migrated to the production wells from source(s) within the Site 0153 boundary and the impacted groundwater medium within the Wellfields is the focus of this RI. The target risk for the Site is groundwater ingestion and municipal wells are screened at depths greater than 50 feet. Therefore, a groundwater to surface water migration pathway is unlikely and an ecological investigation is not applicable to this RI. To date, investigations of individual PRP sites has not identified the need to conduct an ecological investigation. Ecological investigations for individual sites within the 0153 boundary will be addressed, if necessary, in individual site investigations conducted by PRPs under the direction of IDEM.

3.0 PHYSICAL CHARACTERISTICS

3.1 Surface Features

Site 0153 is located within the New Castle Till Plains and Drainageways physiographic province, an area of low relief crossed by many major tunnel-valleys that covers the northeastern headwater area of the West Fork White River Basin. (Franzmeier, 2004).

These till plains have low to moderately flat topography stretching approximately 12,000 square miles (mi^2) and have developed on relatively thick Pleistocene glacial drift deposits. These plains are characterized by slightly modified ground moraines and poorly developed end moraines formed during the Wisconsonian glaciation (Franzmeier, 2004).

3.2 Meteorology

The Site is on the fringe of the climatic influence associated with the Great Lakes and has a continental humid climate. Cool air masses from Canada colliding with warm tropical air from the south create seasonal variability and can bring changes in the weather within days (US Department of Agriculture, 1978).

Frequent weather changes, associated low and high centers of air pressure across the region and from passing weather fronts, are most common in winter and spring. Winds typically originate from the southwest, but during the winter months they originate primarily out of the northwest. The temperature in Marion County ranges from -20º Fahrenheit (F) to 99º F or higher. The county typically reaches temperatures of 90º F or higher an average of 16 days per year and temperatures below freezing an average of 37 days per year. The average daily temperature ranges between 20º F in January and 85º F in July, with an average annual temperature of 52º F. Precipitation for the county is somewhat evenly distributed throughout the year with spring and early summer rains exceeding winter precipitation. The total annual precipitation for the county is 38.7-inches with an average annual snowfall of 20-inches (US Department of Agriculture, 1978).

3.3 Surficial Geology

The majority of the Site (over 83%) consists or urban land variants of the Fox and Genesee soil series where public works and structures make identification of native soils infeasible and Udorthents, where the original soil has been cut away and replaced with non-native fill material. The Fox and the Genesee series are composed of well drained soils with 0 to 2 percent slopes. The Fox series is derived from loamy outwash over sandy gravel outwash, while the Genesee is derived from loamy alluvium.

3.4 Unconsolidated Geology

The unconsolidated soils of the White River basin are composed of fine-grained deposits of the Trafalgar formation, which were deposited during multiple glacial advances during the Pleistocene Epoch. Glacial sediments, including sand and gravel from each of the advances, filled pre-glacial stream valleys and created buried bedrock valleys. The northern half of the White River basin is covered by thick ground moraine (loamy tills interbedded with layers of stratified sand and gravel), while the outwash that was transported south filled in many of the large stream valleys (Fenelon, 1994). In the vicinity of the Wellfields, the estimated thickness of the unconsolidated deposits is approximately 75 to 95 feet. and consists of fine-grained glacial till (silt and clay) with interbedded layers of sand and gravel. Two distinct sand and gravel layers are found in vicinity of the Wellfields. The Upper Sand and Gravel unit begins at approximately 10 ft. bg. and extends to approximately 45 ft. bg. The Lower Sand and Gravel unit begins at approximately 55 ft. bg. and extends to bedrock (75-95 ft. bg.). In most areas, a clay layer separates the upper and lower sand and gravel zones.

3.5 Bedrock Geology

According to the Bedrock Geologic Map of Indiana (Gray, Ault, & Keller, 1987), the bedrock in Marion County is located between two regional structural features (Cincinnati Arch to the northeast and Illinois Basin to the southwest) and dips slightly to the southwest. The bedrock in the area of the Site consists primarily of Devonian-age limestone and dolomite of the

Muscatatuck Group. The Muscatatuck Group can be up to 250 ft. thick, but is approximately 50 to 60 ft. thick in the vicinity of the Site.

Regional geologic cross sections, adapted from the *Hydrogeologic Atlas of Aquifers in Indiana* (Fenelon, 1994), are provided as **Figures 8A** (cross section location map), **8B** (8B-8B'), and **8C** (8J-8J'). Local geologic cross sections, adapted from the Indianapolis Water Company WHPP, are provided as **Figures 7A** (cross section location map), **7B** (A-A'), **7C** (B-B'), and **7D** (C-C').

3.6 Surface-water Hydrology

The Site is located in the White River basin, which encompasses over 5,600 mi^2 in 27 counties within Indiana and spans nearly the entire width of south-central Indiana (Fenelon, 1994). Marion County is located in the northern portion of this basin, with Fall Creek and Eagle Creek being the largest tributaries to the White River. Fall Creek flows through Site 0153and is one of the major tributaries in the basin with a drainage area of greater than 300 mi^2 (Fenelon, 1994). Fall Creek drains into White River just southwest of the Study Area.

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3.7 Hydrogeology

3.7.1 Unconsolidated Aquifers

Four distinct unconsolidated aquifer systems and subsystems are present within the Site. The New Castle/Tipton Till Aquifer System, the New Castle/Tipton Till Aquifer Subsystem, the New Castle/Tipton Till Complex Aquifer System, and the White River and Tributaries Outwash Aquifer System (Indiana Department of Natural Resources, 2011). A majority of the Site, including the entirety of the Study Area (Indiana Department of Natural Resources, 2011).

In the Wellfields, an Upper Sand and Gravel unit and a Lower Sand and Gravel Unit have been identified. The upper unit begins at approximately 10 ft. bg. and extends to approximately 45 ft. bg. The lower unit begins at approximately 55 ft. bg. and extends to bedrock (75-95 ft. bg.). In most areas, a clay layer separates the upper and lower units and acts as a barrier to minimize the migration of groundwater from the upper unit to the lower unit. Eight production wells within the Study Area withdraw groundwater from the Lower Sand and Gravel Unit.

According to the Potentiometric Surface Map of the Unconsolidated Aquifers of Marion County, Indiana (Indiana Department of Natural Resources, 2012), the regional

groundwater flow is towards the White River, with flow on the western side of the county to the east/southeast and flow on the eastern side of the county to the west/southwest. The Potentiometric Surface Map of the Unconsolidated Aquifers of Marion County, Indiana (IDNR, 2012) was used to create **Figure 9**. In the area surrounding the Wellfields groundwater flow is generally radial toward the production wells operating in the Wellfields. Depending on the time of year and the volume of water being extracted by the Wellfields, water for the Wellfields may be drawn from both the White River and Fall Creek, creating localized losing reaches for both streams.

3.7.2 Bedrock Aquifers

Three distinct bedrock aquifer systems are present within Marion County. The Borden Group Aquifer System, the New Albany Shale Aquifer System, and the Silurian and Devonian Carbonates Aquifer System. The Site lies within the Silurian and Devonian aquifer which is comprised of limestone and dolostone of the Muscatatuck Group and similar underlying Silurian carbonates. Capable of supporting the needs of domestic and high-capacity users, yields from the carbonate aquifer range from 10 to 1,200 gallons per minute (gpm) with static water levels ranging from flowing surface outcrops to 227 ft. below surface. Wells in this aquifer system penetrate up to 400 ft. into the carbonate bedrock with depths ranging from 30 to 485 ft. Typically overlain by thick clay deposits, this system is at low risk to contamination from surface sources. However, in areas where the system is overlain by unconsolidated deposits composed of primarily sand and gravel outwash materials, risk to contamination is considered high (Indiana Department of Natural Resources, 2011). Ten production wells within the Study Area withdraw groundwater from the bedrock aquifer.

According to the Potentiometric Surface Map of the Consolidated Aquifers of Marion County, Indiana (IDNR, 2012), the regional groundwater flow is towards the White River, with flow on the western side of the county to the east/southeast and flow on the eastern side of the county to the west/southwest. The Potentiometric Surface Map of the Consolidated Aquifers of Marion County, Indiana (IDNR, 2012) was used to create **Figure 10**. A more southerly flow is generally observed in the vicinity of the Wellfields.

3.8 Demography and Land Use

According to 2010 census data, Marion County has a total population of 903,393 people, with a density of 2,279.6 people per mi^2. and a total land area of 369.30 mi^2. (US Census Bureau, 2010). Land use in Marion County consists primarily of suburban neighborhoods with more traditional/city neighborhoods located in the central and north central portions of the county. Light and heavy industrial areas are located in the northwest, eastern, and southwestern portions of the county with interspersed commercial and mixed-use properties throughout the county.

Agricultural areas are located in the northwest, southwest, and southeastern corners of the county (Greater Indianapolis Progress Commitee, 2020).

Drinking water for a majority of residents of Marion County is supplied by one of four surface water treatment plants (White River, White River North, Fall Creek, and T.W. Moses) and is derived from a combination of surface and groundwater. Surface water sources include rivers, such as the White River, creeks, streams and one of three reservoirs (Morse Reservoir, Geist Reservoir, and Eagle Creek Reservoir). In addition, there are four groundwater stations which serve smaller portions of the county (Geist Station, Harding Station, South Wellfield, and Ford Road) (Citizens Energy Group, 2020).

3.9 Ecology

Ecologically susceptible areas are locations that merit consideration of potential effects on non-human receptors. Because endangered, threated, and/or rare (ETR) species may reside in underground cave systems, karst terrain is also considered an ecologically susceptible area along with surface waters, wetlands, riparian areas, parks, preserves, and other protected habitats. The locations of national parks, forests, and wildlife refuges, state parks, nature preserves, and other protected areas were evaluated as part of this document. No national parks, forests, and wildlife refuges are located in Marion County. However, three state parks are located in Marion County: Fort Harrison State Park, Eagle Creek State Park, and White River State Park. White River State Park, which includes the Indianapolis Zoo and White River Gardens, is located within Site 0153.

A review of state and federally listed ETR species and critical habitats revealed 60 reported ETR species and eight high quality natural communities documented within Marion County, Indiana (Indiana Department of Natural Resources, 2019). According to the United States Fish and Wildlife Service (U.S. FWS), the only federally-listed endangered species within Marion County are: the Bald Eagle, which prefer to breed and winter in forested areas adjacent to large bodies of water[8]; the Indiana Bat and Northern Long-Eared Bat, which prefer caves/mines for hibernation and small stream corridors and woods for breeding and foraging habitats; and, the Rusty Patched Bumble Bee, which prefers grasslands and undisturbed soil for nesting and hibernating. Additional ecological information including Marion County ETR search results and Wetlands Map are provided in **Appendix E.**

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 Sources

Impacts to groundwater observed in the Wellfields have migrated to the production wells from an off-Site source(s). To-date, the definitive source(s) of the cVOCs has not been identified. It is

[8] Despite this preference, there are multiple known Bald Eagle nests documented within Marion County, including several within the central portion of the county along the White River.

anticipated that a number of individual sources are contributing to a diffuse commingled plume. As specified by the U.S. EPA in Section IV. *Procedural Requirements* subpart B. *Schedule of Performance* of the MOA, due to the nature of the Site, individual PRPs are responsible for conducting investigations (and remediation) at their facility under the direction of the IDEM. Therefore, off-Site investigations will be conducted by PRPs and are not the focus of this RI. All PRPs that have received an RFI letter to date are included on **Table 3** and depicted on **Figure 3.**

As noted in **Section 2**, facilities with significant contamination (or suspected of having significant contamination) in close proximity to the Wellfields, are considered high-priority properties. Facilities with significant contamination (or suspected of having significant contamination) within Site 0153 but located farther from the Wellfields than the high-priority properties, are considered medium-priority properties. Facilities in which investigation results have identified limited or less significant contamination are considered low-priority properties. All the high-, medium-, and low-priority PRPs are currently enrolled in one of the IDEM remediation programs and are at various stages of the investigation/remediation process.

The location of priority sites in the focused area of interest are depicted on **Figure 6.** Information regarding the investigation/remediation status of the priority sites identified in the focused area of interest is provided on **Table 4.** Site summaries including details of the investigations conducted at each site for all high- and medium–priority sites, where information is available, are provided in **Appendix D**.

4.2 Soils and Vadose Zone

CVOCs have migrated to the production wells from source(s) within the Site 0153 boundary and the impacted groundwater medium within the Wellfields is the focus of this RI. As noted in **Section 2.6**, the target risk for the Site is groundwater ingestion and municipal wells are screened at depths greater than 50 ft. Therefore, discussion of soils and vadose zone are not applicable to this RI. Impacted soils from potential sources within the Site 0153 boundary will be addressed in individual site investigations, conducted by PRPs, under the direction of IDEM. No definitive source for the wellfield contamination has been identified. Information regarding the details of the soil investigations completed to date at priority sites is provided on **Table 4.**

4.3 Groundwater

Historic (approx. 2004 – through current) untreated groundwater sample analytical results from individual production wells are summarized in **Table 1**. Well names beginning with “RS” indicate a production well located in the Riverside Municipal Wellfield and well names beginning with a “WR” indicate a production well located in the White River Municipal Wellfield. Production wells RS7, RS8, RS9, RS17, RS18, RS19, RS22, RS26, and RS29 (and former production wells RS2, RS27 and RS28) draw water from the limestone bedrock aquifer beneath the Riverside Wellfield. Production wells RSA, RSB, RSC, RSD, WR-3, WR7, WR8,

and WR9 (and former production well WR6) draw water from the unconsolidated sand and gravel aquifer beneath the Riverside and White River Wellfields.

Untreated groundwater samples collected from wells RS7, RS8, RS9, RS26, RS29, RSB, RSD, WR3, WR6, WR7, WR8, WR9, and RS2[9] have contained detectable concentrations of cVOCs at some point in their sampling history. Of the wells still in production (excluding WR-3), only two have had historic detections of cVOCs above their respective MCL in untreated groundwater samples. Untreated groundwater samples collected from well RS29 contained VC concentrations slightly above its MCL in April 2004 and January 2006, but VC concentrations have remained below the MCL since. An untreated groundwater sample collected from well WR9 contained a TCE concentration slightly above its MCL in January 2008 but TCE concentrations have remained below the MCL since. With the exception of these three samples, all cVOCs in untreated groundwater samples from active production wells have been consistently below MCLs, even before treatment.

Historic untreated groundwater samples collected from out of service and/or abandoned production wells WR3 and WR6, respectively, contained TCE concentrations above the MCL. Well WR6 was taken out of service in 2007 and later abandoned on January 25, 2013. Though not required by law to do so, Citizens voluntarily decided to shut down well WR3 in June 2016. As a presumptive interim measure, Citizens engineered and installed an aeration system for WR-3 beginning in September 2019. Aeration system construction was completed in late January 2020. Citizens conducted aeration testing on WR-3 from February through April 2020 and WR-3 is now back in service. Currently, all raw water generated from production well WR-3, even before it is aerated, is below MCLs, providing further evidence that cVOC concentrations in the Wellfields continue to decline. Pre- and post-aeration groundwater results are summarized in **Table 5.** As part of the Alternative Plan, Citizens has committed to taking any production well where untreated groundwater exceeds an MCL out of service and only return it to service once the untreated water becomes, or is treated to, below the MCL. Exceedances of an MCL will be determined through quarterly sampling conducted by Citizens Water. An MCL exceedance will be determined by a running annual average of all samples taken from an individual production well. If any sample result will cause the running annual average to exceed the MCL, the production well will be considered above the MCL. The MCL exceedance criteria is adapted from 327 Indiana Administrative Code (IAC) 8-2-5.5 (15)(A) and (C).

CVOCs have been detected in both the sand and gravel, and limestone bedrock aquifers of the Riverside Wellfield and in the sand and gravel aquifer of the White River Wellfield[10]. Historic

[9] Well WR3 was taken out of service in June 2016 and is back in service with aeration. Well WR6 has been out of service since 2007 and has since been abandoned. Well RS2 has been out of service since March 2015 and has since been abandoned.

[10] The White River Wellfield does not have any production wells installed within the limestone bedrock aquifer.

(approx. 2004 – through current) untreated groundwater sample analytical results from individual production wells are summarized in **Table 1**.

Historic "finished" water sample results for samples collected by Citizens indicate no contaminants of concern have been detected in the "finished" water. Historic (approx. 2016 – through current) "finished" water sample analytical results for samples collected by Citizens are summarized in **Table 2**.

Table 6 provides cVOC Concentration vs. Time graphs, comparing untreated "raw" groundwater sampling analytical results from production wells to the respective MCL.

In February and March 2018, the IDEM participated in split-sampling with Citizens of the production wells in operation at the time, within the Wellfields. The samples were collected from productions wells, prior to any mixing or treatment. The IDEM's separate sampling and analysis confirmed that all cVOC concentrations were below MCLs and were comparable with concentrations reported by Citizens. Citizens production well sample results are provided in **Table 1** and the IDEM split sampling results are available on the VFC as document #80640260 and #80644102.

4.4 Surface Water and Sediments

CVOCs have migrated to the production wells from source(s) within the Site 0153 boundary and the impacted groundwater medium within the Wellfields is the focus of this RI. As noted in **Section 2.6**, the target risk for the Site is groundwater ingestion and municipal wells are screened at depths greater than 50 ft. Therefore, an investigation of surface water and sediments is not applicable to the Wellfields. To date, investigation and remediation of individual PRP sites has not identified the need to investigate surface water or sediments. If necessary, impacted surface water and sediments from potential sources within the 0153 boundary will be addressed in individual site investigations conducted by PRPs under the direction of IDEM.

4.5 Air

CVOCs have migrated to the production wells from source(s) within the Site 0153 boundary and the impacted groundwater medium within the Wellfields is the focus of this RI. Current low-level cVOC concentrations in the Wellfields are not expected to result in vapor intrusion issues in structures above the Wellfields. Potential vapor intrusion issues at off-Site structures from potential sources within the 0153 boundary will be addressed in individual site investigations, conducted by PRPs, under the direction of IDEM. Information regarding the details of the vapor intrusion investigations completed to date at priority sites is provided on **Table 4.** Full results from these investigations can be found on the IDEM's VFC.

5.0 CONTAMINANT FATE AND TRANSPORT

The nature and extent of a chemical in the subsurface is controlled by fate and transport processes operating at a site. These processes determine where and over what time period chemicals will be transported and whether the chemicals will be degraded or transformed. Typically, the fate and transport evaluation in a remedial investigation report is based on a relatively clear understanding of the source and extent of contamination. However, for Site 0153 the circumstances are quite different from a "typical" site. A definitive source for the cVOC impacts affecting the Wellfields has not been identified and the extent of cVOC impacts is undefined. This section includes general discussions of processes affecting the transport of cVOCs into the Wellfields. Although the definitive source(s) of cVOCs is unknown, it is suspected the original release or releases consisted of PCE and/or TCE, which are chlorinated solvents commonly used in dry-cleaning and industrial degreasing. Even though TCE has been detected in production well groundwater samples and PCE has not, the contaminants detected (including TCE) are daughter products of PCE degradation and therefore PCE has not been ruled out as a released substance.

5.1 Potential Routes of Migration

Given that the definitive source(s) of the cVOCs has not been identified for Site 0153, and impacts observed in the production wells have not originated within the Wellfields, groundwater transport of cVOCs from off-Site sources into the Wellfields is the only credible mechanism capable of producing the observed conditions in the production wells. A Conceptual Site Model (CSM) was developed for Site 0153 to provide information on how groundwater and cVOC impacts could move from surrounding areas to the production wells. The CSM also illustrates how the hydrological cycle interacts with the local geology to allow cVOC impacts to interact with exposure pathways (soil, groundwater, and vapor intrusion). Finally, the CSM presents how the complete exposure pathways will be controlled through either an IDEM remediation program or through the Site 0153 Alternative Plan, detailed in the MOA, for the production wells at the Wellfields. The CSM for the Site is depicted graphically on **Figure 11.**

Groundwater at the Site originates as precipitation falling onto the ground surface, which either infiltrates into the subsurface or runs off to surface waters, such as the White River or Fall Creek. Following infiltration, the groundwater flows from areas of higher hydraulic head to areas of lower hydraulic head. That results in groundwater flow towards the White River or Fall Creek within the unconsolidated sand and gravel aquifer. The transmissivity of the sand and gravel aquifer has been estimated to be in the range of 25,000-35,000 square feet per day (ft^2/day) (Wittman, 2000). In addition to moving horizontally, groundwater will also move vertically based on hydraulic head differences between subsurface materials and between the unconsolidated and bedrock aquifers. On reaching the bedrock, groundwater flows through fractures and solution openings in the limestone in a general southwesterly regional flow pattern.

Within the Site 0153 boundary, the sand and gravel aquifer is directly overlying the limestone bedrock, which is relict karst; therefore, the limestone aquifer is likely hydraulically connected to the outwash sand and gravel aquifer (Wittman, 2000).

Pumping from production wells in the Wellfields, as well as other industrial wells in the area, intercepts a portion of the groundwater that would normally discharge to the White River and Fall Creek, in the sand and gravel aquifer, or in regional flow pattern for the bedrock. Two primary aquifers are in the Study Area: a shallow, unconsolidated aquifer located in the sand and gravel outwash deposits, and a deeper, bedrock aquifer in the carbonate rock (Wittman, 2000). Clay layers were mapped in the vicinity of the wellfield which locally separate the sand and gravel aquifer into an upper and lower zone and may alter groundwater flow patterns near the Wellfields (Wittman, 2000). Both aquifers are used by the Riverside production wells, while only the unconsolidated aquifer is utilized by the White River production wells. The production wells still in service in the Riverside Wellfield range in depth from 75 feet to 400 feet deep. The in-service White River production wells range in depth from 70 to 80 feet. Production wells completed at depths from approximately 70 to 100 feet draw drinking water from the sand and gravel aquifer. Production wells completed at depths greater than 100 feet draw water from the karst aquifer in the carbonate rock. The pumping in the production wells induces capture zones and brings in groundwater from the aquifers in all directions towards the wells. In addition to intersecting groundwater flowing to the river and creek, production wells located near these surface water bodies in the unconsolidated aquifers may induce recharge from the streams to the aquifer. Both the White River and Fall Creek are hydraulically well connected to the sand and gravel aquifer through the central part of Marion County (Wittman, 2000).

Upon release of cVOCs at unknown locations onto or into the soil, the contaminants mix with the infiltrating groundwater. Eventually the cVOC impacts may enter both the unconsolidated and bedrock aquifers based upon the hydraulic and physical characteristics of the aquifers, as discussed previously. The magnitude of the resulting cVOC groundwater impacts are the result of the volume and the duration of the cVOCs released. The cVOC release can manifest as either a dissolved plume or, if sufficient mass is released, a dense non-aqueous phase liquid[11] (DNAPL). A DNAPL release can result in long-term release of a dissolved groundwater plume from the top of a confining layer or the bottom of an aquifer. Ultimately, the cVOC-impacted groundwater mixes with other non-contaminated groundwater within the production well capture zones resulting in the cVOC impacts seen in the wells. At this time, the magnitude and location of cVOC releases that are contributing to the cVOC impacts being detected in the production

[11] In addition to causing groundwater impacts detected in the production wells, the released cVOCs may also cause vapor intrusion issues into occupied spaces if the cVOCs are released in sufficient concentrations. Based on the depth to impacted groundwater and the cVOC concentrations in the wellfields (concentrations are below the IDEM calculated screening levels), current cVOC concentrations are not expected to result in vapor intrusion issues in structures above the wellfields. Potential vapor intrusion issues for off-site structures are being handled by IDEM under separate remediation programs and are not the focus of this RI.

wells are under investigation as part of individual site investigation and remedial actions. While the magnitude and location are unknown, removal of potential cVOC sources at individual sites is expected to reduce future concentrations and the time over which production wells will experience continued cVOCs inputs.

5.2 Contaminant Persistence

Degradation is the deterioration or destruction of a chemical either biologically (biodegradation) or abiotically through processes such as hydrolysis and photolysis. The rate of degradation can be expressed as a half-life and is dependent on the existing chemical, biological, and physical conditions of the media in which the contaminant is located. Half-life information for PCE, TCE, VC, and cis-1,2-Dichloroethene (cis-1,2-DCE) is provided in **Table 7.**

CVOCs detected in groundwater can undergo biodegradation by functioning as an electron acceptor (reductive dechlorination) or as an electron donor (oxidation), or by co-metabolism. PCE and its daughter products can typically be biodegraded via reductive dechlorination. Reductive dechlorination occurs in a series of reactions in which the parent compound is reduced to daughter compounds; each reaction forms a daughter compound with sequentially fewer chlorine atoms. The reductive degradation pathway for PCE is as follows:

PCE →TCE → cis-1,2-DCE/trans-1,2-dichloroethene (trans-1,2, DCE) →VC → ethene

While cis-1,2-DCE is the primary dechlorination product of TCE, a minor reductive degradation pathway can lead to the formation of 1,1-Dichloroethene (1,1-DCE). These reductive dechlorination reactions are often limited by the amount of an available carbon source (electron donor) in the groundwater system. Additionally, the rate of reductive dechlorination appears to decrease as the degree of chlorination decreases. Typically, the reductive dechlorination pathway occurs under anaerobic conditions. However, the reduced daughter products of PCE (especially VC) can also be biodegraded via aerobic degradation pathways.
The detection of cis-1,2-DCE and VC (and other daughter products) in groundwater within the Site 0153 boundary suggests that reductive dechlorination is occurring in the aquifers, which indicates an anaerobic environment is likely present in the subsurface. As a result, as sources of the cVOCs are identified and addressed under an IDEM remedial program, biodegradation will likely contribute to decreasing cVOC concentrations in the wellfields over time.

An alternative reductive dechlorination pathway for PCE can occur through the beta elimination reaction which typically occurs abiotically, particularly in the presence of iron. This pathway also typically occurs in anaerobic environments. The chlorinated compounds are attracted to the iron molecules and two chlorine atoms are removed from the VOC, resulting in the formation of a triple bond across the two carbon atoms, which then rapidly breaks down to acetylene gas. The beta elimination pathway for PCE is as follows:

PCE → dichloroacetylene → chloroacetylene → acetylene → ethene

Assuming anaerobic conditions are present beneath the wellfields, abiotic dechlorination through the beta elimination pathway, and therefore destruction of PCE without producing daughter products, could be occurring at the Site to some degree.

5.3 Contaminant Migration

The focus of this RI is cVOCs migrating to the Wellfields from an off-Site source(s). CVOCs detected in untreated groundwater samples from production wells in recent years include: TCE, cis-1,2-DCE, VC, 1,1-dichloroethane (1,1-DCA), and 1,1,1-trichloroethane (1,1,1-TCA). Due to the infrequency and low concentrations of some of the detected constituents, an assessment was conducted to determine the Constituents of Potential Concern (COPCs) for the Site. The process to determine the COPCs is further discussed in the HHERA summary section of this RI. The COPCs identified for the Site include: TCE, cis-1,2-DCE, and VC. Fate and transport information for the COPCs is provided on **Table 7.** Although PCE has not been detected in the untreated groundwater samples collected from the production wells, nor is it considered a COPC for the Site, PCE has been included on **Table 7**, since PCE is a potential contaminant (PC) released from an unknown source. Constituents detected in production well samples are known daughter products of PCE degradation.

The soil adsorption coefficient (K_{oc}) measures the mobility of a chemical in soil. A high value means the chemical is strongly adsorbed onto soil and organic matter and does not readily move through the soil, while a very low K_{oc} value means the chemical is more highly mobile in soil. Water solubility is a measure of the amount of a chemical that can dissolve in water at a specific temperature. A review of **Table 7** indicates PCE and TCE have relatively high solubility and medium mobility, while cis-1,2-DCE and VC have relatively high solubility and mobility. Due to their high solubility, cVOCs are relatively easily leached from soil to groundwater. cVOCs (except for VC) are denser than water so they will sink vertically {both non-aqueous phase liquid (NAPL) and dissolved phase} and spread horizontally (both NAPL and dissolved phase) until a confining unit is encountered. CVOCs are also less viscous than water and can spread over large areas.

5.4 Modeling Methods and Results

The hydrogeology of the project area has been heavily studied due to the presence of the Wellfields. Wittman Hydro Planning Associates, Inc. (Wittman) prepared a Capture Zone Delineation report (Wittman, 2000) to delineate the time-of-travel capture zones for the Wellfields. Wellhead protection areas (WHPAs) are defined in 327 IAC 8-4.1-1(27) as being the surface and subsurface area which contributes water to a community public water supply system production well or wellfield and through which contaminants are likely to move through and

reach the well within a specified period of time. This area is delineated by fixed radius or by mathematical (hydrogeological mapping, analytical, semi analytical, or numerical flow/solute transport) methods. Wittman delineated capture zones with a range of alternate models using the groundwater flow models MODFLOW and GFLOW.

The purpose of delineating the capture zones of the wellfield is to determine the source areas of the water flowing to the wells. The water pumped from high capacity wells comes from at least one of the following sources:

- Induced recharge from adjacent surface water features;
- Vertical leakage from another aquifer;
- Local recharge; or,
- Regional flow (Wittman, 2000).

In most cases the water flowing into a pumping center near a stream is made up of a mix of these sources (Wittman, 2000).

During the study, Wittman obtained regional and local hydrogeologic information utilizing prior modeling studies by Smith (1983) and Meyer et al. (1975) and others. The information from these prior studies and references was used to calibrate the Wittman groundwater flow models. During the modeling process different scenarios were evaluated using various possible hydraulic parameters of the aquifer, recharge rates, and hydraulic resistances of the streams in the region. Once all of the scenarios were evaluated and capture zones for the wellfields determined for each scenario, the final WHPA was delineated by drawing a line which enclosed all of the capture zones for all the modeled runs. This procedure ensured that uncertainties in the capture zones introduced by data uncertainty were accounted for in the regulatory process. In effect, the perimeter of the wellhead protection area is defined by the more conservative scenarios.

The Capture Zone Delineation report (Wittman, 2000) helped defined the current one-year and five-year time of travel boundaries for the WHPA. The one-year and five-year time of travel boundaries are depicted on **Figure 2**.

6.0 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

IDEM prepared the HHERA to provide a qualitative assessment and, where appropriate, quantitative analyses, in a conservative manner, of the potential for adverse health effects from exposure to constituents in environmental media associated with the Wellfields. As identified in the MOA and this RI, IDEM is managing characterization and cleanup of potential sources within the area of Site 0153 under individual state remediation programs. To that end, the HHERA is focused primarily on the Wellfields and does not focus on individual PRP sites in the

immediate or surrounding area. Risk Assessment at individual sites within Site 0153 boundaries, if required, will be conducted separately and as dictated under IDEM State Programs. The HHERA relied on practices and procedures identified in numerous U.S. EPA guidance documents including, most notably: "*Risk Assessment Guidance for Superfund (RAGS)*" (1988) and "*Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors"* (2014). The HHERA was submitted to U.S. EPA under separate cover by IDEM concurrently with this RI. Key components and conclusions identified in the HHERA are provided in the following sections.

As discussed in this RI, Site 0153 originally qualified for the NPL based on detections of cVOCs in production well "raw" water produced from the Wellfields. These detections are believed to be associated with the historic use and releases of chlorinated solvents migrating from off-Site properties in the surrounding area to the Wellfields. However, current and historic "finished" drinking water results are below MCLs. As such, Risk Assessment efforts of "finished" drinking water was not warranted or necessary. The HHERA was designed to provide a sound basis for current and potential future risk management decisions related to potential cVOC impacts in production well "raw" water produced from the Wellfields. As such, the following nine cVOCs, were evaluated as part of the HHERA:

- PCE
- TCE
- 1,1,1-TCA
- cis-1,2-DCE
- trans-1,2, DCE
- 1,1-DCE
- 1,1-DCA
- VC
- Chloroethane (CE)

Using groundwater analytical data collected during the routine sampling of active production wells located across the Wellfields from 2004 through 2019, the following chemicals of potential concern (COPCs) were identified for further evaluation utilizing standard U.S. EPA Risk Assessment review procedures:

- TCE
- cis-1,2-DCE
- VC

Following identification of COPCs for further evaluation, an exposure assessment was completed to determine potential exposure pathways, potential future receptors that could be

exposed to Wellfield COPCs, and potential exposure routes. The outcome of this assessment identified the following potential exposure pathways:

- Groundwater
- Outdoor air (in proximity to production well aeration)
- Indoor air (i.e. vapor intrusion)
- Public water supply

Based on the low-level of cVOC concentrations observed at depths greater than 50 ft below grade surface, the potential exposure pathway for vapor intrusion associated with production well "raw" water from the Wellfields is incomplete. All remaining potential pathways are complete but under control[12]. Pathways are controlled through the following mechanisms:

- Exposure to impacted groundwater and/or associated vapor intrusion at PRP sites outside the Wellfields will be addressed through IDEM remediation programs.
- Exposure to outdoor air (in proximity to production well aeration) was evaluated as part of the aeration treatment, design, testing, and installation effort to ensure that potential emissions were incorporated into Citizens Wellfield air permits appropriately.
- Exposure to the public water supply is continually addressed through Citizens mixing efforts (Wellfields/Surface Water), treatment processes prior to distribution, and compliance with the SDWA. This has been demonstrated by the lack of cVOCs of concern in current and historic "finished" water results.

As a conservative approach, the HHERA focused on assessing risk associated with the combined, mixed Wellfield/Surface Water output prior to any additional treatment efforts conducted by Citizens before public distribution. Potential future receptors considered as part of the HHERA included Residential (Adult and Child), Commercial, Construction, and Visitor Trespasser. Since Commercial, Construction, and Visitor Trespasser receptors would be exposed via the same exposure pathways as Residential receptors but to a much lower degree, the HHERA focused on Residential (Adult and Child) receptors. If residential scenarios exhibited acceptable risk, other receptors would also be acceptable.

Exposure routes typically evaluated as part of the residential exposure scenario include dermal, inhalation, and ingestion. However, the inhalation exposure for vapor intrusion associated with production well "raw" water from the Wellfields in incomplete due to the low-level of cVOC concentrations observed at depths greater than 50 ft below grade surface. As such, the HHERA focused on dermal and ingestion.

[12] **"Complete, but under control",** meaning that the potential for exposure to COPCs exists, but current/ future engineering controls are in place/will be implemented to prevent unacceptable risk from occurring, or exposures will be evaluated on a site-by-site basis by IDEM remediation programs.

Reasonable maximum exposure (RME) estimates for the HHERA were developed utilizing documented Wellfield/Surface Water mixing ratios and Exposure Point Concentrations (EPC). Mixing ratios were developed utilizing production well and surface water intake data from Citizens' Wellfield operations from 2004 – 2019. Following U.S. EPA Risk Assessment Guidance, EPCs were developed using the 95% upper confidence limit (UCL) and calculated with U.S. EPA software package, ProUCL Version 5.1.002.

The U.S. EPA Regional Screening Level (RSL) calculator was utilized to determine both carcinogenic risk and non-carcinogenic hazard index for COPCs in the combined, mixed Wellfield/Surface Water output. HHERA Risk Characterization identified results well within U.S. EPA acceptable levels (i.e. no unacceptable risk) and within acceptable levels outlined in the MOA. Results of the HHERA include:

- Total calculated Carcinogenic Risk of 4.22×10^{-6}.
  - U.S. EPA considers theoretical excess lifetime cancer risks in the range of 1×10^{-6} to 1×10^{-4} to be acceptable.
  - The risk level agreed upon in the MOA was 1×10^{-5}.
- Total calculated Non-Carcinogenic Hazard Index of 0.0250.
  - U.S. EPA considers any Hazard Index of <1.0 acceptable.

7.0 SUMMARY & CONCLUSIONS

Impacts to groundwater in the Wellfields have migrated to the production wells from off-Site source(s). To-date, the definitive source(s) of the cVOCs has not been identified. It is anticipated that a number of individual sources are contributing to a diffuse commingled plume. Due to the nature of the Site, individual PRPs are responsible for conducting investigations (and remediation) at their facility under the direction of the IDEM. As noted in the RI report, IDEM has actively pursued the identification of PRPs, narrowed the list of PRPs, and provided oversight to PRPs currently managed within a state remediation program. All of the high- and medium-priority PRPs are currently enrolled in one of the IDEM remediation programs and are at various stages in their investigation/remediation process.

Low-level concentrations of cVOCs have been detected in certain production wells located in the Wellfields. Historic "finished" water sample results for samples collected by Citizens indicate no contaminants of concern have ever been detected in the "finished" water. Given that the source(s) of the cVOCs has not been identified for Site 0153, and impacts observed in the production wells have not originated within the Wellfields, groundwater transport of cVOCs from off-Site sources into the wellfields is the only credible mechanism capable of producing the observed conditions in the wellfield production wells.

The MOA, agreed upon by the U.S. EPA and IDEM on June 8, 2017, in which Site 0153 was deferred to IDEM's SCP rather than the federal Superfund process, outlined an Alternative Plan for addressing contamination at Site 0153. As part of the Alternative Plan, IDEM and Citizens committed to and completed the following efforts to address detections of cVOCs in the Wellfields and ensure protection of human health and the environment:

- IDEM conducted a comprehensive search for PRPs to identify the potential sources of contamination identified in the Wellfields.
- IDEM provided oversight for investigations of the potential sources of contamination and managed identified sources of contamination through one of the various remediation programs at IDEM, to eliminate their cVOC impact contributions to the two wellfields.
- Citizens removed production well WR-3 from service, installed aeration equipment to reduce cVOCs, and completed confirmatory sampling of post-treatment water before returning the well to service.
- Citizens developed and implemented a Groundwater Monitoring Plan which increased the sampling frequency of active production wells to a quarterly basis to monitor concentrations in the Wellfields.

Although low-levels of cVOCs have been detected in raw groundwater collected from some production wells, finished drinking water provided to customers by Citizens is safe. All drinking water provided to customers has met and continues to meet all requirements of the SDWA. Furthermore, cVOC concentrations observed in the Wellfields continue to decline.

Although not all investigation and remediation of discrete PRP sites are complete, IDEM believes that adequate information is available to rely on for decision making purposes as it pertains to the overall protection of the Wellfields and safety of drinking water supply. IDEM will continue to pursue PRPs, as necessary and appropriate, to limit future potential cVOC contributions to Wellfields. Citizens will continue to monitor groundwater, remove production wells above an MCL from service, and install treatment (e.g. aeration or similar), as needed, prior to returning to service. As always, Citizens will continue to ensure that finished drinking water complies with all SDWA requirements prior to distribution.

This RI has been conducted in a manner necessary to meet the requirements of a "CERCLA-protective cleanup" and fulfills a requirement of the MOA, which deferred listing of the Site on the NPL.

8.0 REFERENCES

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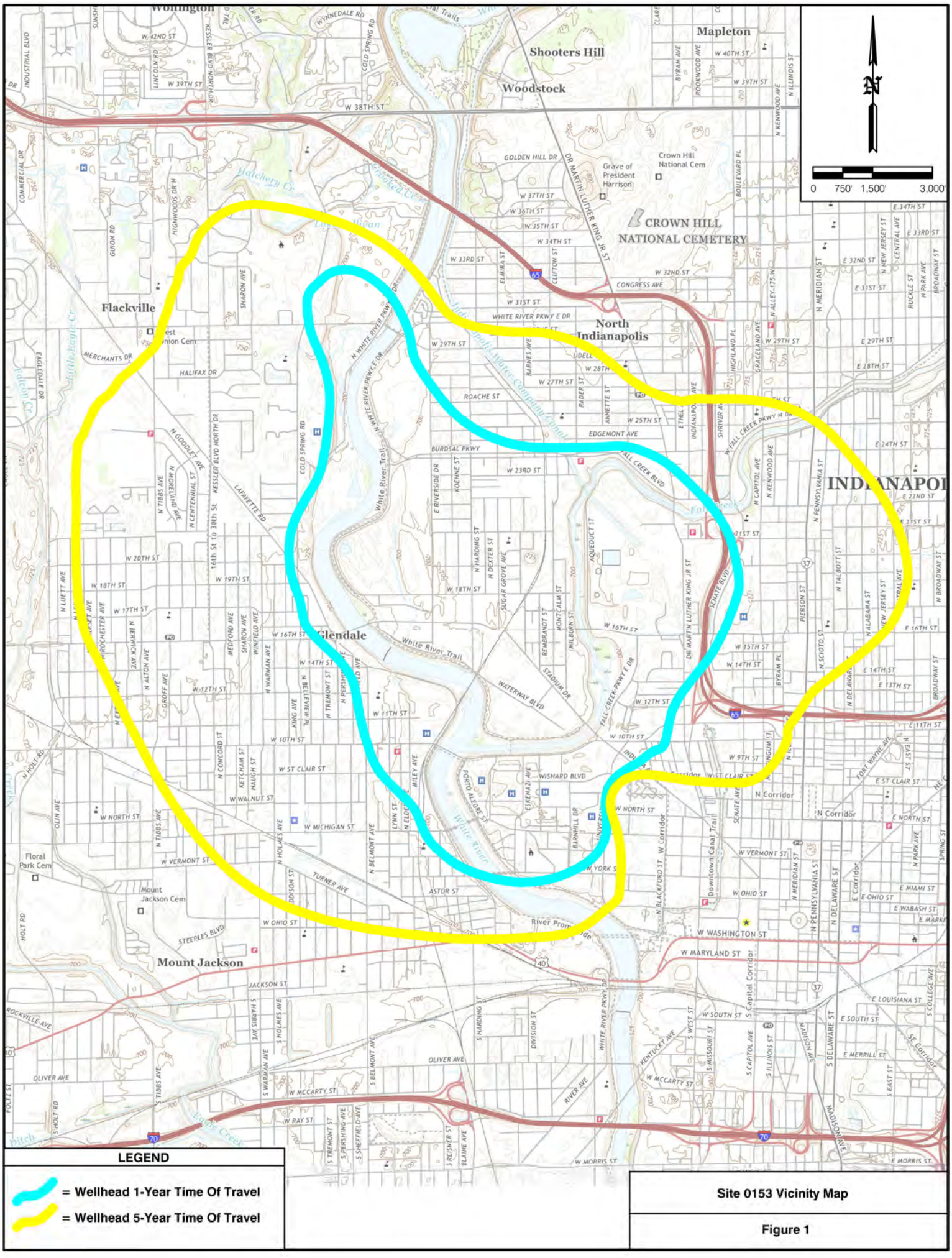
Indianapolis Water Company Wellhead Protection Plan

FIGURES

LIST OF FIGURES



LEGEND

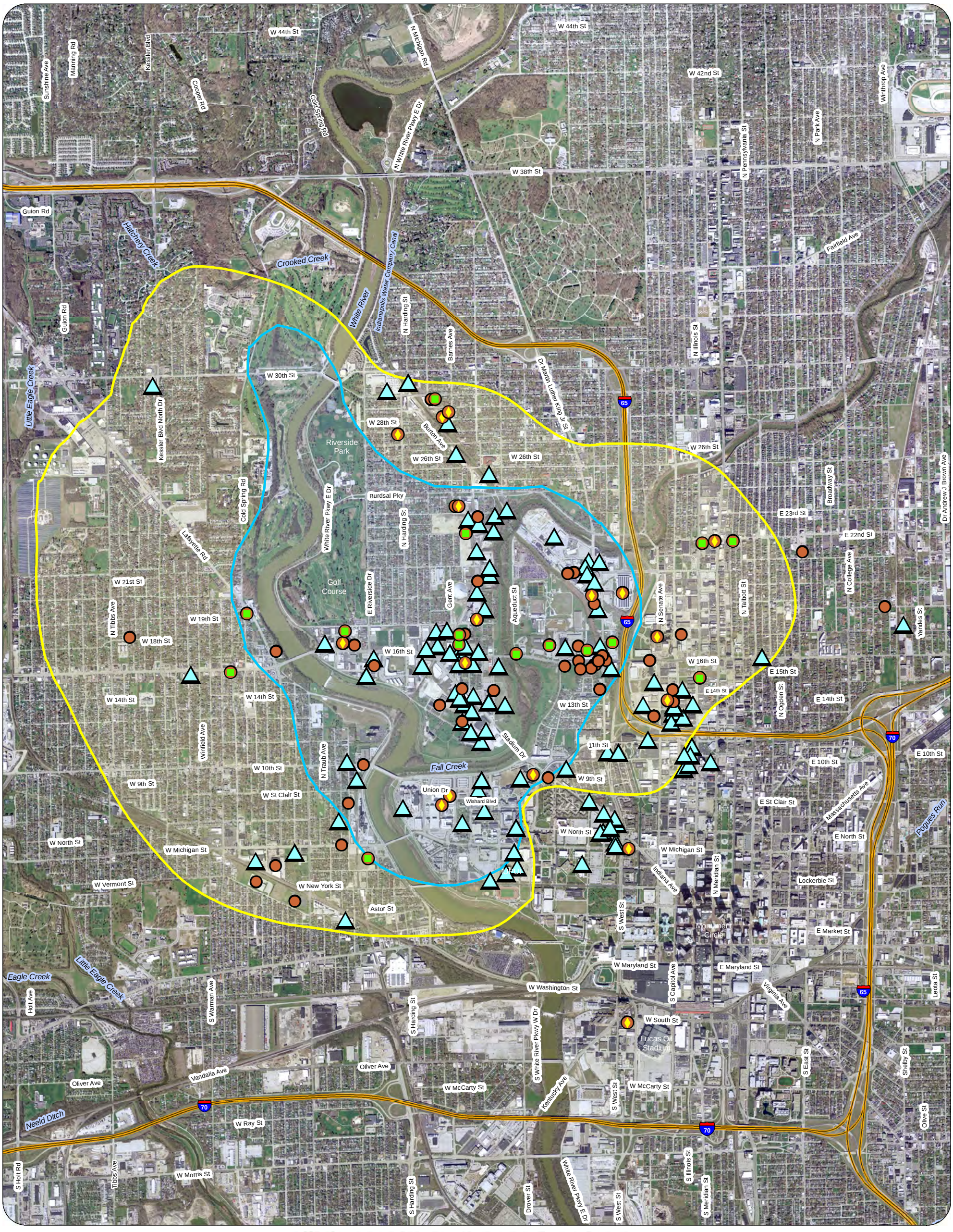
= Wellhead 1-Year Time Of Travel

= Wellhead 5-Year Time Of Travel

Site 0153 Vicinity Map

Figure 1

Figure 2 - Site 0153 Time of Travel Map



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Map Projection: UTM Zone 16 N
Map Datum: NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

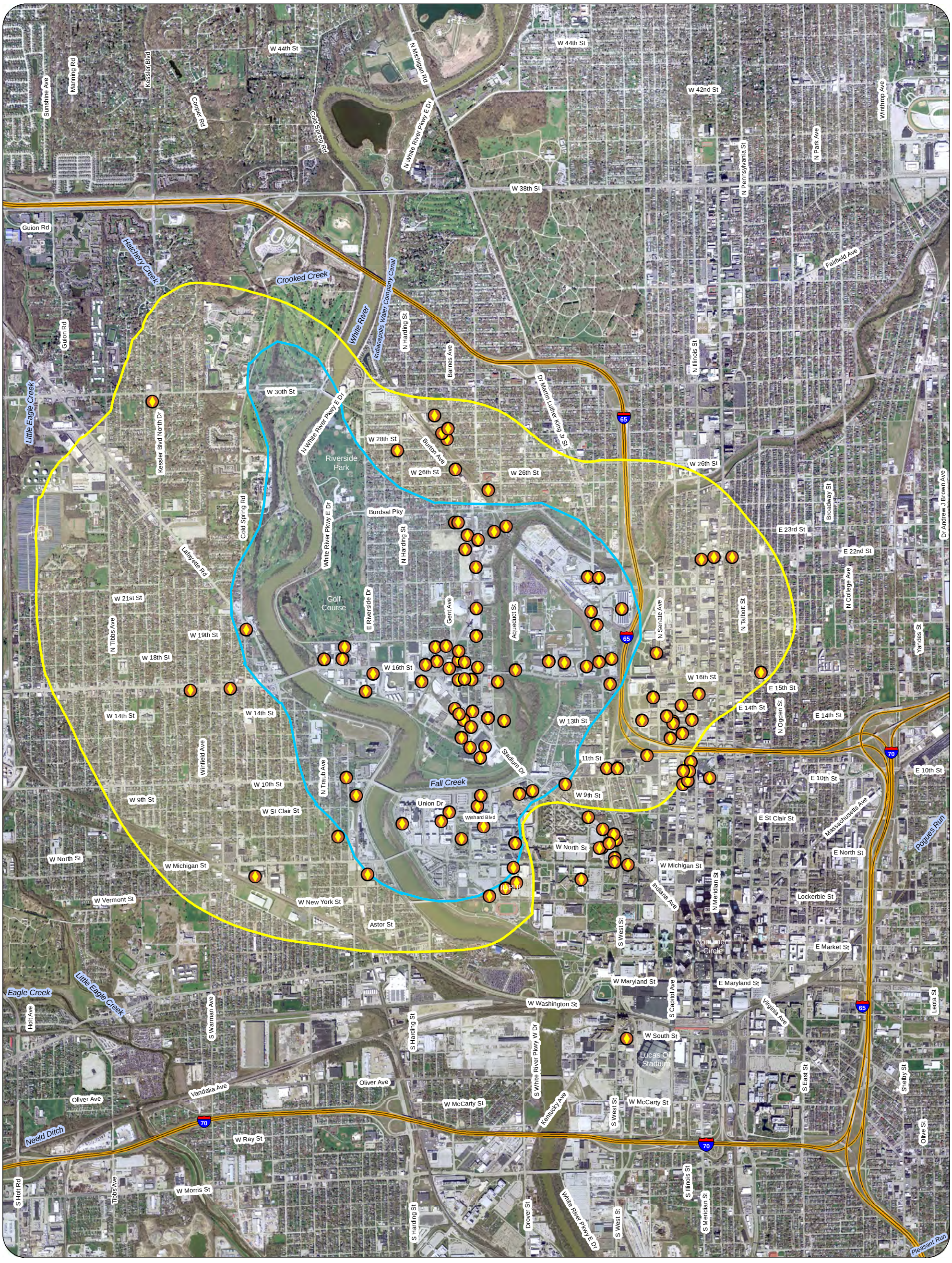
- Documented Chlorinated Solvent Management or Release
  39 Sites at this status
- Information Request Sent
  18 Sites at this status
- Notice of Liability Sent
  17 Sites at this status
- Documented Contributor to Well Field Impact
  No sites at this status
- No Further Evaluation for Well Field Impact
  90 Site at this status
- Wellhead 1 Year Delineation
- Wellhead 5 Year Delineation

July 7, 2020

Diane Osborn, LPG, GISP
Indiana Department of Environmental Management
Office of Land Quality - Engineering & GIS Services

0 0.5 1 Miles
0 0.75 1.5 Km

Figure 3 - Site 0153 Time of Travel Map
Information Request Letters



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Information Request Sent
104 Information Requests sent

Wellhead 1 Year Delineation

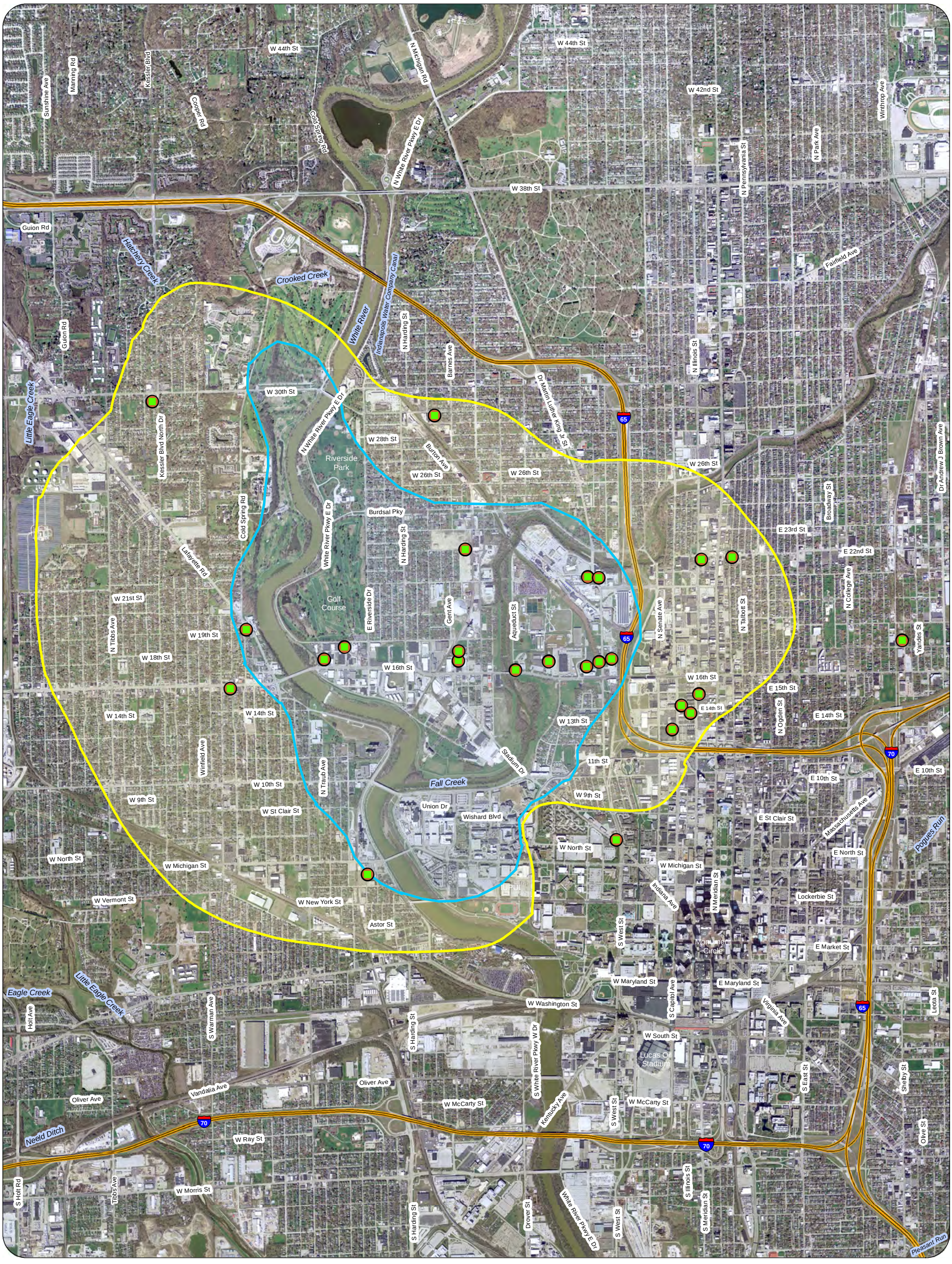
Wellhead 5 Year Delineation

July 7, 2020

Diane Osborn, LPG, GISP
Indiana Department of Environmental Management
Office of Land Quality - Engineering & GIS Services

0 0.5 1 Miles
0 0.75 1.5 Km

Figure 4 - Site 0153 Time of Travel Map
Notice of Liability Letters



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Map Projection: UTM Zone 16 N
Map Datum: NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Notice of Liability Sent
25 Notice of Liability requests sent

Wellhead 1 Year Delineation

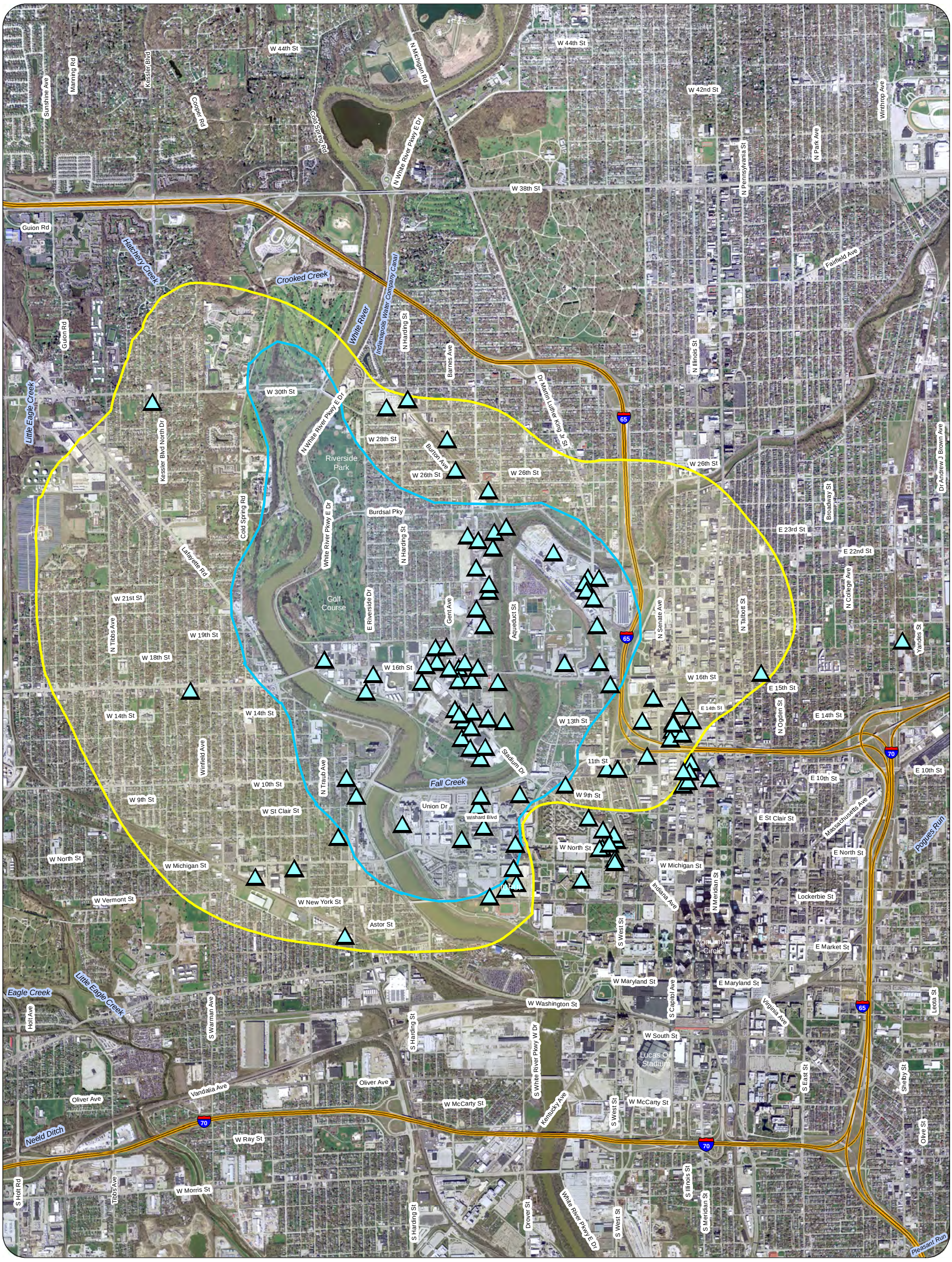
Wellhead 5 Year Delineation

July 7, 2020

Diane Osborn, LPG, GISP
Indiana Department of Environmental Management
Office of Land Quality - Engineering & GIS Services

0 0.5 1 Miles
0 0.75 1.5 Km

Figure 5 - Site 0153 Time of Travel Map
No Further Evaluation for Well Field Impact



Non Orthophotography Data
State of Indiana Geographic Information Office Library

Orthophotography
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(www.indianamap.org)
Map Projection: UTM Zone 16 N
Map Datum: NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

No Further Evaluation for Well Field Impact
90 Sites at this status

Wellhead 1 Year Delineation

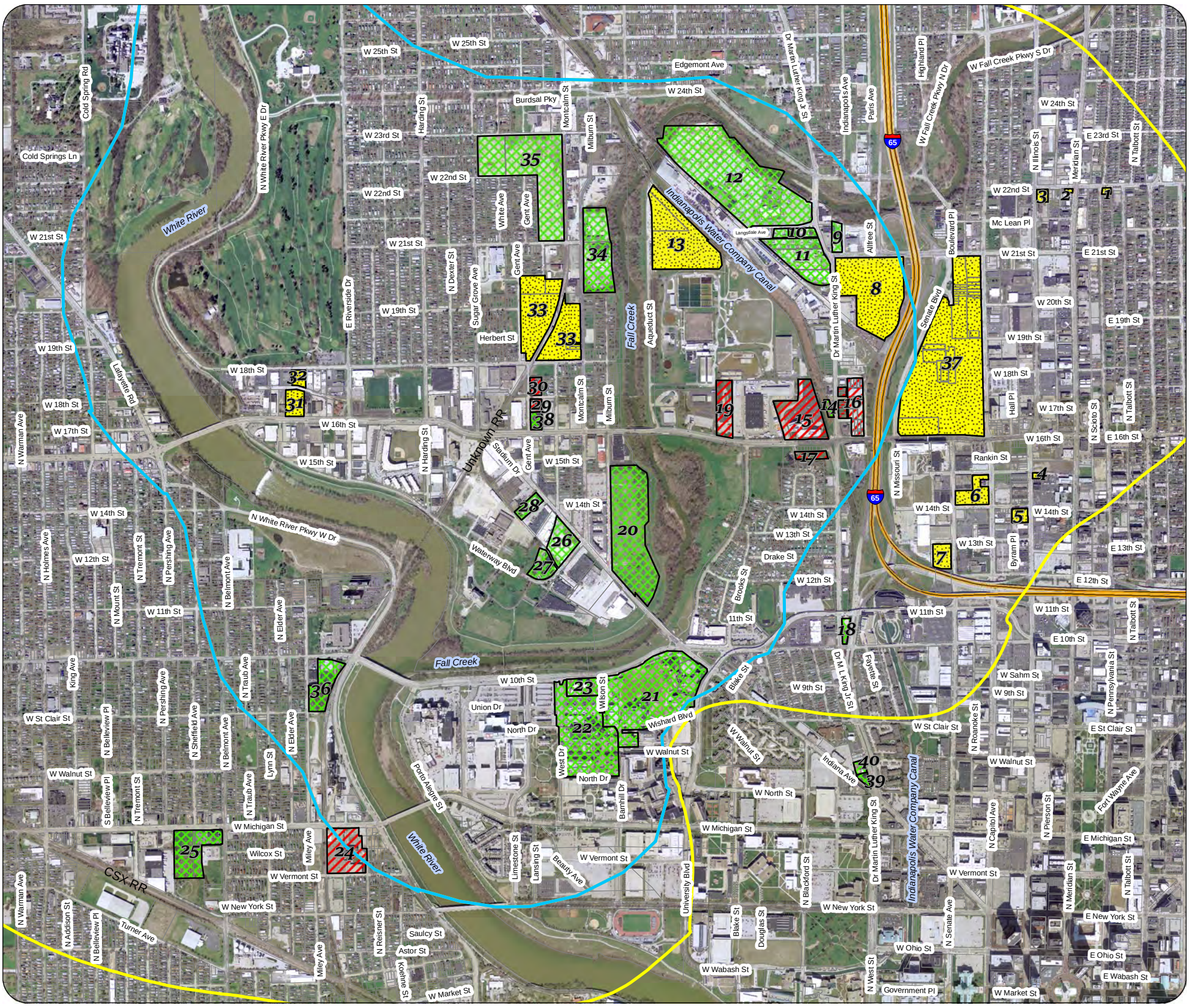
Wellhead 5 Year Delineation

July 7, 2020

Diane Osborn, LPG, GISP
Indiana Department of Environmental Management
Office of Land Quality - Engineering & GIS Services

0 0.5 1 Miles
0 0.75 1.5 Km

Figure 6 - Site 0153
Focused Area of Interest Sites



Map Label ID	Priority Level	Agency Interest	Program	Site Number	Facility Name	Priority Determination
1	Medium	16751	SCP	0000650	Penn 60 Minute Cleaners	Undelineated high contamination far distance
2	Medium	17902	SCP	0000835	Sparkle Cleaners	Pending investigation results, risk based on proximity
3	Medium	15994	SCP	0000658	Near North Development Corporation	Undelineated moderate contaminants; known bedrock well
4	Medium	26562	SCP	0000298	Karstadt-Reed Cleaners	Commingled plume side gradient
5	Medium	23287	VRP	6090502	Michaelis / Fame Laundry	Commingled plume side gradient
6	Medium	28328	VRP	6070101	Shuron	Commingled plume side gradient
7	Medium	17331	VRP	6160804	Former Stewart Manufacturing	Commingled plume side gradient
8	Medium	11493	SCP	200110517	Peerless Pump / Sterling Fluid Manufacturing	Pending investigation results, risk based on proximity
9	Low	11491	SCP	0000623	Bodycote Thermal Processing	Based on sampling
10	Low	16164	SCP	0000789	Former Hittle Machine and Tool	Based on sampling
11	Low	18302	BFP	4191108	Stuart Moving and Storage/M & A Property Management	Based on sampling
12	Low	17605	VRP	6050204	Citizens Gas and Coke Langsdale	Based on sampling
13	Medium	107558	SCP	0000858	Parts Landlord LLC	Based on sampling
14	Low	24792	SCP	0000772	Pennymans Inc	Based on sampling
15	High	23770	SCP	0000787	Former Parker property NW (Hagg Trucking Company, Inc.)	Undelineated based on 2004 Phase II data and proximity
16	High	20923	SCP	0000707	Former Ashjian Brothers Rug Cleaners	Undelineated based on 2019 monitoring data and proximity
17	High	22740	SCP	0000788	Former Parker Property SW/Truck and Bus	Undelineated based on 2011 monitoring data and proximity
18	Low	126398	SCP	0000804	IU Parcel 1011 MLK St	Based on sampling
19	High	17874	SCP	0000753	McBroom Electric	Undelineated based on 2019 sampling and proximity
20	Low	126398	SCP	0000804	Indiana University (IU Block Trucking)	Based on sampling
21	Low	126398	SCP	0000804	IU Parcel Wishard Hospital Parcel	Based on sampling
22	Low	126398	SCP	0000804	IU Parcel Riley Hospital Parcel	Based on sampling
23	Low	126398	SCP	0000804	IU Parcel Regenstreif Institute	Based on sampling
24	High	109813	SCP	0000455	Goodwill Industries	Based on 2019 contaminant concentrations and proximity
25	Low	22624	SCP	4980013	Shell Bulk Facility (F)	Based on 2019 sampling data
26	Low	126398	SCP	0000804	IU Parcel 1320 Stadium Dr	Based on 2002 sampling data
27	Low	126398	SCP	0000804	IU Parcel 1200 Waterway Blvd	Based on 2002 sampling data
28	Low	126398	SCP	0000804	IU Parcel Mid Continent Food Tech	Based on sampling data
29	High	16468	SCP	200412100	Component Machine	Based on proximity; moderate contamination
30	High	117788	SCP	0000744	Boyle Racing Headquarters	Based on proximity; moderate contamination
31	Medium	126398	SCP	0000804	IU Parcel Kiger Riefer	Unknown source side gradient
32	Medium	16545	SCP	200404159	Flexdar Inc.	Side gradient
33	Medium	16021	SCP	0000963	Central Soya / Bunge North America	Pending investigation results, risk based on proximity
34	Low	19994	VRP	6030103	Rumpke Indianapolis TS	Screen out CNTS 2010
35	Low	15891	SCP	0000770	Former Carrier-Bryant Facility	Based on sampling data
36	Low	116180	BFP	4190209	Annex on 10th/American Wire, Rope & Sling	Based on sampling data
37	Medium	20404	SCP	0000804	Clarian Health Partners Methodist Hospital	Pending investigation results, risk based on Ashijan known up-gradient contamination
38	Low	22076	SCP	0000676	Disc Graphics Inc	No soil source found during Component Machine investigation
39	Low	120034	SCP	0000734	Madame Walker Urban Life Center / Former Raymond Baird Cleaners	Based on sampling data
40	Low	119860	SCP	0000724	Former Willis Mortuary	Based on sampling data

Non Orthophotography Data
State of Indiana Geographic Information Office Library
Priority Determination supplied by OLQ Geological Services
Orthophotography
Obtained from 2016 Indiana Map Framework Data
(www.indianamap.org)
Map Projection: UTM Zone 16 N
Map Datum: NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Priority Level Low
Priority Level Medium
Priority Level High
Number correlates to the Map Label ID found in the Table

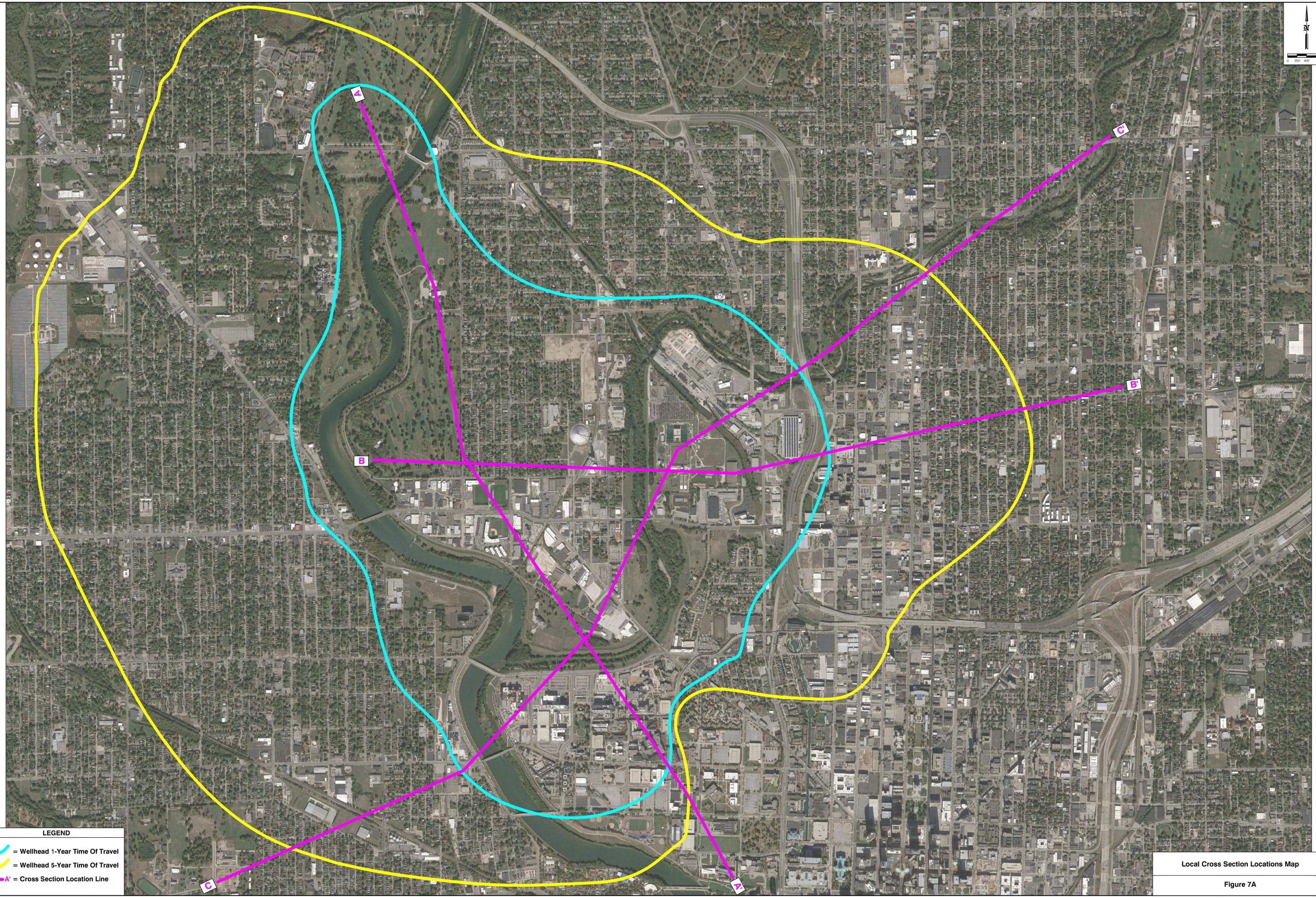
Parcel Boundary
Wellhead 1 Year Delineation
Wellhead 5 Year Delineation

IDEM

November 4, 2020

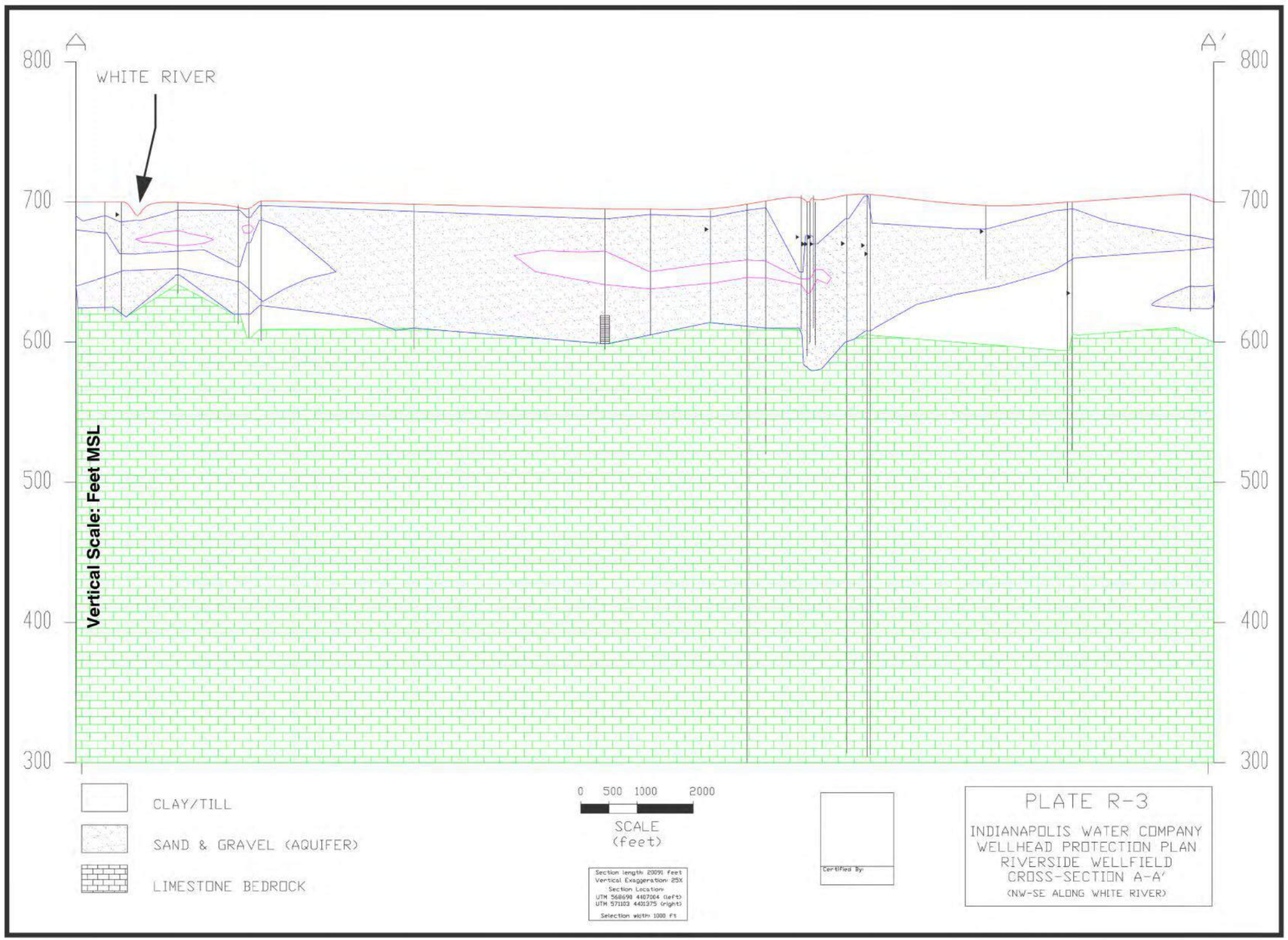
Diane Osborn, LPG, GISP
Indiana Department of Environmental Management
Office of Land Quality - Engineering & GIS Services

0 500 1,000 2,000 3,000 Feet
0 0.5 1 Km



Local Cross Section Locations Map

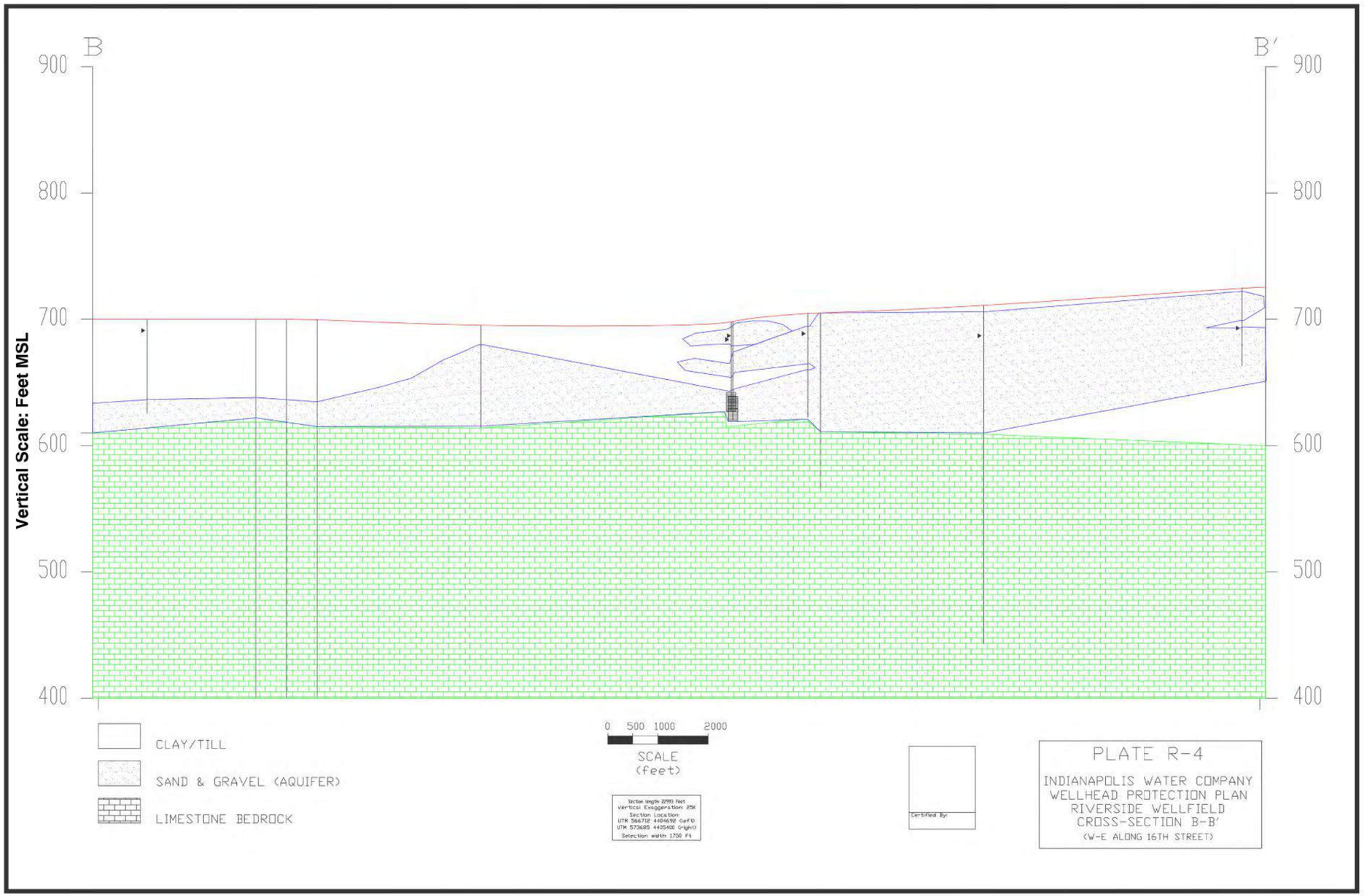
Figure 7A



NOTE: Figure adapted from the Indianapolis Water Company Wellhead Protection Plan

Local Cross Section A - A'

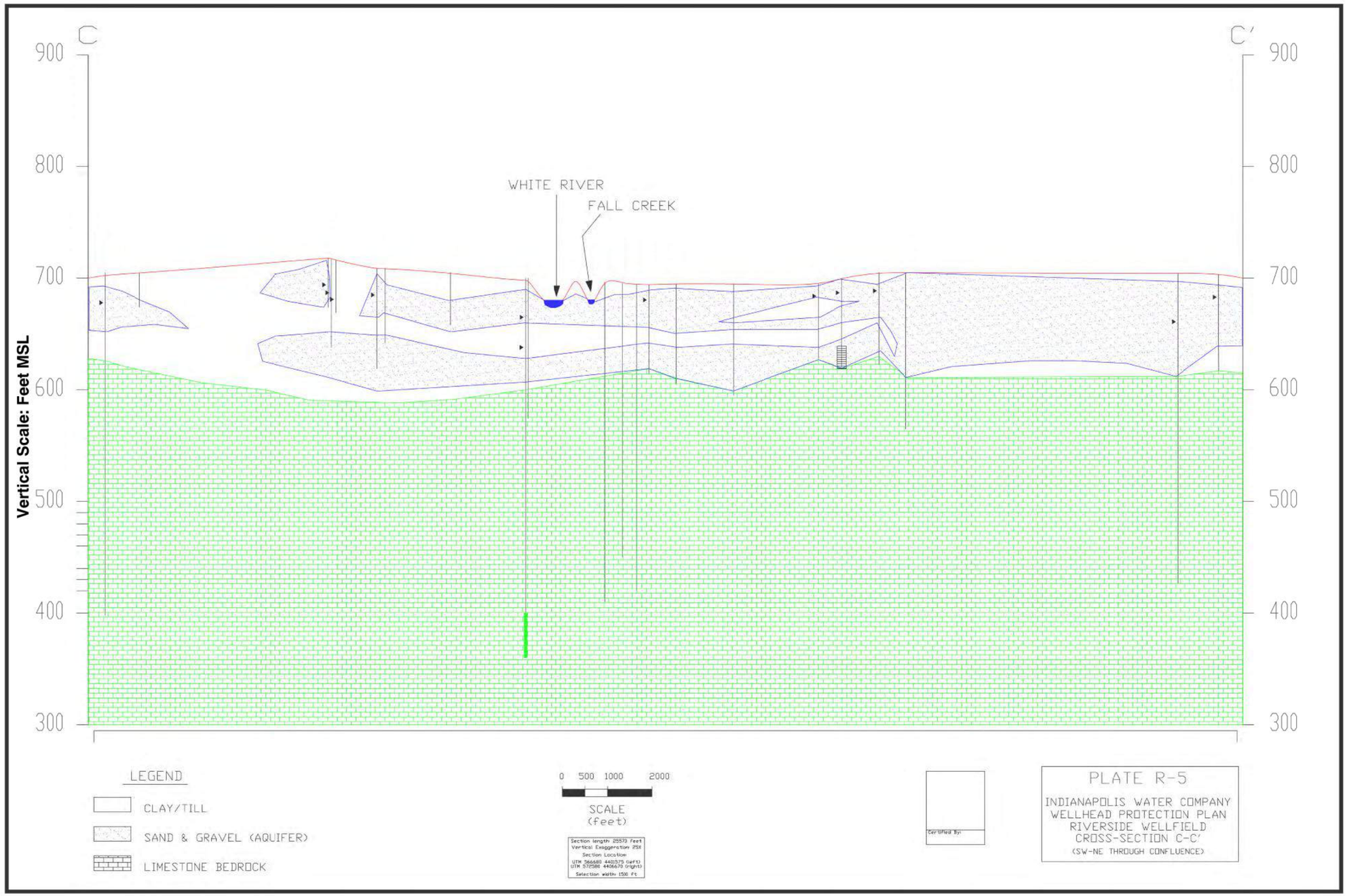
Figure 7B



NOTE: Figure adapted from the Indianapolis Water Company Wellhead Protection Plan

Local Cross Section B - B'

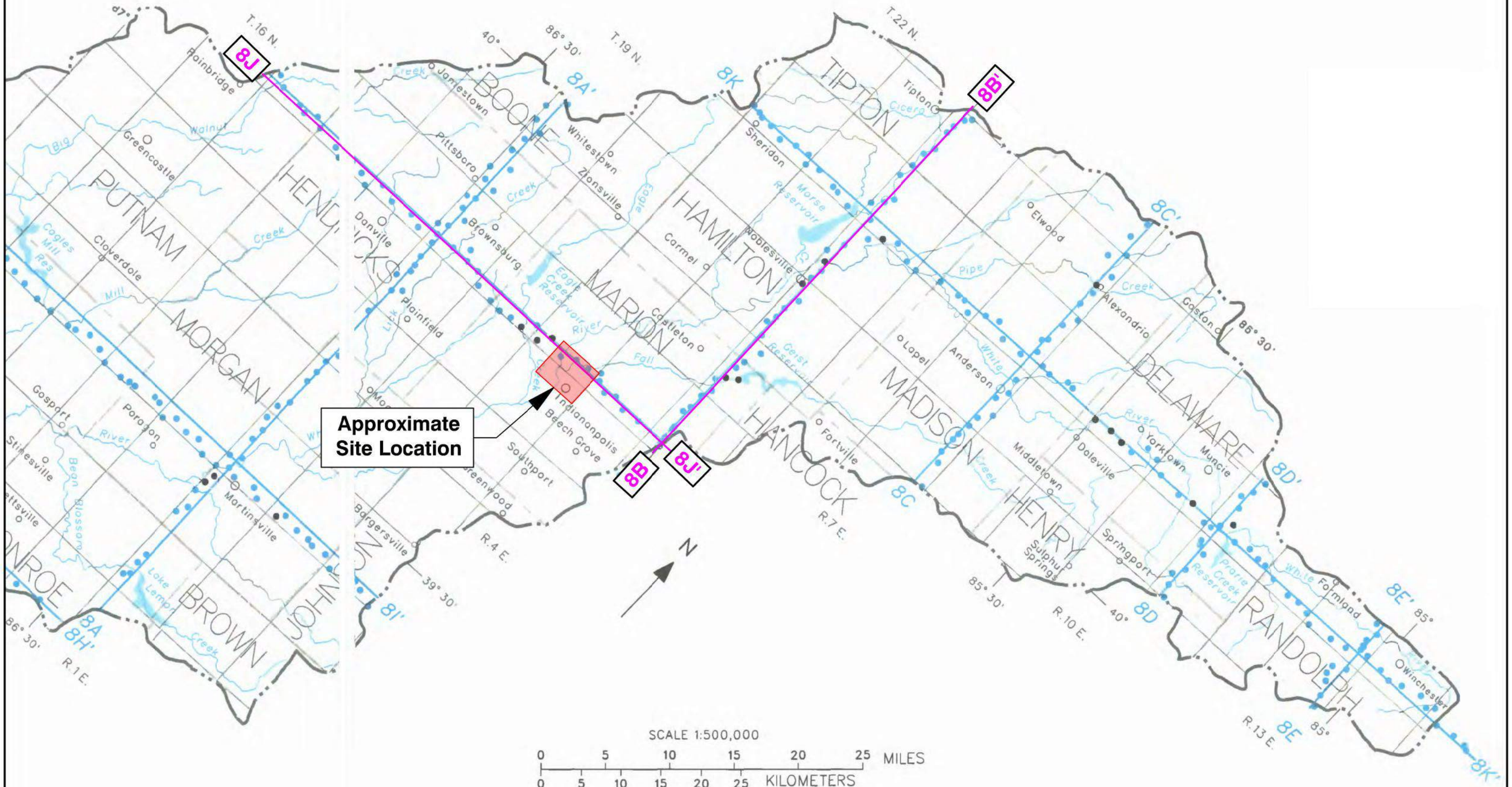
Figure 7C



NOTE: Figure adapted from the Indianapolis Water Company Wellhead Protection Plan

Local Cross Section C - C'

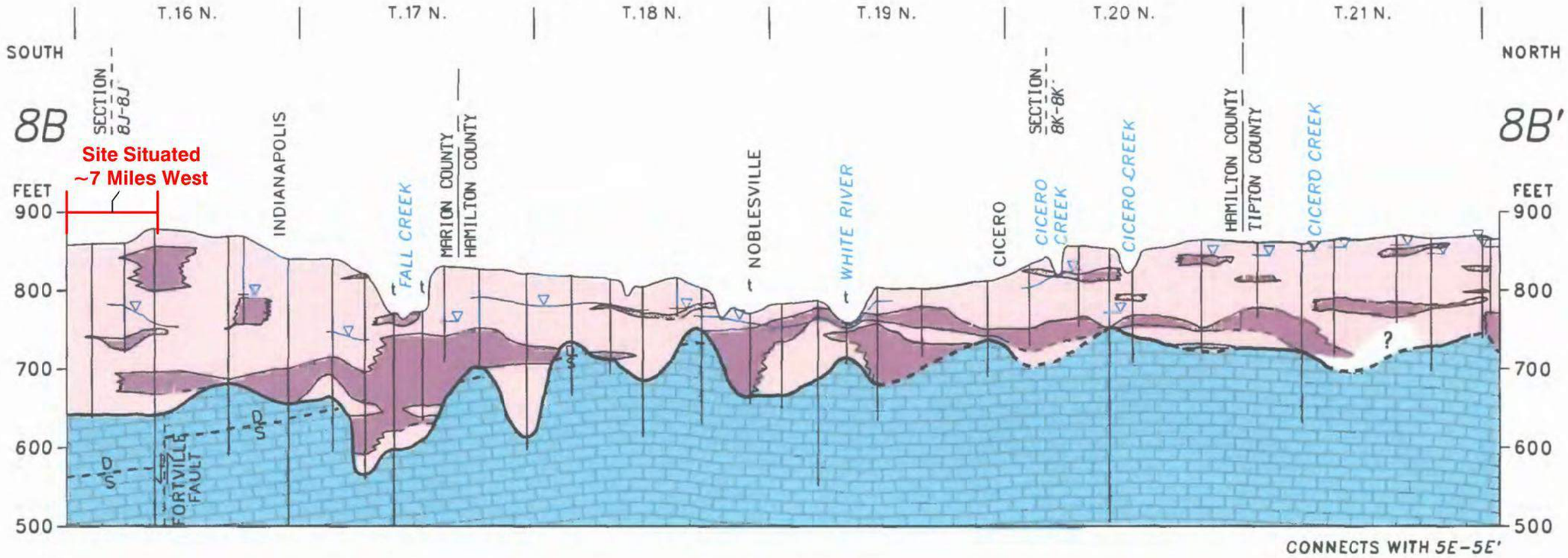
Figure 7D



NOTE: Figure depicts a portion of the White River basin adapted from Figure 54 of the Hydrogeologic Atlas of Aquifers in Indiana (Fenelon, 1994)

Regional Cross Section Location Map

Figure 8A



NOTE: Figure adapted from the Hydrogeologic Atlas of Aquifers in Indiana (Fenelon, 1994)

EXPLANATION

- SAND AND GRAVEL
- UNCONSOLIDATED NONAQUIFER MATERIAL
- LIMESTONE AND DOLOSTONE
- SHALE
- SANDSTONE
- COMPLEXLY INTERBEDDED SANDSTONE, SHALE, AND LIMESTONE
- LIMESTONE AND SHALE
- SILTSTONE AND SHALE, WITH MINOR SANDSTONE AND DISCONTINUOUS LIMESTONE
- COMPLEXLY INTERBEDDED SANDSTONE, SHALE, AND MINOR LIMESTONE AND COAL
- BEDROCK AQUIFER
- BEDROCK AQUIFER--Potentiol unknown
- BEDROCK NONAQUIFER
- ? NO DATA
- BEDROCK SURFACE--Dashed where approximately located
- CHRONOSTRATIGRAPHIC BOUNDARY--Dashed where approximately located
- LITHOLOGIC CONTACT--Dashed where approximately located
- COAL SEAM--Dashed where approximately located
- GENERALIZED POTENTIOMETRIC SURFACE--Dashed where approximately located
- WELL--All well data are projected to trace of section. Dotted where data are incomplete
- FAULT--Arrows show relative displacement
- BASE OF UPPER WEATHERED BEDROCK

? LITHOLOGIC BOUNDARY UNKNOWN
t TEST HOLE--Not drilled for water supply
d DRY HOLE
P PENNSYLVANIAN
M MISSISSIPPIAN
D DEVONIAN
S SILURIAN
O ORDOVICIAN

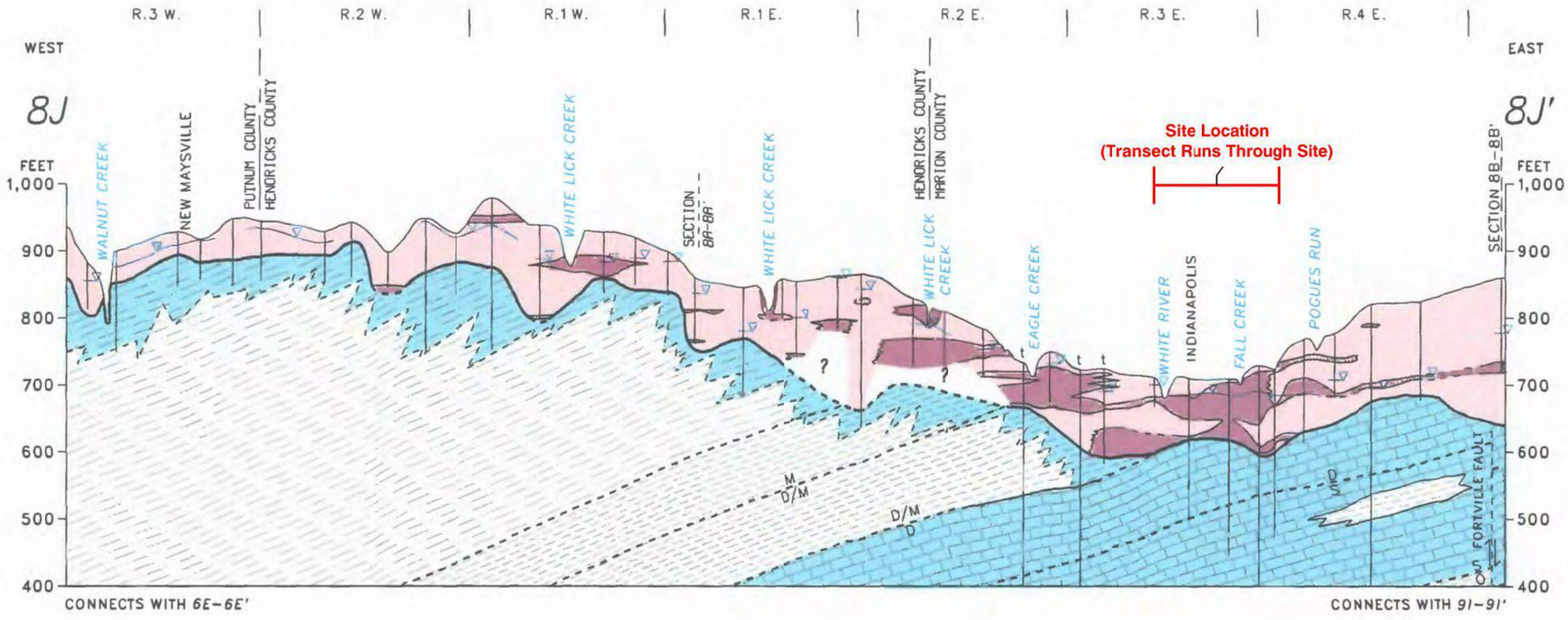
DATUM IS SEA LEVEL
VERTICAL SCALE GREATLY EXAGGERATED

DATUM IS SEA LEVEL
VERTICAL SCALE GREATLY EXAGGERATED

0 5 10 MILES
0 5 10 KILOMETERS

Regional Cross Section 8B - 8B'

Figure 8B



NOTE: Figure acapted from the Hydrogeologic Atlas of Aquifers in Indiana (Fenelon, 1994)

EXPLANATION

- SAND AND GRAVEL
- UNCONSOLIDATED NONAQUIFER MATERIAL
- LIMESTONE AND DOLOSTONE
- SHALE
- SANDSTONE
- COMPLEXLY INTERBEDDED SANDSTONE, SHALE, AND LIMESTONE
- LIMESTONE AND SHALE
- SILTSTONE AND SHALE, WITH MINOR SANDSTONE AND DISCONTINUOUS LIMESTONE
- COMPLEXLY INTERBEDDED SANDSTONE, SHALE, AND MINOR LIMESTONE AND COAL
- BEDROCK AQUIFER
- BEDROCK AQUIFER--Potentiol unknown
- BEDROCK NONAQUIFER
- ? NO DATA
- BEDROCK SURFACE--Doshed where approximately located
- CHRONOSTRATIGRAPHIC BOUNDARY--Doshed where approximately located
- LITHOLOGIC CONTACT--Doshed where approximately located
- COAL SEAM--Doshed where approximately located
- GENERALIZED POTENTIOMETRIC SURFACE--Doshed where approximately located
- WELL--All well data are projected to trace of section. Dotted where data are incomplete
- FAULT--Arrows show relative displacement
- BASE OF UPPER WEATHERED BEDROCK
- ? LITHOLOGIC BOUNDARY UNKNOWN
- t TEST HOLE--Not drilled for water supply
- d DRY HOLE
- P PENNSYLVANIAN
- M MISSISSIPPIAN
- D DEVONIAN
- S SILURIAN
- O ORDOVICIAN

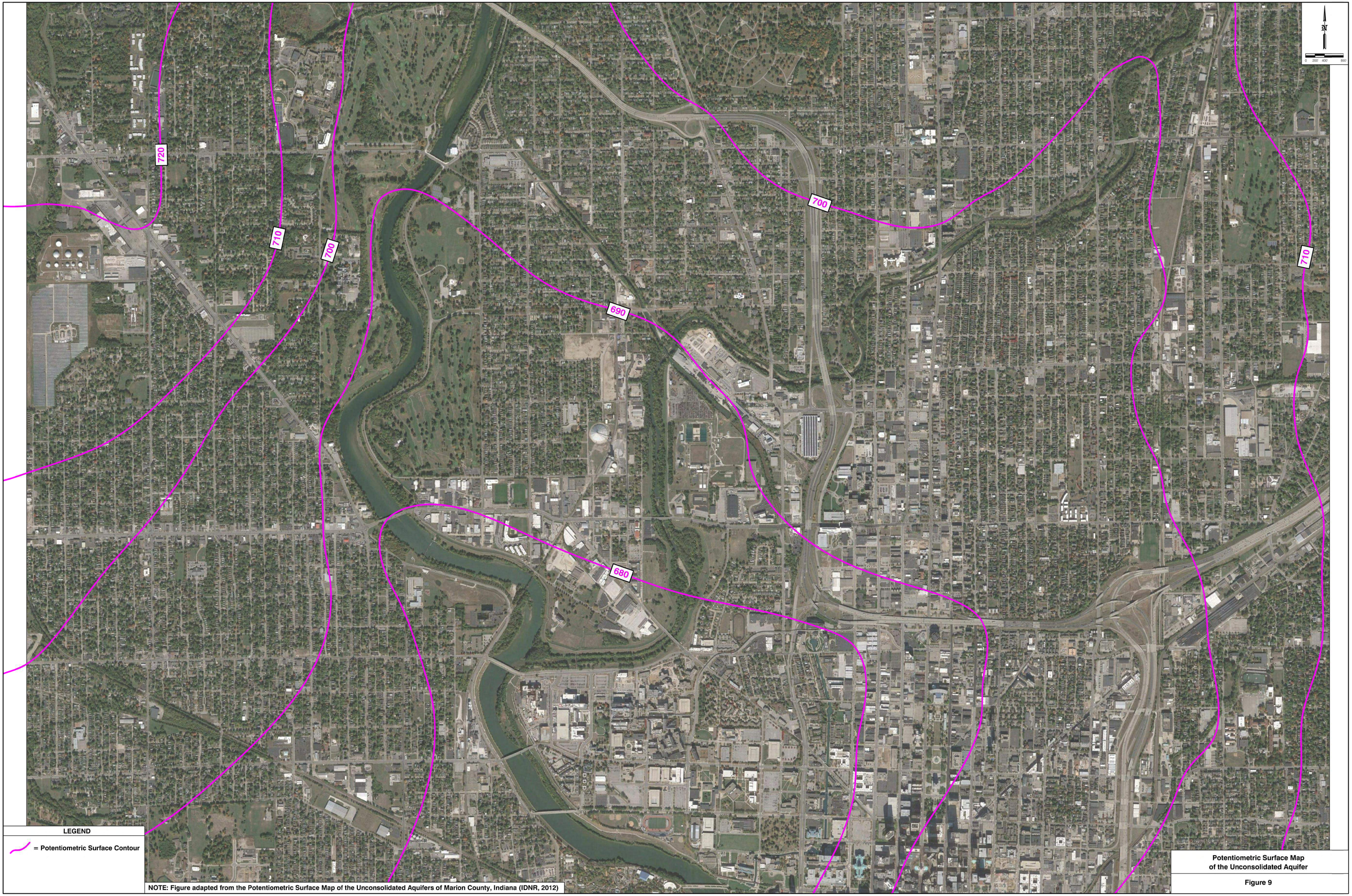
DATUM IS SEA LEVEL
VERTICAL SCALE GREATLY EXAGGERATED

DATUM IS SEA LEVEL
VERTICAL SCALE GREATLY EXAGGERATED

0 5 10 MILES
0 5 10 KILOMETERS

Regional Cross Section 8J - 8J'

Figure 8C



LEGEND

= Potentiometric Surface Contour

NOTE: Figure adapted from the Potentiometric Surface Map of the Unconsolidated Aquifers of Marion County, Indiana (IDNR, 2012)

Potentiometric Surface Map of the Unconsolidated Aquifer

Figure 9

730

720

710

700

700

690

680

670

N

0 200 400 800

LEGEND

= Potentiometric Surface Contour

NOTE: Figure adapted from the Potentiometric Surface Map of the Consolidated Aquifers of Marion County, Indiana (IDNR, 2012)

Potentiometric Surface Map of the Consolidated Aquifer

Figure 10

PROPERTIES WITHIN 5-YEAR TOT

Media	Complete Exposure Pathway?	Controls?
Soil	Controlled	IDEM Remediation Program
Groundwater	Controlled	IDEM Remediation Program
Vapor ntrusion	Controlled	IDEM Remediation Program

WHITE RIVER

Media	Complete Exposure Pathway?	Controls?
Surface Water	Controlled	IDEM Remediaton Program
Sediment	Controlled	IDEM Remediation Program

RIVERSIDE PRODUCTION WELLS

Media	Complete Exposure Pathway?	Controls?
Soil	N/A	N/A
Groundwater	Controlled	Site 0153 Alternative Plan
Vapor Intrusion	N/A	N/A

PROPERTIES WITHIN 5-YEAR TOT

Media	Complete Exposure Pathway?	Controls?
Soil	Controlled	IDEM Remediation Program
Groundwater	Controlled	IDEM Remediation Program
Vapor Intrusion	Controlled	IDEM Remediation Program

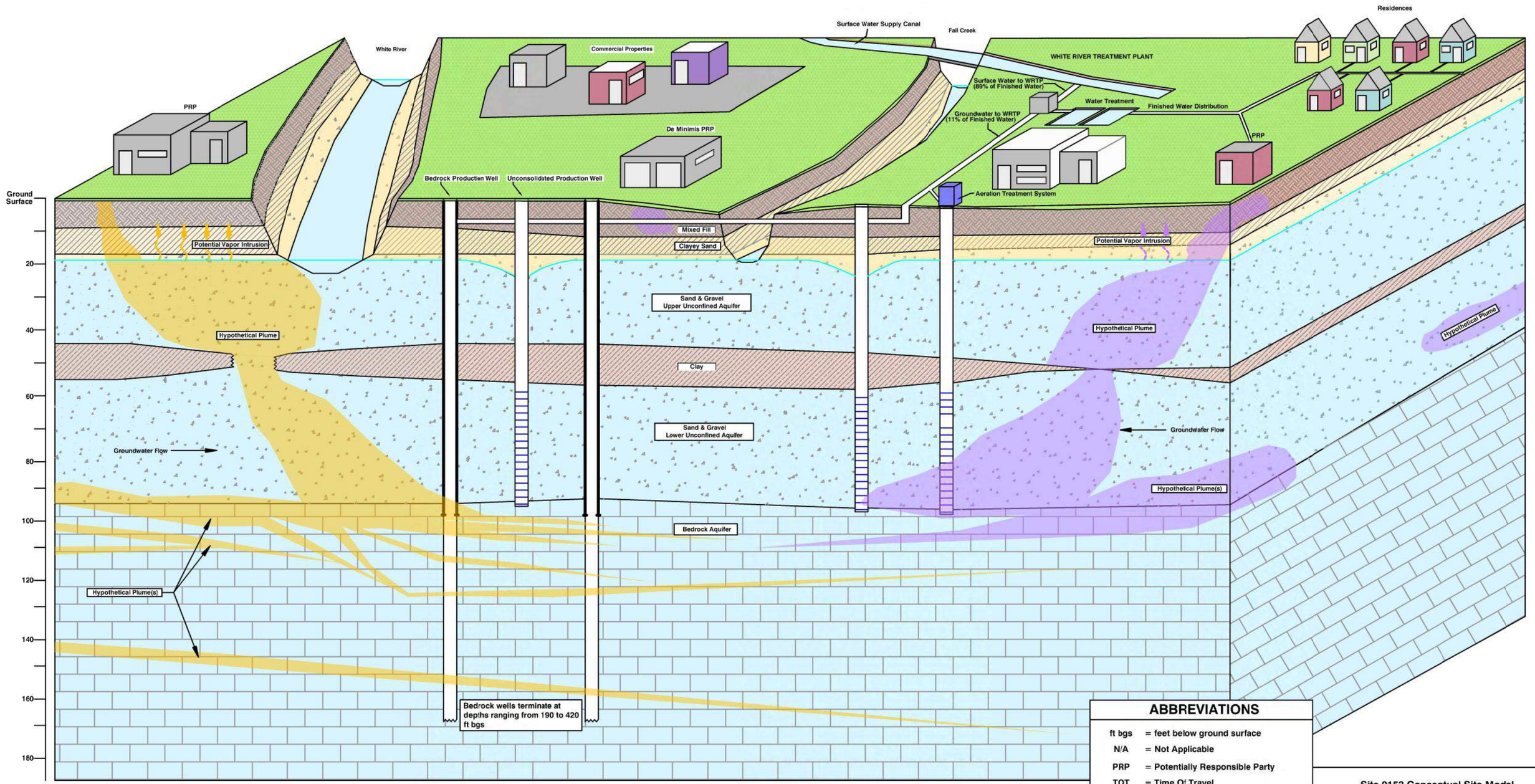
WHITE RIVER PRODUCTION WELLS

Media	Complete Exposure Pathway?	Controls?
Soil	Controlled	N/A
Groundwater	Controlled	Site 0153 Alternative Plan, including aeration
Vapor Intrusion	N/A	N/A

PROPERTIES WITHIN 5-YEAR TOT

Media	Complete Exposure Pathway?	Controls?
Soil	Controlled	IDEM Remediation Program
Groundwater	Controlled	IDEM Remediation Program
Vapor Intrusion	Controlled	IDEM Remediation Program

SOUTHWEST **NORTHEAST**



ABBREVIATIONS

ft bgs	= feet below ground surface
N/A	= Not Applicable
PRP	= Potentially Responsible Party
TOT	= Time Of Travel
WRTP	= White River Treatment Plant

Site 0153 Conceptual Site Model

Figure 11

TABLES

LIST OF TABLES

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS7	07/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	**0.67**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	**0.55**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/02/2007	<0.50	<0.50	<0.50	**2.23**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	**1.74**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	**0.52**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	**3.20**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	**3.40**	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	**3.92**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	**4.00**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	**6.01**	<0.50	<0.50	<0.50	**0.55**	<0.50
	12/02/2009	<0.50	<0.50	<0.50	**1.83**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	**0.96**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	**1.43**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/20/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	**1.00**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	**0.55**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/02/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	**0.57**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/21/2017	<0.50	<0.50	<0.50	**0.70**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/27/2018	<0.50	<0.50	<0.50	**0.71**	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	<0.50	<0.50	**1.13**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	**0.30** J	<0.50	<0.50	<0.50	<0.50	<0.50
	08/27/2019	<0.50	<0.50	<0.50	**1.00**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	**1.78**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	<0.50	<0.50	**1.95**	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

BRL = Below Laboratory Reporting Limits
J = Result is estimated between the MDL and reporting limit.
MDL = Method Detection Limit
NDP = No Data Provided
USEPA = United States Environmental Protection Agency
All results and MCLs are reported in micrograms per liter (µg/L).

The following notes summarize the symbol and color of MCL exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS8	07/22/2005	<0.50	<0.50	<0.50	**1.72**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	**5.17**	<0.50	<0.50	<0.50	**1.52**	<0.50
	04/20/2006	<0.50	<0.50	<0.50	**6.30**	<0.50	<0.50	<0.50	**1.56**	<0.50
	07/18/2006	<0.50	<0.50	<0.50	**5.01**	<0.50	<0.50	<0.50	**0.57**	<0.50
	10/25/2006	<0.50	<0.50	<0.50	**7.79**	<0.50	<0.50	<0.50	**1.28**	<0.50
	02/02/2007	<0.50	<0.50	<0.50	**9.44**	<0.50	<0.50	<0.50	**1.61**	<0.50
	04/25/2007	<0.50	<0.50	<0.50	**8.21**	<0.50	<0.50	<0.50	**1.02**	<0.50
	10/03/2007	<0.50	<0.50	<0.50	**9.03**	<0.50	<0.50	<0.50	**1.35**	<0.50
	07/24/2008	<0.50	<0.50	<0.50	**7.24**	<0.50	<0.50	<0.50	**0.61**	<0.50
	10/22/2008	<0.50	<0.50	<0.50	**10.4**	<0.50	<0.50	<0.50	**1.10**	<0.50
	03/25/2009	<0.50	<0.50	<0.50	**6.97**	<0.50	<0.50	<0.50	**0.83**	<0.50
	12/02/2009	<0.50	<0.50	<0.50	**4.48**	<0.50	<0.50	<0.50	**1.13**	<0.50
	03/03/2010	<0.50	<0.50	<0.50	**4.92**	<0.50	<0.50	<0.50	**0.99**	<0.50
	08/25/2010	<0.50	<0.50	<0.50	**3.64**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	**2.52**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	**6.39**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	**5.86**	<0.50	<0.50	<0.50	**0.56**	<0.50
	02/19/2013	<0.50	<0.50	<0.50	**6.38**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	**7.06**	<0.50	<0.50	<0.50	**0.56**	<0.50
	05/20/2014	<0.50	<0.50	<0.50	**5.79**	<0.50	<0.50	<0.50	<0.50	<0.50
	09/18/2014	<0.50	<0.50	<0.50	**3.02**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	**6.69**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	**3.09**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	**5.30**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/02/2017	<0.50	<0.50	<0.50	**5.87**	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	**3.58**	<0.50	<0.50	<0.50	<0.50	<0.50
	09/19/2017	<0.50	<0.50	<0.50	**2.56**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/21/2017	<0.50	<0.50	<0.50	**2.03**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	<0.50	<0.50	**4.12**	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	**4.83**	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	**4.28**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/15/2018	<0.50	<0.50	<0.50	**2.57**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	<0.50	<0.50	**4.85**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	**4.35**	<0.50	<0.50	<0.50	<0.50	<0.50
	08/27/2019	<0.50	<0.50	<0.50	**4.84**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	**4.59**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	**0.08 J**	**0.08 J**	<0.50	**4.66**	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

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The following notes summarize the symbol and color of MCL exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS9	07/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	**0.80**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	**0.92**	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	**0.56**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	**1.07**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/02/2007	<0.50	<0.50	<0.50	**1.51**	<0.50	<0.50	<0.50	**0.51**	<0.50
	04/25/2007	<0.50	<0.50	<0.50	**0.91**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	**1.73**	<0.50	<0.50	<0.50	**0.56**	<0.50
	01/09/2008	<0.50	<0.50	<0.50	**2.86**	<0.50	<0.50	<0.50	**0.52**	<0.50
	04/15/2008	<0.50	<0.50	<0.50	**2.26**	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	**2.14**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	**2.07**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	**2.82**	<0.50	<0.50	<0.50	**0.58**	<0.50
	10/20/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	**0.63**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	**0.65**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	**0.84**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	**1.13**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	**0.68**	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	**0.52**	<0.50	<0.50	<0.50	<0.50	<0.50
	09/18/2014	<0.50	<0.50	<0.50	**1.18**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	**0.68**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	**1.14**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	**0.85**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	**0.67**	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/21/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/15/2018	<0.50	<0.50	<0.50	**0.57**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2019	<0.50	<0.50	<0.50	**0.97**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	**0.30** J	<0.50	<0.50	<0.50	<0.50	<0.50
	08/27/2019	<0.50	<0.50	<0.50	**0.59**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	**2.42**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	<0.50	<0.50	**2.53**	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

BRL = Below Laboratory Reporting Limits
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MDL = Method Detection Limit
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USEPA = United States Environmental Protection Agency
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The following notes summarize the symbol and color of MCL exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS17	10/19/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/01/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/20/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/18/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/21/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

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		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS18	07/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/09/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/01/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/20/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/18/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/21/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/21/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/15/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

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TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS19	04/20/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/20/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/18/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/23/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/21/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/28/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

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TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS22	02/19/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/17/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/11/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/21/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/27/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/28/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

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TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
August Mack ENVIRONMENTAL		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS26	07/22/2005	<0.50	<0.50	<0.50	**0.58**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	**0.55**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	**0.63**	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	**0.62**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/02/2007	<0.50	<0.50	<0.50	**1.18**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	**0.54**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	**1.35**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	**1.14**	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	**0.96**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	**1.67**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	**1.06**	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	**1.43**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	**1.26**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	**1.01**	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	**0.65**	<0.50	<0.50	<0.50	<0.50	<0.50
	09/18/2014	<0.50	<0.50	<0.50	**2.47**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	**2.26**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/21/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	**2.12**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	**0.60**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/27/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2019	<0.50	<0.50	<0.50	**0.36** J	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	**0.16** J	<0.50	<0.50	<0.50	<0.50	<0.50

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All results and MCLs are reported in micrograms per liter (µg/L).

The following notes summarize the symbol and color of MCL exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS29 (Renamed RS29R in January 2020)	04/06/2004	<0.50	<0.50	NDP	**14.2**	<0.50	<0.50	<0.50	**2.25** ^	<0.50
	07/22/2005	<0.50	<0.50	<0.50	**11.7**	<0.50	<0.50	<0.50	**1.47**	<0.50
	01/25/2006	<0.50	<0.50	<0.50	**18.4**	**0.54**	<0.50	<0.50	**3.07** ^	<0.50
	04/20/2006	<0.50	<0.50	<0.50	**13.9**	<0.50	<0.50	<0.50	**1.81**	<0.50
	07/18/2006	<0.50	<0.50	<0.50	**13.1**	<0.50	<0.50	<0.50	**1.31**	<0.50
	10/25/2006	<0.50	<0.50	<0.50	**12.3**	<0.50	<0.50	<0.50	**1.34**	<0.50
	02/02/2007	<0.50	<0.50	<0.50	**13.7**	<0.50	<0.50	<0.50	**1.32**	<0.50
	04/25/2007	<0.50	<0.50	<0.50	**10.8**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	**13.5**	<0.50	<0.50	<0.50	**1.23**	<0.50
	03/03/2010	<0.50	<0.50	<0.50	**15.1**	<0.50	<0.50	<0.50	**1.63**	<0.50
	08/25/2010	<0.50	<0.50	<0.50	**10.5**	<0.50	<0.50	<0.50	**0.91**	<0.50
	03/17/2011	<0.50	<0.50	<0.50	**12.2**	<0.50	<0.50	<0.50	**1.10**	<0.50
	03/08/2012	<0.50	<0.50	<0.50	**16.6**	<0.50	<0.50	<0.50	**1.02**	<0.50
	11/28/2012	<0.50	<0.50	<0.50	**15.4**	<0.50	<0.50	<0.50	**1.17**	<0.50
	02/19/2013	<0.50	<0.50	<0.50	**16.1**	<0.50	<0.50	<0.50	**0.57**	<0.50
	11/25/2013	<0.50	<0.50	<0.50	**15.7**	<0.50	<0.50	<0.50	**1.09**	<0.50
	05/20/2014	<0.50	<0.50	<0.50	**15.3**	<0.50	<0.50	<0.50	**0.67**	<0.50
	09/19/2014	<0.50	<0.50	<0.50	**10.8**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	**9.91**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	**12.2**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	**9.05**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	**10.6**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	**10.3**	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	**9.29**	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	**10.5**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/21/2017	<0.50	<0.50	<0.50	**9.58**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	<0.50	<0.50	**8.55**	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	**9.54**	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	**9.14**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/15/2018	<0.50	<0.50	<0.50	**10.8**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2019	<0.50	<0.50	<0.50	**6.59**	<0.50	<0.50	<0.50	**0.19** J	<0.50
	04/29/2019	<0.50	<0.50	<0.50	**6.76**	<0.50	<0.50	<0.50	<0.50	<0.50
	08/27/2019	<0.50	<0.50	<0.50	**6.54**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/20/2020	**0.32** J	**0.08** J	<0.50	**8.62**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/04/2020	**0.31** J	**0.11** J	<0.50	**7.93**	<0.50	<0.50	<0.50	<0.50	<0.50
RS30	09/18/2018	<0.50	<0.50	<0.50	**2.81**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/17/2019	<0.50	<0.50	<0.50	**1.55**	<0.50	<0.50	<0.50	<0.50	<0.50

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		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RSA	12/17/2004	<0.50	<0.50	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/22/2004	<0.50	<0.50	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/28/2005	<0.50	<0.50	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/21/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/19/2005	<0.50	<0.50	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/01/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/24/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/17/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/17/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/21/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/27/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/27/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

BRL = Below Laboratory Reporting Limits
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All results and MCLs are reported in micrograms per liter (µg/L).

The following notes summarize the symbol and color of MCL exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RSB	12/22/2004	<0.50	<0.50	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/27/2005	<0.50	<0.50	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/19/2005	<0.50	<0.50	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/01/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/18/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/27/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/27/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/15/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/30/2019	<0.50	**0.41** J	<0.50	**0.55**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	**0.25** J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2019	<0.50	**0.25** J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	**0.29** J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	**0.37** J	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

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The following notes summarize the symbol and color of MCL exceedances:
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TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RSC	07/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/19/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/02/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/27/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/03/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/04/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/18/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/09/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/18/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/27/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/27/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

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		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RSD	10/19/2005	<0.50	<0.50	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/27/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/02/2007	<0.50	<0.50	<0.50	**0.57**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/29/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/20/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/21/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/15/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/13/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/02/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/05/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/27/2019	<0.50	<0.50	<0.50	**0.23** J	<0.50	<0.50	<0.50	<0.50	<0.50
	10/16/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

BRL = Below Laboratory Reporting Limits
J = Result is estimated between the MDL and reporting limit.
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The following notes summarize the symbol and color of MCL exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
WR7	04/06/2004	<0.50	**0.52**	NDP	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/21/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	**0.54**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/19/2006	<0.50	**0.55**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	**0.62**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/31/2007	<0.50	**0.52**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	**0.52**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	**0.53**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	**0.61**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/21/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/17/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/21/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/14/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/13/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/22/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/27/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/22/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/29/2019	<0.50	**0.20** J	<0.50	**0.21** J	<0.50	<0.50	<0.50	<0.50	<0.50
	08/26/2019	<0.50	**0.14** J	<0.50	**0.26** J	<0.50	<0.50	<0.50	<0.50	<0.50
	10/15/2019	<0.50	**0.22** J	<0.50	**0.31** J	<0.50	<0.50	<0.50	<0.50	<0.50
	01/16/2020	<0.50	**0.24** J	<0.50	**0.29** J	<0.50	<0.50	<0.50	<0.50	<0.50

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TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
WR8	07/21/2005	<0.50	<0.50	<0.50	**0.95**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	**1.09**	<0.50	<0.50	**0.57**	<0.50	<0.50
	04/19/2006	<0.50	**0.52**	<0.50	**0.90**	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	**0.73**	<0.50	**1.12**	<0.50	<0.50	**0.51**	<0.50	<0.50
	10/25/2006	<0.50	**1.76**	<0.50	**0.91**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/31/2007	<0.50	**0.58**	<0.50	**1.02**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	**0.84**	<0.50	**1.05**	<0.50	<0.50	**0.51**	<0.50	<0.50
	10/03/2007	<0.50	**1.09**	<0.50	**0.96**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	**0.81**	<0.50	**0.94**	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	**0.84**	<0.50	**0.97**	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	**1.02**	<0.50	**0.93**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	**1.69**	<0.50	**0.91**	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	**1.87**	<0.50	**0.67**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	**0.81**	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	**0.66**	<0.50	**0.91**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	**0.81**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	**0.60**	<0.50	**0.92**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	**0.94**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	**0.57**	<0.50	**1.07**	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	**0.65**	<0.50	**1.14**	<0.50	<0.50	**0.54**	<0.50	<0.50
	05/21/2014	<0.50	**0.64**	<0.50	**1.02**	<0.50	<0.50	<0.50	<0.50	<0.50
	09/17/2014	<0.50	<0.50	<0.50	**0.94**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	**0.55**	<0.50	**1.13**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/21/2015	<0.50	**0.64**	<0.50	**1.14**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/14/2016	<0.50	**0.67**	<0.50	**1.00**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2016	<0.50	**0.81**	<0.50	**0.90**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	**0.71**	<0.50	**0.92**	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	**0.63**	<0.50	**1.17**	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	**0.81**	<0.50	**1.01**	<0.50	<0.50	<0.50	<0.50	<0.50
	11/22/2017	<0.50	**0.87**	<0.50	**0.65**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	**0.53**	<0.50	**0.93**	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	**0.65**	<0.50	**1.27**	<0.50	<0.50	<0.50	<0.50	<0.50
	08/22/2018	<0.50	**0.50**	<0.50	**1.00**	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2018	<0.50	**0.70**	<0.50	**1.10**	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	**0.64**	<0.50	**1.36**	<0.50	<0.50	**0.47** J	<0.50	<0.50
	04/29/2019	<0.50	**0.44** J	<0.50	**1.19**	<0.50	<0.50	**0.36** J	<0.50	<0.50
	08/26/2019	<0.50	**0.47** J	<0.50	**1.13**	<0.50	<0.50	**0.40** J	<0.50	<0.50
	10/15/2019	<0.50	**0.59**	<0.50	**1.35**	<0.50	<0.50	**0.42** J	<0.50	<0.50
	01/16/2020	<0.50	**0.53**	<0.50	**1.20**	<0.50	<0.50	**0.36** J	<0.50	<0.50

Abbreviations & Notes

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		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
WR9	07/21/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/19/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/31/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	**6.12** ^	**6.54**	<0.50	<0.50	<0.50	**2.46**	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.51**	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	<0.50	<0.50	**1.28**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/09/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	**0.52**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.52**	<0.50	<0.50
	05/21/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/17/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/21/2015	<0.50	**2.87**	**1.87**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/14/2016	<0.50	**0.70**	**0.62**	<0.50	<0.50	<0.50	**0.55**	<0.50	<0.50
	10/12/2016	<0.50	**1.20**	**0.84**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/01/2017	<0.50	**0.60**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/14/2017	<0.50	**0.54**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/29/2017	<0.50	**0.68**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/22/2017	<0.50	**0.91**	**0.57**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/20/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	06/06/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/22/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/12/2018	<0.50	**0.55**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/15/2019	<0.50	**0.32** J	**0.21** J	<0.50	<0.50	<0.50	**0.42** J	<0.50	<0.50
	04/29/2019	<0.50	**0.22** J	<0.50	<0.50	<0.50	<0.50	**0.33** J	<0.50	<0.50
	08/26/2019	<0.50	**0.19** J	**0.23** J	**0.19** J	<0.50	<0.50	**0.34** J	<0.50	<0.50
	10/15/2019	<0.50	**0.19** J	<0.50	**0.19** J	<0.50	<0.50	**0.38** J	<0.50	<0.50
	01/16/2020	<0.50	**0.22** J	**0.14** J	<0.50	<0.50	<0.50	**0.33** J	<0.50	<0.50

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^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
The following wells have been abandoned or taken out of service over the course of monitoring. Data presented is for reference only.										
WR3 (Out of Service - June 2016)	04/07/2004	<0.50	**6.95** ^	NDP	**1.74**	<0.50	<0.50	**0.90**	<0.50	<0.50
	01/26/2005	<0.50	**6.78** ^	NDP	**1.60**	<0.50	<0.50	**0.87**	<0.50	<0.50
	04/21/2005	<0.50	**7.20** ^	**1.26**	**1.68**	<0.50	<0.50	**0.84**	<0.50	<0.50
	07/21/2005	<0.50	**7.57** ^	**1.31**	**1.87**	<0.50	<0.50	**0.92**	<0.50	<0.50
	10/19/2005	<0.50	**6.65** ^	**1.29**	**1.57**	<0.50	<0.50	**0.83**	<0.50	<0.50
	01/25/2006	<0.50	**8.18** ^	**1.27**	**1.81**	<0.50	<0.50	**0.95**	<0.50	<0.50
	04/19/2006	<0.50	**7.69** ^	**1.23**	**1.63**	<0.50	<0.50	**0.88**	<0.50	<0.50
	10/25/2006	<0.50	**5.64** ^	**0.94**	**1.30**	<0.50	<0.50	**0.74**	<0.50	<0.50
	01/31/2007	<0.50	**6.92** ^	**1.26**	**1.42**	<0.50	<0.50	**0.83**	<0.50	<0.50
	04/25/2007	<0.50	**5.37** ^	**0.91**	**1.40**	<0.50	<0.50	**0.82**	<0.50	<0.50
	07/23/2008	<0.50	**4.67**	<0.50	**1.69**	<0.50	<0.50	**0.66**	<0.50	<0.50
	10/22/2008	<0.50	**5.27** ^	**0.55**	**1.95**	<0.50	<0.50	**0.79**	<0.50	<0.50
	12/02/2009	<0.50	**4.43**	**0.58**	**1.43**	<0.50	<0.50	**0.60**	<0.50	<0.50
	03/03/2010	<0.50	**5.55** ^	**0.75**	**1.63**	<0.50	<0.50	**0.72**	<0.50	<0.50
	08/25/2010	<0.50	**5.60** ^	**0.83**	**1.59**	<0.50	<0.50	**0.78**	<0.50	<0.50
	03/17/2011	<0.50	**6.09** ^	**0.83**	**1.32**	<0.50	<0.50	**0.63**	<0.50	<0.50
	11/28/2012	<0.50	**6.54** ^	**0.88**	**1.59**	<0.50	<0.50	**0.82**	<0.50	<0.50
	02/19/2013	<0.50	**6.12** ^	**0.71**	**1.70**	<0.50	<0.50	**0.79**	<0.50	<0.50
	11/25/2013	<0.50	**5.33** ^	**0.84**	**1.69**	<0.50	<0.50	**0.69**	<0.50	<0.50
	02/19/2014	<0.50	**6.36** ^	**0.96**	**1.63**	<0.50	<0.50	**0.76**	<0.50	<0.50
	05/21/2014	<0.50	**6.11** ^	**0.72**	**2.01**	<0.50	<0.50	**0.79**	<0.50	<0.50
	09/17/2014	<0.50	**5.24** ^	**0.61**	**1.67**	<0.50	<0.50	**0.61**	<0.50	<0.50
	03/10/2015	<0.50	**5.68** ^	**0.76**	**1.72**	<0.50	<0.50	**0.66**	<0.50	<0.50
	10/21/2015	<0.50	**5.44** ^	**0.62**	**1.70**	<0.50	<0.50	<0.50	<0.50	<0.50
	03/14/2016	<0.50	**5.55** ^	**0.70**	**1.67**	<0.50	<0.50	**0.68**	<0.50	<0.50
WR6 (Out of Service - 2007) (Abandoned)	04/06/2004	<0.50	**12.7** ^	NDP	**1.26**	<0.50	<0.50	**1.84**	<0.50	<0.50
	01/26/2005	<0.50	**12.4** ^	NDP	**1.22**	<0.50	<0.50	**1.43**	<0.50	<0.50
	04/21/2005	<0.50	**13.3** ^	**9.99**	**1.26**	<0.50	<0.50	**1.44**	<0.50	<0.50
	07/21/2005	<0.50	**15.9** ^	**11.5**	**1.39**	<0.50	<0.50	**1.67**	<0.50	<0.50
	10/19/2005	<0.50	**15.6** ^	NDP	**1.42**	<0.50	<0.50	**1.59**	<0.50	<0.50
	01/25/2006	<0.50	**18.9** ^	**12.1**	**1.44**	<0.50	<0.50	**1.61**	<0.50	<0.50
	04/19/2006	<0.50	**19.2** ^	**12.3**	**1.25**	<0.50	<0.50	**1.42**	<0.50	<0.50
	10/25/2006	<0.50	**18.3** ^	**12.0**	**1.11**	<0.50	<0.50	**1.26**	<0.50	<0.50

Abbreviations & Notes

BRL = Below Laboratory Reporting Limits
J = Result is estimated between the MDL and reporting limit.
MDL = Method Detection Limit
NDP = No Data Provided
USEPA = United States Environmental Protection Agency
All results and MCLs are reported in micrograms per liter (µg/L).

The following notes summarize the symbol and color of MCL exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 1
RIVERSIDE AND WHITE RIVER PRODUCTION WATER cVOC ANALYTICAL RESULTS

		Chlorinated Volatile Organic Compounds (cVOCs)								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
RS2 (Out of Service - March 2015) (Abandoned)	07/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/02/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	**3.25**	<0.50	<0.50	<0.50	**0.51**	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/23/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/17/2011	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/25/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/20/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	09/17/2014	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/10/2015	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
RS27 (Out of Service - March 2014) (Abandoned)	07/22/2005	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/20/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/18/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/25/2006	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/02/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/25/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/03/2007	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	01/09/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	04/15/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	07/23/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	10/22/2008	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/25/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	12/02/2009	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/03/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/25/2010	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	03/08/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/28/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/19/2013	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
RS28 (Out of Service - 1989) (Abandoned)	09/18/2012	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

BRL = Below Laboratory Reporting Limits
J = Result is estimated between the MDL and reporting limit.
MDL = Method Detection Limit
NDP = No Data Provided
USEPA = United States Environmental Protection Agency
All results and MCLs are reported in micrograms per liter (µg/L).

The following notes summarize the symbol and color of MCL exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

TABLE 2

RIVERSIDE AND WHITE RIVER
FINISHED WATER cVOC ANALYTICAL RESULTS

		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level		**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample ID	**Date Collected**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
WHITE RIVER PLANT (WR PD)	02/08/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/11/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/09/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/07/2016	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/08/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/16/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/15/2017	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/27/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/16/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/15/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/12/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/11/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	05/15/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	08/12/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	11/11/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	02/12/2020	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Abbreviations & Notes

cVOC = Chlorinated Volatile Organic Compound
USEPA = United States Environmental Protection Agency
PD = Pump Discharge
NE = Not Established
NDP = No Data Provided
BRL = Below Laboratory Reporting Limits
All results and Screening Levels are reported in micrograms per liter (µg/L).

The following notes summarize the symbol and color of screening level exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

Table 3
Site 0153 Summary of Information Request Letters

Address		Additional Description	Site Name	NOL	NFA
410	W 10th St	Not Applicable	Indiana University	-	-
805	W 10th St	Not Applicable	Indy Avenue, LLC	-	-
1001	W 10th St	Not Applicable	Indiana University	-	-
1101	W 10th St	Not Applicable	Indiana University	-	-
1481	W 10th St	Not Applicable	VA Medical Center	-	-
1717	W 10th St	Not Applicable	Annex on 10th, LLC	-	-
1802	W 10th St	Not Applicable	Advantage Manufacturing, LLC	-	-
322	W 11th St	Not Applicable	Indiana University Health	-	-
227	W 14th St	aka 1315/1325 Senate Ave.	Methodist Health Group, Inc.	-	-
333	W 14th St	Not Applicable	Indiana University Health	-	-
1701	W 15th St	Not Applicable	Indiana University	-	-
450	W 16th Pl	Properties northeast of 16th St. & Dr. MLK Jr St.	Former Ashijan Brothers Rug Cleaners	✓	-
550	W 16th St	Properties northwest of 16th St. & Dr. MLK Jr St.	Former Parker Property NW (Haag Trucking Company, Inc.)	✓	-
700	W 16th St	Not Applicable	United Parcel Service Inc	-	-
800	W 16th St	Not Applicable	McBroom Electric	✓	-
929	W 16th St	Not Applicable	Printing Partners Inc	-	-
940	W 16th St	Not Applicable	Parts Landlord LLC	✓	-
1102	W 16th St	Not Applicable	Keco Engineered Coatings, Inc.	-	-
1125	W 16th St	Not Applicable	Black & Decker (US), Inc.	-	-
1141	W 16th St	Not Applicable	Cresent Electric	-	-
1175	W 16th St	Not Applicable	Godwin Co, Inc.	-	-
1202	W 16th St	Not Applicable	Disney Tire Co Inc.	-	-
1300	W 16th St	Not Applicable	Indy Imaging Inc.	-	-
1345	W 16th St	Not Applicable	Indiana University	-	-
1661	W 16th St	Not Applicable	D.E. Baugh Co., Inc.	-	-
1830	W 16th St	Not Applicable	Indiana University	-	-
1930	W 16th St	Not Applicable	R. Falcone Real Estate, LLC	✓	✓
2605	W 16th St	Not Applicable	Kash Cleaners	✓	-
2915	W 16th St	2915-2917 W 16th St.	G & G Laundry Connection of Indiana	-	-
212	E 16th St	Not Applicable	Relative Investments, LLC	-	-
1160	W 18th St	1102-1160 W. 18th St./1870, 2235 Montcalm St.	Central Soya / Bunge North America	-	-
1233	W 18th St	Not Applicable	Industrial Coating Services Inc.	-	-
1277	W 18th St	Not Applicable	Indiana Bell Telephone Company Inc.	-	-
1825	W 18th St	Not Applicable	Flexdar Inc.*	✓	-
500	W 21st St	and 2171 Dr MLK Jr St.	Industrial Heat Treating & Metallurgial Co. Inc. / Bodycote Thermal Processing	✓	-
1100	W 21st St	and 1133 Burdsal Pkwy.	Former Carrier-Bryant Facility	✓	-
1017	W 23rd St.	1017 W 23rd & 1021 Fall Creek Blvd.	Merss Corporation	-	-
1037	W 25th St	Not Applicable	Merpen, Inc.	-	-
1279	W 29th St	and 1259 W 29th St.	Former American Towel	✓	-
1720	Alvord St.	Not Applicable	Wash Rite Co	✓	✓
2750	Barnes Ave.	Not Applicable	2750 Barnes Ave, LLC	-	-
2802	Barnes Ave.	2802 Barnes Ave. and 1176 W. 28th St.	Horning's Inc.	-	-
2820	Barnes Ave.	Not Applicable	The Breiner Company, Inc.	-	-
345	Barnhill Dr.	Not Applicable	Indiana University	-	-
402	N Blackford St.	Not Applicable	Indiana University	-	-
1107	Burdsal Pkwy	1107, & 1111 Burdsal Pkwy.	Summit Construction Co., Inc	-	-
1133	Burdsal Pkwy	1133 Burdsal Pkwy.	Staley Signs, Inc.	-	-
2535	Burton Ave	Not Applicable	KRC Holdings, LLC	-	-
1234	N Capitol Ave	Not Applicable	Greater Diversified*	✓	✓
1245	N Capitol Ave	fka 1201 N Capitol Ave.	1300 Lexington Partners, LLC	-	-
1302	N Capitol Ave	1302, 1316, 1318 N Capitol Ave. & 221 W 13th St.	LLR Realty, LLC	-	-
1310	N Capitol Ave	Not Applicable	Henley Custom Furniture Inc.	-	-
1411	N Capitol Ave	Properties on E side of Capitol St., between 14th & 15th St.	Herff Jones LLC	✓	✓
632	Dr MLK Jr St	632-634 Dr MLK Jr St.	Former Willis Mortuary	-	-
1011	Dr MLK Jr St	Not Applicable	IU Parcel 1011 MLK St.	-	-

NOL = Notice of Liability
NFA = No Further Action
✓ = Received NOL/NFA for Site 0153
* = Site did not receive a RFI but is located in close proximity to the Wellfields and received either a NOL and/or a NFA

Table 3
Site 0153 Summary of Information Request Letters

Address		Additional Description	Site Name	NOL	NFA
1575	Dr MLK Jr St	Not Applicable	Children's Bureau Foundation, Inc	-	-
1704	Dr MLK Jr St	Not Applicable	Pennyman's Inc.	✓	✓
1920	Dr MLK Jr St	and 1922 Dr MLK Jr St.	Bredensteiner & Associates, Inc.	-	-
2000	Dr MLK Jr St	Not Applicable	The Home City Ice Company	-	-
2005	Dr MLK Jr St	Not Applicable	Peerless Pump / Sterling Fluid Manufacturing	-	-
2122	Dr MLK Jr St	Not Applicable	Former Hittle Machine and Tool	✓	-
560	N Elder Ave.	Not Applicable	Elder Avenue LLC	-	-
1631	Gent Ave	Not Applicable	Component Machine*	✓	-
1701	Gent Ave	Not Applicable	Boyle Racing Headquarters	✓	-
2658	N Harding St	Not Applicable	Harding Church Street of God	-	-
1002	N Illinois Ave	950 N Meridian St., 915 & 937 Capitol Ave., 110 & 148 West 10th St.	Indiana University Health	-	-
1302	N Illinois St	Not Applicable	Mahrdt Properties, Inc.	-	-
1352	N Illinois St	Not Applicable	Michaelis/Fame Laundry*	✓	✓
1449	N Illinois St	Not Applicable	Karstadt-Reed Cleaners*	✓	-
2179	N Illinois St	Not Applicable	Near North Develepment	✓	-
617	Indiana Ave	617-625 Indiana Ave.	Madame Walker Urban Life Center / Former Raymond Baird Cleaners	✓	✓
719	Indiana Ave	formerly 643-647 Indiana Ave.	Indiana Avenue Properties LLC	-	-
777	Indiana Ave	includes 741-799 Indiana Ave.	Indianapolis Urban League Inc.	-	-
1200	Indiana Ave	Not Applicable	Indiana University	-	-
1201	Indiana Ave	aka Stadium Dr	Indiana University	-	-
1302	Indiana Ave	Not Applicable	Indiana University	-	-
1325	Indiana Ave	Not Applicable	Indiana University	-	-
1350	Indiana Ave	Not Applicable	Indiana University	-	-
1410	Indiana Ave	Not Applicable	Indiana University	-	-
1430	Indiana Ave	Not Applicable	Indiana University	-	-
2962	Kessler Blvd	2962-2970 Kessler Blvd.	30th & Kessler	✓	✓
1910	Lafayette Rd	aka 1901 Bellview Pl.	American 1 Hour Cleaners	✓	-
960	Locke St	1001 West 10th St.	Indiana University	-	-
2198	N Meridian St.	Not Applicable	Sparkle Cleaners	-	-
419	W Michigan St	419-21 W Michigan St.	Ace Janitorial Service of Indiana Inc.	-	-
935	W Michigan St	935-57 W Michigan St.	Bowers Envelope Company, Inc.	-	-
957	W Michigan St	Not Applicable	Indiana University	-	-
1226	W Michigan St	Not Applicable	Indiana University	-	-
1635	W Michigan Ave	Not Applicable	Goodwill Industries	✓	-
1311	Milburn St	Not Applicable	Indiana University (IU Block Trucking)	-	-
1960	Montcalm St	1960-2020 Montcalm St.	Sanitec of Indiana, Inc.	-	-
2120	Montcalm St	Not Applicable	Ben Hur Construction Company	-	-
2260	Montcalm St	Not Applicable	American Block Company, Inc.	-	-
521	W North St	521-529 W North St.	Indiana University	-	-
315	Patterson St	Not Applicable	Indiana University	-	-
317	Patterson St	Not Applicable	Indiana University	-	-
2175	N Pennsylvania St	Not Applicable	Penn 60 Min Cleaners	✓	-
1620	Rembrandt St	Not Applicable	Northbrook Properties Inc.	-	-
705	Riley Hospital Dr	Not Applicable	IU Parcel Riley Hospital Parcel	-	-
1629	Sugar Grove Ave	Not Applicable	MKS Lodgings LLC	-	-
1255	N Senate Ave	Not Applicable	Johnson Controls Inc	-	-
1420	N Senate Ave	Not Applicable	Indiana University Health	-	-
1701	N Senate Ave	1801 Senate Blvd, 2055 N Senate Blvd	Clarian Health Partners Methodist Hospital	-	-
423	W South St	Not Applicable	TOS Holdings, LLC	-	-
412	N Tremont St.	Not Applicable	Rugby Building Products, Inc.	-	-
550	University Blvd	Not Applicable	Indiana University	-	-
1000	Waterway Blvd	Not Applicable	Indiana University	-	-
1200	Waterway Blvd	Not Applicable	IU Parcel 1200 Waterway Blvd	-	-

NOL = Notice of Liability
NFA = No Further Action
✓ = Received NOL/NFA for Site 0153
* = Site did not receive a RFI but is located in close proximity to the Wellfields and received either a NOL and/or a NFA

Table 4
Site 0153 Focused Area of Interest Site Status

Figure 6 Map Label ID	Priority Level	Agency Interest	Program	Site Number	Facility Name	Address	Soil Investigation		Groundwater Investigation			Vapor Intrusion Investigation		Investigation Status	Remediation	Priority Determination
							Samples Collected	cVOCs Detected	Samples Collected	cVOCs Detected On-Site	cVOCs Detected Off-Site	Samples Collected On-Site	Samples Collected Off-Site			
1	Medium	16751	SCP	0000650	Penn 60 Minute Cleaners	2175 N Pennsylvania Street	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Ongoing	Stage has not been reached	Undelineated high contamination far distance
2	Medium	17902	SCP	0000835	Sparkle Cleaners	2198 N Meridian Street	No	NI	No	NI	NI	No	No	Has not started	Stage has not been reached	Uninvestigated data gap risk based on proximity
3	Medium	15994	SCP	0000658	Near North Development Corporation	2179 N Illinois Street	Yes	Yes	Yes	Yes	Yes	No	No	Ongoing	Stage has not been reached	Undelineated moderate contaminants; known bedrock well
4	Medium	26562	SCP	000000298	Karstadt-Reed Cleaners	1449 N Illinois Street	Yes	Yes	Yes	Yes	Yes	No	Yes	Ongoing	Ongoing	Commingled plume side gradient
5	Medium	23287	VRP	6090502	Michaelis / Fame Laundry	1352 N Illinois Street	Yes	Yes	Yes	Yes	Yes	Yes	No	Complete	Complete - CNTS Issued	Commingled plume side gradient
6	Medium	28328	VRP	6070101	Shuron	1402 N Capital Avenue	Yes	Yes	Yes	Yes	Yes	Yes	No	Ongoing	Ongoing	Commingled plume side gradient
7	Medium	17331	VRP	6160804	Former Stewart Manufacturing	1280 N Senate Avenue	Yes	Yes	Yes	Yes	Yes	No	Yes	Ongoing	Ongoing	Commingled plume side gradient
8	Medium	11493	SCP	200110517	Peerless Pump / Sterling Fluid Manufacturing	2005 Dr MLK Jr Street	Yes	Results Pending	Yes	Results Pending	Results Pending	No	No	Ongoing	Stage has not been reached	Uninvestigated data gap risk based on proximity
9	Low	11491	SCP	0000623	Industrial Heat Treating & Metallurgical Co. Inc. / Bodycote Thermal Processing	500 W 21st Street and 2131 Dr MLK Jr Street	Yes	Yes	Yes	Yes	NI	Yes	No	Ongoing	Stage has not been reached	Based on sampling
10	Low	16164	SCP	0000789	Former Hittle Machine and Tool	2122 Dr MLK Jr Street	Yes	Yes	Yes	Yes	NI	Yes	No	Complete	No active remediation necessary	Based on sampling
11	Low	18302	BFP	4191108	Stuart Moving and Storage/M & A Property Management	2058 Dr. MLK Jr. Street	Yes	Yes	Yes	Yes	NI	Yes	No	Complete	No active remediation necessary	Based on sampling
12	Low	17605	VRP	6050204	Citizens Gas and Coke Langsdale	2150 Dr. MLK Jr. Street	Yes	Yes - limited	Yes	No	No	Yes	Yes	Complete	Complete	Based on sampling
13	Medium	107558	SCP	0000858	Parts Landlord LLC	940 W 16th Street	Yes	No	Yes	Yes	NI	No	No	Ongoing	Stage has not been reached	Based on sampling
14	Low	24792	SCP	0000772	Pennyman's Inc	1704 Dr. MLK Jr. Street	Yes	Yes	Yes	Yes	NI	No	No	Ongoing	Stage has not been reached	Based on sampling
15	High	23770	SCP	0000787	Former Parker property NW (Hagg Trucking Company, Inc.)	550 W 16th Street & Dr. MLK Jr. Street	Yes	Results Pending	Yes	Yes	Yes	No	No	Ongoing	Stage has not been reached	Undelineated based on 2004 Phase II data and proximity
16	High	20923	SCP	0000707	Former Ashjian Brothers Rug Cleaners	450 W 16th Place	Yes	Yes	Yes	Yes	NI	Yes	Yes	Ongoing	Stage has not been reached	Undelineated based on 2019 monitoring data and proximity
17	High	22740	SCP	0000788	Former Parker Property SW / Truck and Bus	1520 Dr. MLK Jr Street	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Ongoing	Stage has not been reached	Undelineated based on 2011 monitoring data and proximity
18	Low	126398	SCP	0000804	IU Parcel 1011 MLK St	1011 Dr. MLK Jr Street	Yes	Yes	Yes	Yes	NI	Yes	No	Complete	Remedy required but not implemented yet	Based on sampling
19	High	17874	SCP	0000753	McBroom Electric	800 W 16th Street	Yes	Yes	Yes	Yes	NI	No	No	Ongoing	Stage has not been reached	Undelineated based on 2019 sampling and proximity
20	Low	126398	SCP	0000804	Indiana University (IU Block Trucking)	1311 Milburn Street	Yes	No	Yes	No	NI	No	No	Complete	No active remediation necessary	Based on sampling
21	Low	126398	SCP	0000804	IU Parcel Wishard Hospital Parcel	1001 W 10th Street	Yes	Yes	No	NI	NI	Yes	No	Complete	Institutional Control/OM&M Plan	Based on sampling
22	Low	126398	SCP	0000804	IU Parcel Riley Hospital Parcel	705 Riley Hospital Drive	Yes	Yes	Yes	No	NI	Yes	No	Complete	No active remediation necessary	Based on sampling
23	Low	126398	SCP	0000804	IU Parcel Regenstreif Institute	1101 W 10th Street	Yes	Yes	No	NI	NI	Yes	No	Complete	Institutional Control/OM&M Plan	Based on sampling
24	High	109813	SCP	0000455	Goodwill Industries	1635 W Michigan Street	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Ongoing	Stage has not been reached	Based on 2019 contaminant concentrations and proximity
25	Low	22624	SCP	4980013	Shell Bulk Facility (F)	2121 W Michigan Street	Yes	Yes	Yes	Yes	Yes	No	No	Complete	Complete - CNTS Issued	Based on 2019 sampling data
26	Low	126398	SCP	0000804	IU Parcel 1302 Stadium Dr	1302 Stadium Drive	Yes	No	Yes	Yes	NI	No	No	Complete	Institutional Control	Based on 2002 sampling data
27	Low	126398	SCP	0000804	IU Parcel 1200 Waterway Blvd	1200 Waterway Boulevard	Yes	Yes	Yes	Yes	NI	No	No	Complete	Institutional Control	Based on 2002 sampling data
28	Low	126398	SCP	0000804	IU Parcel Mid Continent Food Tech	1430 Indiana Avenue	Yes	Yes	Yes	Yes	NI	No	No	Complete	Remedy required but not implemented yet	Based on sampling data
29	High	16468	SCP	200412100	Component Machine	1631 Gent Avenue	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Ongoing	Ongoing	Based on proximity; moderate contamination
30	High	117788	SCP	0000744	Boyle Racing Headquarters	1701 Gent Avenue	Yes	Yes	Yes	Yes	NI	No	No	Ongoing	Monitoring	Based on proximity; moderate contamination
31	Medium	126398	SCP	0000804	IU Parcel Kiger Riefer	1830 W 16th Street	Yes	Yes	Yes	Yes	NI	Yes	No	Ongoing	Stage has not been reached	Unknown source side gradient
32	Medium	16545	SCP	200404159	Flexdar Inc.	1825 W 18th Street	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Ongoing	Ongoing	Side gradient
33	Medium	16021	SCP	0000963	Central Soya / Bunge North America	1160 W 18th Street	Yes	Results Pending	Yes	Results Pending	Pending	No	No	Ongoing	Stage has not been reached	Based on proximity
34	Low	19994	VRP	6030103	Rumpke Indianapolis TS	2069-2235 Montcalm Street	Yes	Yes	Yes	Yes	NI	Yes	No	Complete	Institutional Control	Screen out CNTS 2010
35	Low	15891	SCP	0000770	Former Carrier-Bryant Facility	1100 W 21st Street and 1133 Bursdal Parkway	Yes	Yes	Yes	Yes	Yes	No	No	Pending	Stage has not been reached	Based on sampling data
36	Low	116180	BFP	4190209	Annex on 10th/American Wire, Rope & Sling	1717 W 10th Street	Yes	No	Yes	No	NI	No	No	Complete	No active remediation necessary	Based on sampling data
37	Medium	20404	SCP	0000804	Clarian Health Partners Methodist Hospital	1701 N Senate Avenue	Yes- Limited	No	Yes - Limited	No	NI	No	No	Ongoing	Stage has not been reached	Uninvestigated data gap based on Ashjian known up-gradient contamination
38	Low	22076	SCP	0000676	Disc Graphics Inc	1160 W 16th Street	Yes	Yes	Yes	Yes	NI	Yes	No	Complete	No active remediation necessary	No soil source found during Component Machine investigation
39	Low	120034	SCP	0000734	Madame Walker Urban Life Center / Former Raymond Baird Cleaners	617-625 Indiana Avenue	Yes	No	Yes	No	NI	No	No	Complete	No active remediation necessary	Based on sampling data
40	Low	119860	SCP	0000724	Former Willis Mortuary	632 Dr. MLK Jr. Street	Yes	No	Yes	No	NI	No	No	Complete	No active remediation necessary	Based on sampling data

Notes:
SCP = State Cleanup Program; VRP - Voluntary Remediation Program; BFP - Brownfields Program
NA = Not Applicable; NI - Not Investigated
cVOCs = Chlorinated volatile organic compounds ; COC = Certificate of Completion; CNTS = Covenant Not to Sue

TABLE 5
WR3 cVOC ANALYTICAL RESULTS
PRE- AND POST-AERATION PRODUCTION WATER

August Mack Project No.:
JU0082.380

			Chlorinated Volatile Organic Compounds (cVOCs)								
			Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethane	1,1-Dichloroethene	1,1-Dichloroethane	Vinyl Chloride	Chloroethane
USEPA Maximum Contaminant Level			**5**	**5**	**200**	**70**	**100**	**7**	**NE**	**2**	**NE**
Sample Location	**Date Collected**	**Sample ID**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
WR3	02/11/2020	Pre	<0.079	**2.35**	**0.28** J	<0.177	<0.11	<0.092	<0.129	<0.165	<0.226
	02/20/2020	Pre	<0.079	**2.25**	**0.23** J	**0.19** J	<0.11	<0.092	<0.129	<0.165	<0.226
		Post	<0.079	**1.12**	<0.11	<0.177	<0.11	<0.092	<0.129	<0.165	<0.226
	03/02/2020	Pre	<0.079	**3.36**	**0.47** J	**0.77**	<0.11	<0.092	**0.18** J	<0.165	<0.226
		Post	<0.079	**1.73**	**0.26** J	**0.55**	<0.11	<0.092	<0.129	<0.165	<0.226
	03/11/2020	Pre	<0.079	**3.75**	**0.38** J	**0.99**	<0.11	<0.092	**0.26** J	<0.165	<0.226
		Post	<0.079	**1.99**	**0.18** J	**0.70**	<0.11	<0.092	**0.13** J	<0.165	<0.226
	03/17/2020	Pre	<0.079	**4.01**	**0.40** J	**1.19**	<0.11	<0.092	**0.32** J	<0.165	<0.226
		Post	<0.079	**2.28**	**0.19** J	**0.85**	<0.11	<0.092	**0.18** J	<0.165	<0.226
	04/07/2020	Pre	<0.079	**3.40**	**0.42** J	**1.02**	<0.11	<0.092	**0.34** J	<0.165	<0.226
		Post	<0.079	**1.88**	**0.21** J	**0.81**	<0.11	<0.092	**0.23** J	<0.165	<0.226
	04/15/2020	Pre	<0.079	**3.89**	**0.42** J	**1.32**	<0.11	<0.092	**0.38** J	<0.165	<0.226
		Post	<0.079	**2.12**	**0.22** J	**0.98**	<0.11	<0.092	**0.25** J	<0.165	<0.226
	04/22/2020	Pre	<0.079	**4.10**	**0.43** J	**1.47**	<0.11	<0.092	**0.43** J	<0.165	<0.226
		Post	<0.079	**2.48**	**0.23** J	**1.00**	<0.11	<0.092	**0.26** J	<0.165	<0.226
	04/28/2020	Pre	<0.079	**3.91**	**0.43** J	**1.24**	<0.11	<0.092	**0.38** J	<0.165	<0.226
		Post	<0.079	**2.37**	**0.24** J	**0.95**	<0.11	<0.092	**0.25** J	<0.165	<0.226

Abbreviations & Notes

MDL = Method Detection Limit
J = Result is detected between the MDL and reporting limit.
USEPA = United States Environmental Protection Agency
Pre = Results are from samples taken prior to aeration treatment.
Post = Results are from samples taken following aeration treatment.

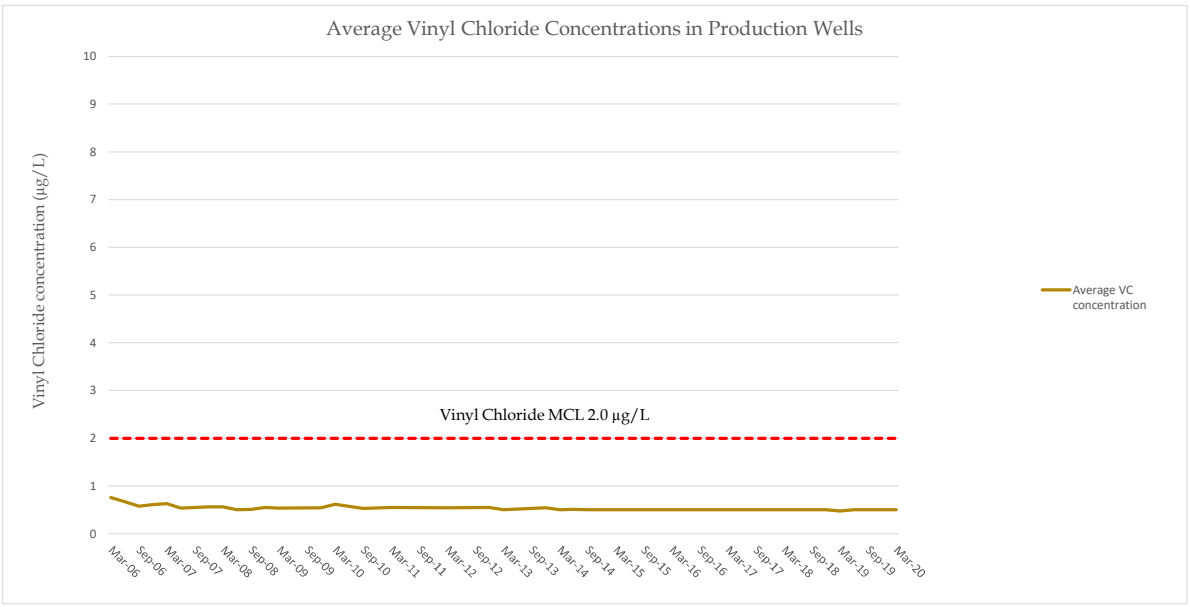
All results and MCLs are reported in micrograms per liter (µg/L).
Non-detect results are reported to the MDL.

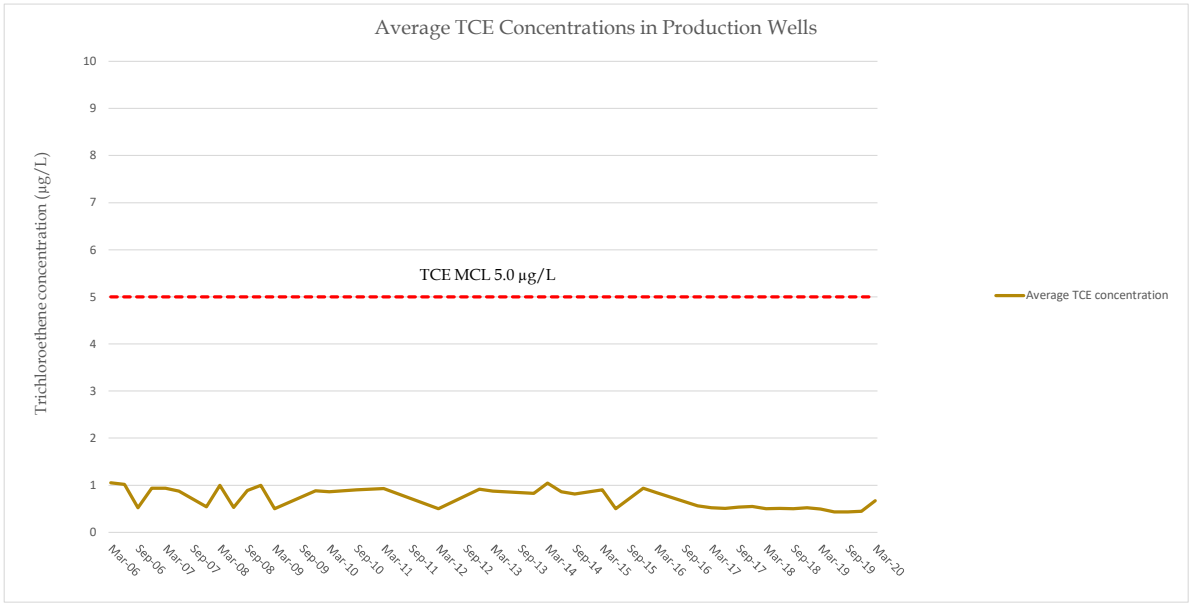
The following notes summarize the symbol and color of screening level exceedances:
^ = At or Above USEPA Maximum Contaminant Level (MCL)

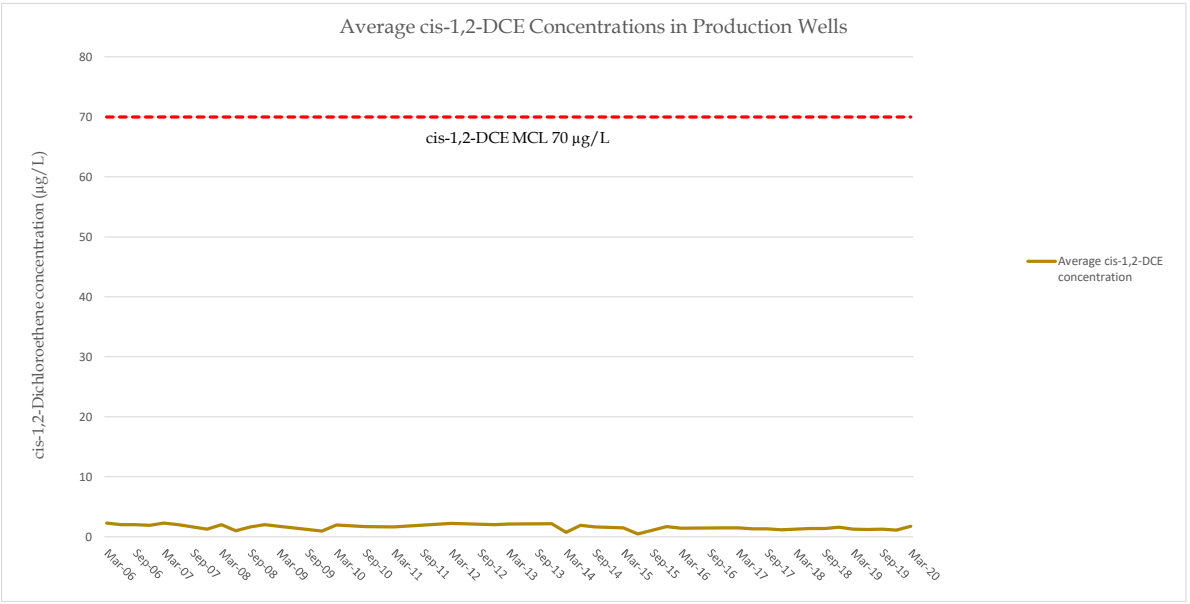
Site 0153
Marion County, Indiana

TABLE 6

cVOC CONCENTRATIONS VS. TIME



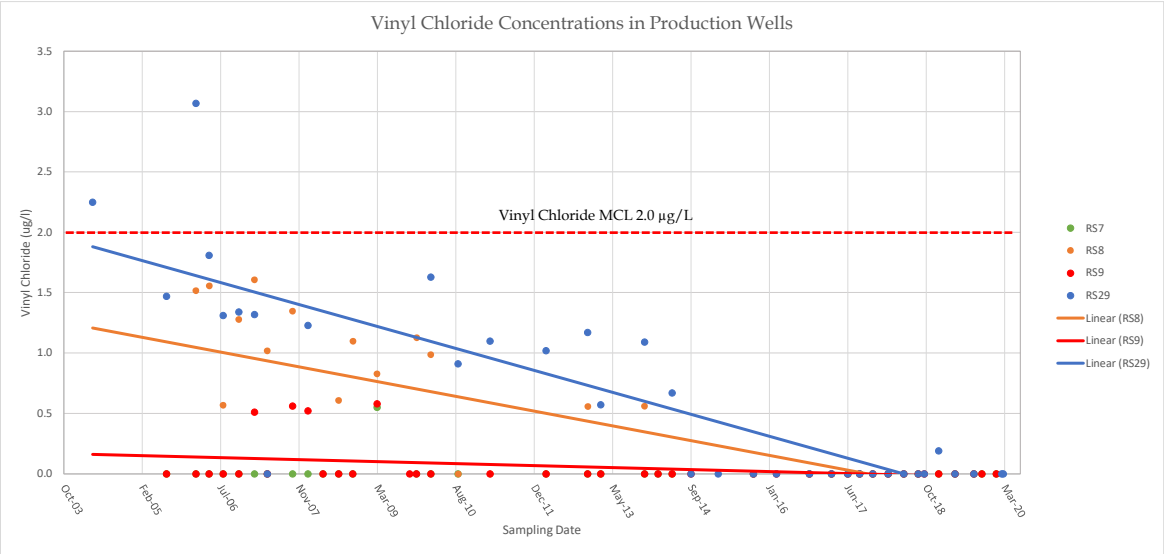


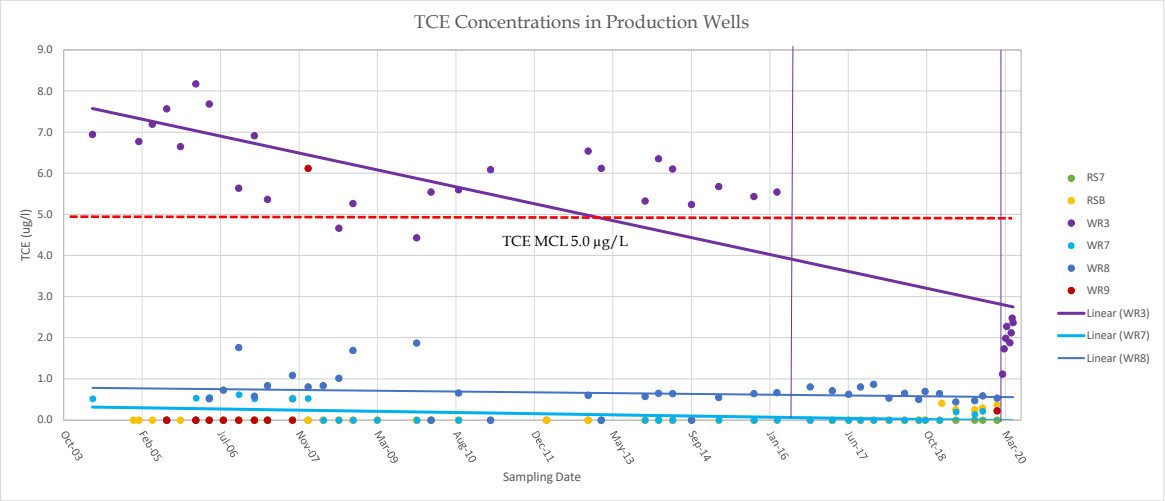


Site 0153
Marion County, Indiana

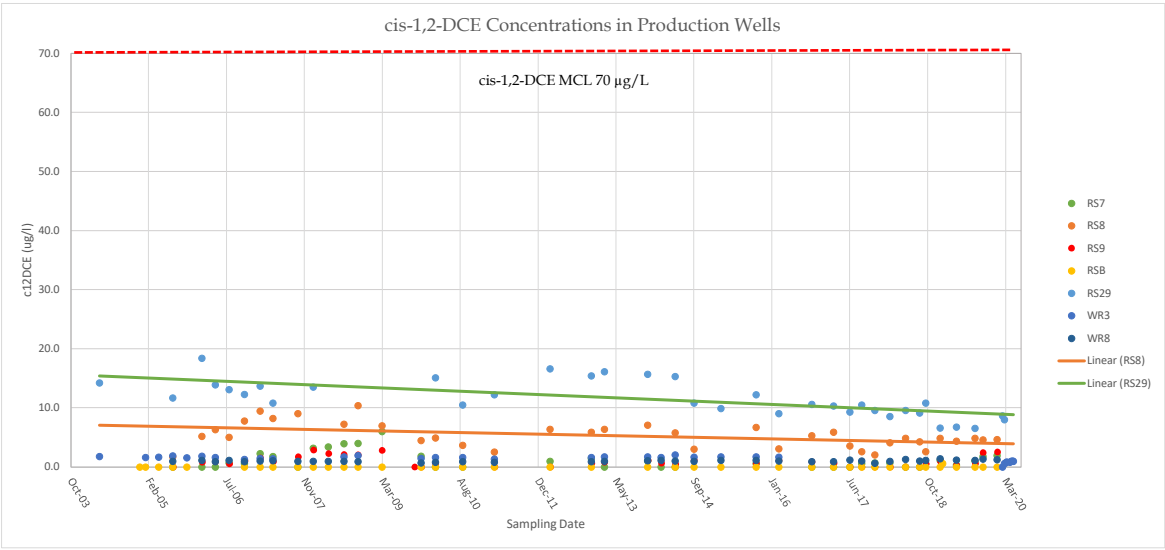
TABLE 6

cVOC CONCENTRATIONS VS. TIME





Note: WR3 was taken offline in March 2016. Aeration treatment was installed on WR-3 in January 2020 and testing of post aeration water was completed between February and April 2020. WR-3 is currently back in service. The vertical lines denote when WR-3 was taken out of service, and when confirmatory sampling commenced, respectively.



Note:
For each compound, wells that are historically non-detect are not presented.

TABLE 7

FATE AND TRANSPORT INFORMATION				
Solubility (S)[1]	**Mobility (Koc)[1]**	**Soil Saturation (Csat)[2]**	**Volatility (HLC)[1] Toxicity (TWA)[3]**	**Persistence[4]**
High Solubility and Medium Mobility:				
PCE 2.00E+02 mg/L	PCE 1.55E+02 L/kg	PCE 310 mg/kg	PCE HLC = 7.54E-01 OSHA PEL TWA = 100 ppm, ceiling 200 ppm	PCE ½ life = 300 days in naturally-occurring soil-groundwater system
TCE 1.10E+03 mg/L	TCE 1.66E+02 L/kg	TCE 630 mg/kg	TCE HLC = 4.21E-01 OSHA PEL TWA = 100 ppm, ceiling 200 ppm	TCE ½ life = 300 days in naturally-occurring soil-groundwater system
High Solubility and High Mobility:				
cis-1,2-DCE 3.50E+03 mg/L	cis-1,2-DCE 3.55E+01 L/kg	cis-1,2-DCE 1,000 mg/kg	cis-1,2-DCE HLC = 1.66E-01 OSHA PEL TWA = 200 ppm, Ceiling = No published value	cis-1,2-DCE ½ life = 140 days in a soil-water or sediment-water incubation study
Vinyl Chloride 2.76E+03 mg/L	Vinyl Chloride 1.86E+01 L/kg	Vinyl Chloride 930 mg/kg	Vinyl Chloride HLC = 1.11 OSHA PEL TWA = 1 ppm, ceiling 5 ppm	Vinyl Chloride ½ life[5] = 23 days in a soil-water or sediment-water incubation study
High Solubility: > 1.0E+02 mg/L Medium Solubility: 1.0E+01 – 1.0E+02 mg/L Low Solubility: < 1.0E+01 mg/L	High Mobility: < 5.0E+01 Mobile: 5.0E+01 – 1.5E+02 Medium Mobility: 1.5E+02 – 5.0E+02 Low Mobility: 5.0E+02 – 2.0E+03 Immobile: > 2.0E+03		High Volatility: > 1.0E-03 Medium Volatility: 1.0E-05 – 1.0E-03 Low Volatility: 3.0E-07 – 1.0E-05 Non-Volatile: < 3.0E-07	Biodegradation in soil and groundwater may occur at a relatively slow rate (half-lives on the order of months to years.)[6]

S: Water Solubility
$K_{OC:}$ Soil organic carbon – water partition coefficient
Csat: Soil saturation
HLC: Henry's Law Constant (Dimensionless at 25° C)
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
TWA: Time Weighted Average

[1] (United States Environmental Protection Agency, 1996)
[2] (Indiana Department of Environmental Managment, 2006 Revised in 2009)
[3] (Moreno, April 12, 1996)
[4] (Dragun, 1998)
[5] (Lide, 1996)
[6] (United States Environmental Protection Agency, 2011)

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APPENDIX A

Memorandum of Agreement for the 0153/Riverside Ground Water Contamination Site, Indianapolis, Indiana

MEMORANDUM OF AGREEMENT

BETWEEN

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION 5

AND

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

FOR THE

0153/ RIVERSIDE GROUND WATER CONTAMINATION SITE, INDIANAPOLIS, INDIANA

I. PURPOSE

This Memorandum of Agreement (MOA) specifies the plans and expectations of the Indiana Department of Environmental Management (IDEM) and the United States Environmental Protection Agency (EPA) at the Riverside Ground Water Contamination Superfund Site (Site) in order to ensure that the response actions undertaken at the Site are substantially similar to actions that would otherwise be taken under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Contingency Plan (NCP). Once the Site remedial action is successfully completed, it is expected that EPA will have no further interest in considering the Site for final listing on the National Priorities List (NPL) and that the Site will be de-proposed from the NPL.

II. BACKGROUND

The Site is located in Indianapolis, Marion County, Indiana. On February 20, 2013, IDEM staff received notice from Citizens Energy Group (Citizens) that elevated levels of vinyl chloride (VC) and cis-1,2-dichloroethene (cis-1,2-DCE) were being detected in the groundwater prior to treatment ("raw water") at the Riverside Municipal Wellfield. Citizens was concerned that the increasing levels of VC in Well RS29 were approaching the Maximum Contaminant Level (MCL) for VC, which might adversely impact the use of that well to supply drinking water to residents in Indianapolis. Riverside and White River Wellfields supply drinking water to over 17,000 people in Indianapolis.

On May 20 and 21, 2014, IDEM staff conducted a groundwater Site Inspection at the Riverside and White River Wellfields. A total of 25 water samples, taken prior to entry into the treatment facility, were obtained. The samples consisted of 19 groundwater samples, four (4) duplicate samples, and two (2) trip blanks. The ground water samples were collected from 19 municipal wells located in the Riverside and White River Wellfields. All samples were analyzed for volatile organic compounds (VOCs) only. Vinyl chloride, cis-1,2-DCE, trichloroethylene (TCE),

and 1,1,1 trichloroethane were the primary VOCs detected. Although VOCs were detected in some of the municipal wells, none of the concentrations of VOCs exceeded any MCL set by EPA in raw water. All raw water is treated and tested by Citizens prior to distribution and no VOCs have been detected in water leaving the utility (finished water) which is the water sent to customers.

Using the data collected during the Site Inspection, a Hazard Ranking System (HRS) documentation record was submitted to EPA determining that the Site qualified for the NPL. The HRS documentation identified approximately 89 potential sources of VOC contamination to the Riverside and White River Wellfields' five-year time of travel of groundwater. More than fifteen (15) sites are already in one of IDEM's remediation programs, and have either addressed the potential sources at their site or are on track to do so. As described more fully in Section IV B. below, a number of individual sources may be contributing to a commingled volatile organic compound (VOC) groundwater plume, and an undetermined number of individual Potentially Responsible Parties (PRPs) would be held responsible for conducting site investigations and remediation of their sites. For an illustration of the potential Site area, *see* **Attachment B.**

On August 13, 2015, IDEM's former Commissioner, Thomas Easterly, requested inclusion of the Site on the NPL. In April 2016, EPA proposed to add the Site to the NPL in the Federal Register. IDEM has since determined that it would be in the best interests of the State and City, and responsive to the majority of the public's requests, to address the Site in IDEM's State Cleanup program. IDEM officials, along with members of the City of Indianapolis Mayor's office, and Citizens requested, in letters written in May 2016 and also at a meeting in July 2016, that EPA allow IDEM to manage the investigation and remedial actions at the Site (**Attachment B**). The August 18, 2016 letter from former Commissioner Carol Comer formally withdrew support for including the Site on the NPL.

In October 2016, EPA Region 5 began discussions outlining certain criteria that IDEM would need to satisfy in order for EPA to consider allowing IDEM to manage the Site in lieu of EPA. After taking into consideration community feedback, IDEM has renamed the Site as "Site 0153" and all future documentation from IDEM will reflect the name change. Based on IDEM's strategy plan and commitments made in this agreement meeting the deferral criteria, EPA is allowing IDEM to ensure necessary investigations and response actions are completed at the Site. Once the required response actions at the Site are successfully completed, it is expected that EPA will have no further interest in considering the Site for listing, unless there is a release or potential for release that poses an imminent threat to human health or the environment. In addition, when response actions are completed, the Site may be archived in the Superfund Enterprise Management System (SEMS).

III. IMPLEMENTATION

A. **State Program**- IDEM is authorized under state law to implement a hazardous substances remediation program which should ensure that response actions at the Site are carried out and that these actions are protective of human health and the environment. Furthermore, IDEM has sufficient capabilities, resources, expertise and authorities to ensure that a remediation is

completed to the protective levels required under CERCLA and will coordinate with EPA, other interested agencies, and the public on different phases of implementation.

B. **Site Eligibility**- The State of Indiana has expressed interest in having the Site listing deferred and in IDEM overseeing the response at the Site under state law. IDEM agrees to pursue response actions at the Site in a timely manner. EPA and IDEM agree that a deferral should address the Site sooner than, and at least as quickly as EPA would expect to respond. The Site is included in the SEMS inventory and has been assessed and scored for listing on the NPL. The State will not request, nor utilize, Superfund trust fund money to implement any portion of the actions required by this Agreement.

C. **Community Acceptance**- During the public comment period for the proposed NPL listing (published in the Federal Register April 7, 2016, with the public comment period ending on September 5th, 2016), community groups held public meetings to discuss the proposed listing. IDEM and EPA provided outreach to the affected community in at least three (3) public meetings held in April and July of 2016. IDEM and EPA explained to the community the differences between a response action under state law pursuant to the terms of a proposed Deferral Agreement and a response conducted under the NCP and requested feedback from the community. IDEM informed EPA of its outreach efforts and conveyed the general results of the feedback and viewpoints of the community. Comments provided as part of the public comment period showed that community members mostly supported EPA deferral of the Site, but they also requested more involvement in the process. EPA participated in a public meeting with IDEM held on March 25, 2017 to inform the public of the deferral process and to explain IDEM's strategy to address the Site. The response from the community was mixed, with some preferring to list the Site on the NPL while the majority were in favor of EPA deferring the Site to IDEM oversight. The community requests will be addressed as part of the Community Involvement Plan required by IDEM's Site Investigation Strategy (**Attachment C**).

EPA is aware that the Riverside Civic League sent IDEM a list of requests entitled "Requests of the Local Plan Principle" in a letter dated August 23, 2016 (Letter) and that IDEM responded to the requests made in the Letter (Response). IDEM will complete a Community Involvement Plan, as described in **V. Community Participation** of this MOA. Target completion date of the Community Involvement Plan is Fall 2017 (*see* **IV. Procedural Requirements B. Schedule for Performance**). The Riverside Civic League Letter and IDEM Response will become part of the Community Involvement Plan.

D. **Cleanup Levels**- IDEM will pursue CERCLA-protective cleanups[1] of the Site that will be substantially similar to a CERCLA response. The response action will be protective of human health and the environment, as generally defined for individual human exposure, by remediating to an acceptable risk level for carcinogens between 10^{-4} and 10^{-6} and for non-carcinogens a Hazard Index of 1 or less; and no significant adverse impacts to ecological receptors. IDEM has proposed using a 10^{-5} risk level as a screening level for determining the need for further remedial investigation and risk assessment, which is within EPA's acceptable risk level range for

[1] The term CERCLA-protective cleanup is defined in OSWER Directive 9375 - 6-11 , *Guidance on Deferral of NPL Listing Determinations While States Oversee Response Actions* (May 3. 1995)

carcinogens. The response actions will also address sources of contamination to the extent feasible. IDEM will give preference to solutions that will be reliable over the long term. In addition, IDEM will ensure that any remedy selected at the Site will comply with all applicable or relevant and appropriate[2] federal requirements and any more stringent applicable or relevant and appropriate State requirements to the maximum extent practicable under IDEM's State authorities. Soils, sediments, subsurface intrusion, surface and groundwater will be investigated and assessed as part of the comprehensive risk assessment that will be conducted at the Site. The comprehensive risk assessment will include the consideration of potential exposure pathways to residents and sensitive populations that might exist in and around the Riverside neighborhood. EPA anticipates that the CERCLA- protective remedy includes the recognition that ground waters of the United States are valued natural resources, and that response actions will ensure the remedies are protective and will not present a threat to the Riverside and White River Wellfields.

E. **Natural Resources Trustees**- IDEM will promptly notify the appropriate State and Federal trustees for natural resources of discharges and releases at the Site that are injuring or that may injure natural resources, and include the trustees, as appropriate, in activities at the Site. The State shall, consistent with CERCLA and the NCP, seek to coordinate necessary assessments, evaluations, investigations, and planning with State, Affected Tribal and Federal Trustees.

IV. PROCEDURAL REQUIREMENTS

A. **Roles and Responsibilities**- IDEM has primary responsibility, with minimal EPA involvement, to provide for a timely CERCLA-protective cleanup under state authority and to support the public's right of participation in the decision-making process. EPA's role will generally be limited to review of IDEM semi-annual and annual reports and consultation on the proposed remedy. However, EPA may request reports, data, or other documentation related to the remedial activities at the Site, as it deems appropriate, or arrange for IDEM to provide certain draft documents for EPA review as they are prepared. EPA will not provide financial assistance for site activities to the State, affected Tribes or the community during a deferral.

In the event that community members or affected Tribal governments request that EPA reconsider deferral of the Site or request EPA's intervention in response actions, the EPA agrees to meet with IDEM to discuss the community concerns and to review the response actions in light of this MOA and the EPA's Deferral Guidance, and make a decision regarding whether terminating the deferral is warranted.

The following are the contacts for the agencies (any changes may be made by notice):

[2] The phrase "applicable or relevant and appropriate requirements" shall be defined by reference to Section 121 of CERCLA, 42 U.S.C. § 9621, the National Contingency Plan *(see* 40 C.F.R. § 300.5 definitions of applicable requirements" and "relevant and appropriate requirements"). and applicable EPA Guidance.

IDEM Management	EPA Management
Peggy Dorsey, Assistant Commissioner Ind. Dept. of Environmental Management Office of Land Quality IGCN 11th Floor 100 N. Senate Ave. Indianapolis, IN 46204 317-234-0337 pdorsey@idem.in.gov	Margaret M. Guerriero, Acting Director US Environmental Protection Agency Superfund Division SI-6J 77 W. Jackson Blvd. Chicago, IL 60604 312-886-0399 guerriero.margaret@epa.gov
IDEM Project Manager	**EPA Technical**
Ryan Groves Ind. Dept. of Environmental Management Office of Land Quality IGCN 11th Floor 100 N. Senate Ave. Indianapolis, IN 46204 317-232-3413 rgroves@idem.in.gov	Katherine Thomas US Environmental Protection Agency Superfund Division SR-6J 77 W. Jackson Blvd. Chicago, IL 60604 312-353-5878 thomas.katherine@epa.gov
IDEM Legal	**EPA Legal**
Tim Junk Ind. Dept. of Environmental Management Office of Legal Counsel IGCN 13th Floor 100 N. Senate Ave. Indianapolis, IN 46204 317-2349581 tjunk@idem.in.gov	Nola Hicks US Environmental Protection Agency Office of Regional Counsel C-14J 77 W. Jackson Blvd. Chicago, IL 60604 312-886-7949 hicks.nola@epa.gov

B. **Schedule for Performance**- Due to the nature of the Site, including 1) the number of individual sources that may be contributing to a commingled plume; 2) that individual Potentially Responsible Parties (PRPs) will be conducting the site investigations and remediation; and 3) that some PRPs are already managed within a remediation program at IDEM, the parties agree that a Schedule for Performance regarding the Site as a whole will necessarily be broad and speculative. A tentative proposed schedule of events for the Site cleanup is set forth in the following table. The Target Completion timelines in the table are subject to change. EPA shall be notified of a change in a Target Completion as soon as IDEM becomes aware that such a change is necessary or unavoidable.

Task	Target Completion
Complete Community Involvement Plan	**Fall of 2017**
Begin Phase I Remedial Investigation	**Within 3 months of issuance of Notice Letters**
Prepare Removal Work Plan as necessary	**If any imminent threat is discovered, removal will be expedited.**
Complete additional Remedial Investigation as necessary	**Following submittal of Remedial Investigation Report and IDEM request for additional RI**
Complete Human Health and Ecological Risk Assessment	**Six months after final RI information is gathered.**
Complete Feasibility Study	**90 days post complete RI and HHERA.**
Proposed Remedial Action Public Comment Period	**30 days from publication of draft Proposed Plan.**
Record of Decision	**180 days from end of Public Comment Period.**
Remedial Design	**One year from publication of Record of Decision.**
Implement Remedial Action	**Six months from final Remedial Design/Technical Specifications**

C. **Documentation Submissions to EPA**- IDEM will make available all Site data, reports, and other documentation to EPA upon request.

D. **IDEM Reporting to EPA**- IDEM will provide written reports to EPA at least annually on whether the conditions in this Agreement are being met and on the progress in the investigation, assessment and response actions. In addition, IDEM will report in writing to EPA at least semi-annually on any difficulties that it is having meeting the conditions of this Agreement. Following the submission of a report required or requested, EPA may request a briefing or meeting with IDEM to discuss the report(s).

E. **Proposed Remedial Action**- IDEM will provide a written report to EPA on the proposed remedial action (Draft Record of Decision Staff Report) both before and after soliciting public comment. EPA and IDEM will determine prior to the briefing the appropriate staff to review the proposed remedial action report and attend the briefings.

V. COMMUNITY PARTICIPATION

IDEM will ensure public involvement that is substantially similar to the intent of the NCP and in accordance with the Community Involvement Plan (CIP). which IDEM will have finalized by the fall of 2017. IDEM will ensure the following actions are undertaken as required by the CIP:

A. Site files will be maintained at the IDEM project manager's office or as required by the CIP.

B. Site related documents will be made available online in IDEM's Virtual File Cabinet (VFC) at https://vfc.idem.in.gov/DocumentSearch.aspx under State Cleanup Site No. 0153 and as required by the CIP. The community groups expressing an interest in the Site will be included in discussions to determine the best and most efficient way to provide information to the groups. This information will become a part of the CIP.

C. Through the CIP, or other agreement with IDEM, the affected community will be able to acquire technical assistance in interpreting information with regard to the nature of the hazard, investigations, and studies conducted, and implementation decisions at the Site. This technical assistance will be in the form of an appropriate conveyance that can be used to hire a technical expert to explain monitoring reports and decision documents and advise the community.

VI. COMPLETION OF STATE RESPONSE ACTION

Certification and Confirmation- Once IDEM considers the response action at the Site to be complete, it will certify to EPA, any affected Tribal Governments with which it has MOUs, and the affected community that the remedy has been successfully completed and intended cleanup levels achieved. As part of the certification, IDEM will submit for EPA review a response action completion documentation substantially similar to that described in the June 1992 OSWER Direct "Remedial Action Report; Documentation for Operable Unit Completion" (OSWER Directive 9355.0-39FS). EPA will review the certification and supporting information, and may choose to initiate a deferral completion inquiry to confirm the certification. EPA will work with IDEM to address any data deficiencies hindering the confirmation and agree to a time frame for completion of the inquiry. If the response at the Site is confirmed as complete, the Site will not be further evaluated for NPL listing, unless EPA receives information of a release or potential release at the site which poses a significant threat to human health or the environment. Upon completion of response actions and confirmation by EPA, the Site will be archived in SEMS.

VII. AGREEMENT TERMINATION AND MODIFICATION

EPA may terminate this Memorandum of Agreement at any time after providing 30 days' notice to IDEM which notice shall include the basis for such termination as provided in this paragraph. This Memorandum of Agreement may be terminated: 1) if the response is not CERCLA-protective; 2) is unreasonably delayed; 3) is inconsistent with this Memorandum of Agreement; 4) does not adequately address the concerns of the affected community or affected Tribal governments with whom IDEM has MOUs, or 5) for other reasons constituting a violation of this agreement, such as the State's inability to enforce compliance; or the absence of appropriate funding to complete the response action. IDEM may also choose at any time, after 30 days' notice to EPA, to terminate this Memorandum of Agreement for any reason. During any 30-day notice period required by this paragraph, EPA and IDEM agree to meet to discuss the decision to terminate this Memorandum of Agreement.

Upon termination of this Memorandum of Agreement, EPA will consider taking any necessary response actions including initiating the rulemaking process to formally list the Site on the NPL. EPA and IDEM will coordinate efforts to notify the community of the termination of this Memorandum of Agreement. These actions will assure the public that EPA will continue to respond at the Site. At EPA's request, IDEM will provide to EPA all information in its possession regarding the Site to the extent permitted by State law.

This Memorandum of Agreement adheres to EPA's "Guidance of Deferral of NPL Listing Determinations While States Oversee Response Actions" (OSWER Directive 9375.6 11) dated May 3, 1995. If there are any conflicting provisions, this Agreement prevails. Furthermore, this Deferral Agreement may be modified at any time upon agreement of both parties. Notwithstanding any provision of this Deferral Agreement, EPA and IDEM retain their respective authorities and reserve all rights to take any and all response actions authorized by law.

VIII. AGREEMENT APPROVALS

Robert A. Kaplan, Acting Regional Administrator
Region 5, United Stated Environmental Protection Agency

6/8/17
Date

Bruno L. Pigott, Commissioner
Indiana Department of Environmental Management

6/8/17
Date

ATTACHMENTS

(A) Letters/Comments Requesting Deferral (Comer, Citizens, Hoggsett)
(B) Map Showing PRPs and Wellfields
(C) Site Investigation Strategy

Attachment A

Indiana Department of Environmental Management
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Carol S. Comer
Commissioner

August 18, 2016

Mr. Robert Kaplan
Acting Regional Administrator
U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Mail Code: R-19J
Chicago, Illinois 60604-3507

Re: Proposed Riverside National Priorities List
Site EPA-HQ-OLEM-2016-0153

Dear Mr. Kaplan:

By this letter, the Indiana Department of Environmental Management (IDEM) withdraws and rescinds the August 13, 2015, letter from IDEM's former Commissioner requesting inclusion of the Riverside Ground Water Contamination site (identified by the U.S. Environmental Protection Agency as Site 0153) on the National Priorities List (NPL) of hazardous waste sites, a copy of which is attached as Exhibit A. IDEM respectfully requests that U.S. EPA not include Site 0153 on the NPL and proposes an alternative approach to protecting public health and the environment by addressing the presence of Chlorinated Volatile Organic Compounds (CVOCs) at Site 0153. IDEM worked with Citizen's Energy Group (Citizens), the City of Indianapolis (the City) and the Marion County Public Health Department (MCPHD) to develop a proposed alternative plan (the Plan) to address Site 0153. Exhibit B outlines the current version of that Plan, which was jointly drafted by IDEM, Citizens, the City and MCPHD.

Background

Site 0153 is located on the northwest side of downtown Indianapolis. While Site 0153 is not yet delineated, it is generally comprised of two multi-well wellfields known as the Riverside and White River wellfields. These wellfields, owned and operated by Citizens, provide drinking water to a portion of the City of Indianapolis. Marion County officials indicate that seven private drinking water wells may exist within Site 0153.

Though low levels of CVOCs are present in the raw water drawn from some of the wells in the wellfields, the drinking water provided to Citizens' customers does not contain, and has never contained, CVOCs. The drinking water provided to Citizens' customers is completely safe to drink.

Basis for Withdrawal

Information available to IDEM at the time of the August 13, 2015, letter indicated that certain wells in the wellfields were impacted by CVOCs at levels that caused concern for public health. There was also a concern that the CVOCs could migrate to other wells in the wellfields, and that concentrations could increase, creating the potential for harm to public health. Based on the data provided at that time, IDEM sought inclusion of Site 0153 on the NPL. However, that data reflected only a snapshot in time and is now outdated.

In April of 2016, Citizens provided IDEM additional technical information that had not previously been shared with the agency. That data led IDEM to re-evaluate its initial request for listing Site 0153 on the NPL. Exhibit B contains illustrations of this data, which span the time period from 2006 to 2016 and indicate that the levels of CVOCs in both wellfields are decreasing. In addition, with the exception of one well (WR3), all CVOCs in the raw water supply are below U.S. EPA's Maximum Contaminant Levels (MCLs) for drinking water.

Fifteen sites that may have contributed to the CVOC contamination are currently in one of IDEM's remediation programs. Many of those sites have already addressed their contamination sources, while others are on track to do so. IDEM believes these efforts have contributed, at least in part, to the declining levels of CVOCs in the groundwater.

In light of the new information and greater understanding of activities in the area, IDEM no longer believes Site 0153 is an NPL caliber site that should be addressed by the Superfund program. Had all of these data and factors been known in August of 2015, IDEM would not have proposed Site 0153 for the Superfund program. For these reasons, IDEM respectively requests that U.S. EPA not include Site 0153 on the NPL.

Alternative Plan

Withdrawing Site 0153 from inclusion on the NPL does not eliminate the need to address the CVOC contamination at Site 0153. Steps must still be taken to protect public health and the environment from the contamination. The proposed Plan is designed for that purpose. Exhibit B is a draft document, and the Plan may evolve over time in response to new information or additional comments from the public, U.S. EPA, and others. As you review the proposed Plan, please consider the following:

1. IDEM fully supports the Plan and will dedicate four project managers and one attorney to this project to ensure its full and complete implementation under the auspices of IDEM's State Cleanup Program.

2. IDEM will also:

    a. determine whether any private drinking water wells exist within the five year time of travel of groundwater and if so, test those wells for CVOC contamination. If shown to be contaminated, IDEM will devise a plan to ensure an alternate water source is provided.

    b. conduct a comprehensive search for potentially responsible parties through all reasonably available records, and pursue all identifiable responsible parties to obtain their cooperation in remediating Site 0153, including contributing to the cost of remediation.

    c. review and scrutinize all sites in reasonable proximity of Site 0153 that are currently being addressed in our State Cleanup Program and Voluntary Remediation Program (VRP) for their possible roles as Responsible Parties.

    d. collect soil, vapor and groundwater samples through the agency's push-probe drilling equipment (Geoprobe) where no RPs can be found, but sources are suspected.

    e. identify any completed exposure pathways (including human consumption of groundwater and vapor intrusion) and devise plans to eliminate those pathways.

    f. delineate groundwater impacts, to the extent feasible.

    g. address the sources of contamination as necessary and as practical through mechanisms such as, but not limited to, physical removal, institutional controls and monitoring.

    h. report regularly to U.S. EPA on the progress of implementing the Plan and enter into a Memorandum of Understanding with U.S. EPA to memorialize IDEM's obligations under the Plan.

    i. ensure that Citizens discharges all of its responsibilities under the Plan, including:

        i. conducting more frequent sampling in the wellfields,
        ii. removing WR3 from service and installing aeration equipment to reduce CVOCs before the well is put back in service, and

iii. removing any other production wells from service that exceed a drinking water MCL, and installing aeration equipment to reduce CVOC concentrations before the well is put back in service.

3. The Indiana Governor's Office has committed to funding the Plan.

4. IDEM has engaged local neighborhood residents and stakeholders and found that many have expressed concerns with the proposal to list Site 0153 on the NPL, and have expressed support for the alternative Plan.

5. The City of Indianapolis supports the Plan. Mayor Hogsett and his Administration have been actively engaged in the Plan's development and prefer the Plan to listing Site 0153 on the NPL.

6. The Marion County Public Health Department supports the Plan and prefers the Plan to listing Site 0153 on the NPL.

7. The Plan is locally driven, which will facilitate its implementation and allow for a quick response to challenges that arise during its implementation.

8. IDEM is confident that the Plan can be completed in less time and with fewer resources than a traditional Superfund investigation and cleanup.

9. IDEM commits to continuing to keep residents and stakeholders informed and up-to-date. IDEM engaged local community members as the Plan was developed to ensure that all stakeholders understood the nature of the Plan as well as to address community members' concerns. IDEM will hold regularly scheduled public meetings, prepare and disseminate materials tracking the Plan's progress, and maintain a dedicated web page to provide the local community with easy access to the materials, the public meeting schedule, and other information related to the implementation of the Plan. IDEM has already established the website and published information at: www.idem.in.gov/Site0153.

10. If IDEM's request is approved, the agency commits to changing the name of the Site from Riverside to Site 0153, pursuant to the concerns and request of the local community.

With regard to a timeline for implementing the Plan, although we are confident that this project can be handled more quickly under the Plan we have proposed than under the Superfund program, IDEM estimates that it will take at least six years to complete, given the magnitude of the work.

As you can see, the Plan has broad, bipartisan support among local stakeholders. IDEM commends Citizens, the City of Indianapolis, the Marion County Public Health Department and the members of the public who have participated in this process for helping develop a proposal that protects the health of Hoosiers in the Riverside community by addressing the CVOC contamination in a cost-effective manner. They have all been partners in the effort to solve this problem, and we welcome their continued dedication to our community and to protecting public health and the environment.

Should you or your staff have additional questions or need further information, my staff and I would be happy to meet with you in person or by teleconference. My administrative assistant, Mary Fields at 317-232-8611, would be happy to coordinate schedules.

Thank you for your consideration. We look forward to working with you on this matter.

Sincerely,

Carol S. Comer
Commissioner
Indiana Department of Environmental Management

cc: Joe Hogsett, Mayor, Indianapolis
Joseph Sutherland, Citizen's Energy Group

Exhibit A

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

August 13, 2015

Ms. Susan Hedman
Regional Administrator
U.S. EPA, Region V, R-19J
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Dear Ms. Hedman:

Re: Proposed Inclusion of the Riverside Ground Water Contamination Site Indianapolis, Marion County, Indiana on the National Priorities List of Hazardous Waste Sites

The Indiana Department of Environmental Management (IDEM) is providing this letter to convey its support to the United States Environmental Protection Agency (U.S. EPA) regarding inclusion of the Riverside Ground Water Contamination site on the National Priorities List (NPL) of hazardous waste sites. The Riverside Ground Water Contamination site is a contaminated ground water plume that encompasses an area of approximately 62 acres and affects two wellfields.

The Citizens Energy Group operates the drinking water utility for the city of Indianapolis. Raw water sample results obtained by IDEM from five (5) municipal wells confirmed detections of vinyl chloride (VC) and trichloroethylene (TCE). The VC and TCE levels in two of the wells exceed U.S. EPA Superfund Chemical Data Matrix benchmarks. The impacted wells provide drinking water to more than 10,000 people in Indianapolis. IDEM has identified over 100 potential sources of contamination to the well fields, including sites in the Voluntary Remediation Program, RCRA Corrective Action Program, Brownfields Program, and the State Cleanup Program, but a definitive source of the contamination has not been identified.

This site qualifies for inclusion on the NPL because:

1) The site meets the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) criteria for listing on the NPL, scoring sufficiently high pursuant to the Hazard Ranking System (HRS).

2) The site requires a long-term response action.

An NPL listing would allow for proper and timely investigation of the nature and extent of the contamination of the potential sources and enable the U.S. EPA to determine cleanup alternatives for the impacted areas, thereby protecting human health and the environment. The NPL listing appears to be the most viable alternative for addressing the existing environmental problems.

As the Commissioner of IDEM, I am authorized by Indiana Governor Michael R. Pence to act in these matters on his behalf. I have considered my staff's recommendations and I fully support the designation of the Riverside Ground Water Contamanition site for inclusion on the NPL. I request that the U.S. EPA assign a Remedial Project Manager and/or On-Scene Coordinator to implement the process. If you require any additional information or have any questions, please contact Mark Jaworski of the Site Investigation Program at 317/233-2407 or via e-mail at mjaworsk@idem.in.gov.

Sincerely,

Thomas W. Easterly
Commissioner

cc: Denise Boone, U.S. EPA
Nurla Muniz, U.S. EPA
Mark Jaworski, IDEM
Rex Osborn, IDEM

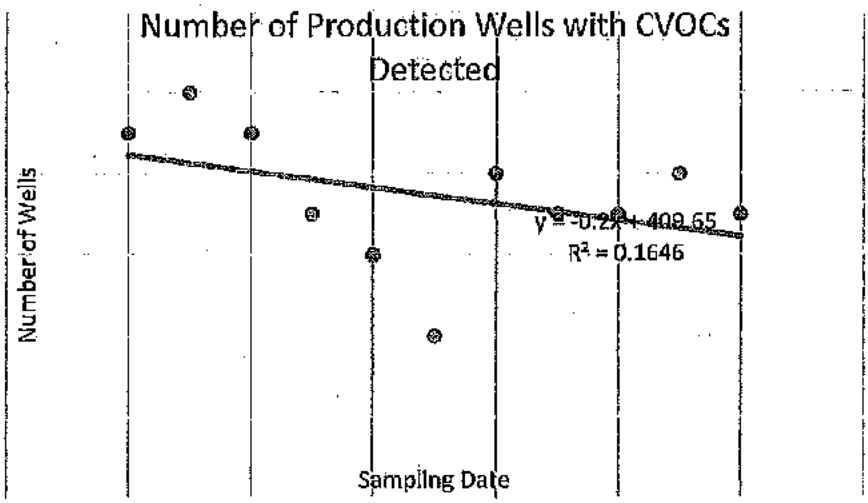
Exhibit B

Proposed Alternative to U.S. EPA Proposed Rule
"Riverside Groundwater Contamination Site"

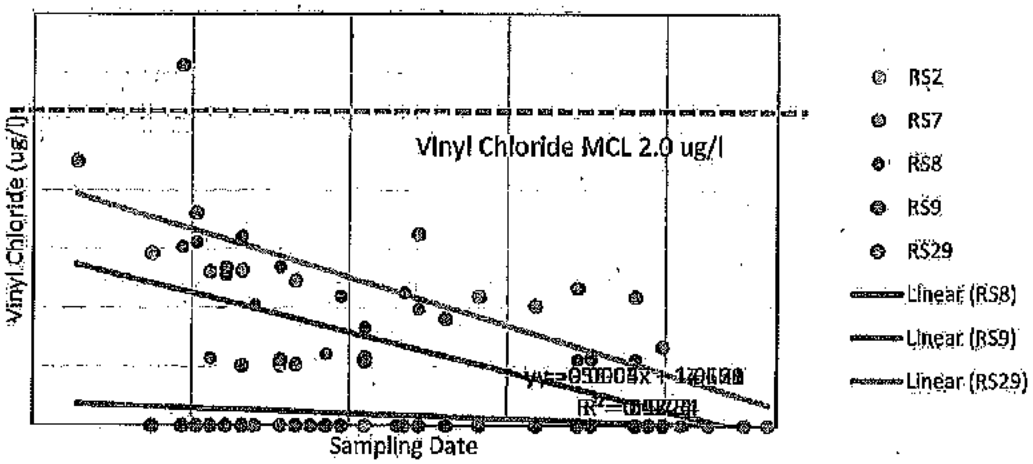
August 18, 2016

Trace levels of certain chlorinated solvents (also called "chlorinated volatile organic compounds" or "CVOCs") have been detected in some of the groundwater production wells in the Riverside and White River Groundwater Production Well Fields owned and operated by Citizens Water in Indianapolis (collectively, the "Well Fields"). These detections have led the U.S. Environmental Protection Agency (U.S. EPA) to propose to list the "Riverside Groundwater Contamination Site" as a federal Superfund Site.

Sampling data initially provided to the Indiana Department of Environmental Management (IDEM) by Citizens Water, and forwarded to EPA as part of the Superfund scoring process, is outdated. Citizens has recently provided additional sampling information to IDEM, and with the exception of one production well, "White River 3" (WR-3), trace detections of CVOCs in these wells are currently below U.S. EPA's drinking water standards that apply to finished drinking water. In addition, as the following graphs demonstrate, overall concentrations of CVOCs in the Well Fields are declining:



Citizens Riverside and White River Well Field
Vinyl Chloride Detections



Notwithstanding these detections, no CVOCs have ever been detected in the drinking water supplied to Citizens Waters' customers. In addition, five Citizens' production wells and a geothermal well in the Riverside Well Field are planned to be removed and relocated as part of a planned redevelopment project in the area called "16 Tech." The closure and abandonment of these wells will alter groundwater flow and CVOC distribution and concentrations in the Well Fields.

Various state and local stakeholders have developed a proposed alternative to a Superfund listing to address CVOCs detected in area groundwater and to ensure human health and the environment are protected. The elements of this alternative proposal are described below.

Citizens Water Plan to Ensure Continued Safety of Public Water and to Assist in Source Assessment & Mitigation

Despite the current safety of the drinking water supplied to customers and the declining CVOC trend, Citizens Water would be willing to take the following measures as an alternative to a Superfund listing to ensure the continued safety of its drinking water and to assist State and local governmental agencies with assessing and mitigating potential contaminant source areas in the vicinity of the Well Fields:

1. Citizens would take production well WR-3 out of service, install an aeration treatment system to reduce CVOC levels, and then test the water post-treatment to ensure levels are below EPA's drinking water standards. Upon receipt of satisfactory test results, Citizens would return WR-3 to service. At that point, all "raw water" being produced by Citizens'

production wells would be below EPA's finished water standards before it is mixed with surface water and treated in Citizens' treatment process.

2. Citizens would take the same measures at any production well in the future if verified sample results exceed drinking water standards, thus ensuring that water produced from Citizens' production wells – even before mixing and treatment – would continue to be below EPA's standards.

3. Citizens would increase the frequency of its voluntary sampling for VOCs from the production wells and monitoring wells in the Well Fields from semi-annual to quarterly, and would share those results with IDEM as they are received.

4. Citizens would develop and implement a Groundwater Quality Monitoring Plan required by the recently adopted Indianapolis/Marion County ordinance to track CVOC concentrations in the Well Fields, and would develop a plan to address those detections to ensure continued safety of drinking water. The results of this sampling program would be shared with U.S. EPA, IDEM, and the four local agencies identified in the ordinance to help determine if further measures are warranted.

5. Citizens would support State and local governmental agencies, including IDEM, the City of Indianapolis, and the Marion County Public Health Department (MCPHD), in their efforts to assess and, if necessary, mitigate impacts associated with potential CVOC source areas in the general area identified by EPA in its proposed listing rule. Citizens would support the MCPHD in connection with its review of any requests to install any new private groundwater wells in the area of concern, and support efforts to connect any existing, impacted private groundwater wells to water supplied by Citizens. Citizens would also review environmental remediation proposals submitted to or developed by IDEM for any source area located with the then-current Five-Year Time-of-Travel, and provide comments to IDEM and the Responsible Party(ies) regarding the effectiveness of the proposal to protect the Well Fields. Finally, Citizens would use the results of its on-going Groundwater Quality Monitoring Plan described above to help evaluate these proposals.

Citizens would be willing enter into an agreement with U.S. EPA and IDEM that includes these commitments.

State and Local Government Plans for Assessing and Mitigating Potential CVOC Source Areas

Various governmental agencies and other stakeholders have developed the following multi-pronged plan to identify and address potential CVOC source areas that could adversely impact area groundwater, the Well Fields, or other receptors (*e.g.*, private wells, vapor intrusion issues) that they would be willing to implement in lieu of a Superfund listing:

1. IDEM, the City and MCPHD have substantial information about various potential source areas of CVOCs in and around the Well Fields, including soil and groundwater data, some of which are currently in IDEM programs such as the Voluntary Remediation Program, State

Clean-Up Program or Leaking Underground Storage Tank program. The City and MCPHD would provide information in their possession relating to these source areas to IDEM. IDEM would then review and assess all relevant information and data to identify those sites currently in IDEM programs that warrant additional investigation, given their potential contribution to CVOC impacts in the area of the Well Fields.

2. IDEM would review its existing soil and groundwater data, and any information from the City and MCPHD, to determine what data gaps exist in the area of the Well Fields, and to identify the existence of sites potentially impacting groundwater in that area that are not currently in one of IDEM's programs, and which might be a source of CVOCs.

3. To fill these data gaps and identify potential CVOC sources, property owners and/or other responsible parties would conduct investigations on properties under their ownership or control, at their own cost. As necessary and appropriate, IDEM would exercise its regulatory authority to require the performance of those investigations. Further, IDEM could also conduct its own investigations as needed utilizing funding sources such as monies from known responsible parties. All such investigations would be focused on those areas in which existing data and information indicates a reasonable likelihood of CVOCs. The purpose of these investigations would be to generate meaningful soil and groundwater data to identify potential source areas that would then be the subject of further investigation and/or IDEM enforcement.

4. The City and MCPHD would work collaboratively with IDEM to develop IDEM's priority list for further investigation, identify property owners, and obtain access agreements. To the extent necessary, Citizens Water would work alongside these entities to engage with the public with regard to this effort. The City would also direct Brownfield grant money to assist in performing environmental assessments for "orphan share" sites in the area of the Well Fields.

5. MCPHD would work with IDEM, Citizens Water, and the City to identify potential private wells in the area, to sample those wells for which access is granted, and to evaluate options to connect any impacted private wells to public water. MCPHD would also use its existing authority to evaluate requests to install new private drinking water wells within the area of concern, and to work with all interested stakeholders in connection with any such requests.

6. With information supplied by Citizens regarding current and future pumping scenarios, IDEM will determine the appropriate boundaries for the area to be evaluated.

7. In order to assist the local community's efforts to monitor the development and implementation of the Plan, IDEM, the City, and MCPHD will secure funding that will allow the local community to engage the services of its own consultant with the technical expertise to facilitate meaningful community involvement.

regulations.gov

Comment submitted by Joseph H. Hogsett, Mayor, City of Indianapolis

Site Data

Regulatory Agenda

Agency Report

This is a Comment on the Environmental Protection Agency (EPA) Proposed Rule: National Priorities List

For related information, Open Docket Folder

Comment Period Closed
Sep 6 2016, at 11:59 PM ET

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Comment

SUBJECT: Docket EPA-HQ-OLEM-2016-0153 Comment

FROM: The Consolidated City of Indianapolis and Marion County, Indiana

TO:
--OLEM via Regulations.gov
--Mr. Robert Kaplan
Acting Regional Administrator
U.S. Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Mail Code: R-19J Chicago, Illinois 60604-3507
--Terry Jeng
jeng.terry@epa.gov

The Consolidated City of Indianapolis and Marion County, Indiana ("City") fully supports the proposed alternative plan ("Plan") to address the Riverside Ground Water site (identified by the U.S. Environmental Protection Agency as Site 0153.)

The City also concurs with the Indiana Department of Environmental Management's (IDEM's) letter dated August 18, 2016, withdrawing its request regarding Site 0153. IDEM indicates that due to new data and additional investigation, IDEM no longer believes Site 0153 is an NPL caliber site and should not have been proposed as such.

Since becoming aware of this situation earlier this year, City efforts have been dedicated to obtaining an outcome that protects the public's health and the safety of our drinking water supply. At the urging of local civic leaders, City representatives have convened and participated in community discussions centered on creating a local alternative that could achieve these critical public health results in a way that would be more beneficial to the interests of the affected neighborhoods than an NPL listing of this site.

It is significant that the development of that Plan engaged all sectors of the community - neighborhood residents, area businesses, the water utility, as well as both state and local agencies including the local health department. The City believes that under the proposed Plan, state and local agencies are uniquely positioned to obtain and react to new data, respond to community concerns, and implement remediation in a timely manner.

The City's primary concern is the health and safety of its citizens. Based on the most up-to-date information made available by IDEM and Citizens Energy Group, the City is convinced that the City's drinking water supply and the health of its residents will be thoroughly protected by the Plan proposed by IDEM. While the City appreciates the ongoing role that the EPA will play as a regulatory agency, the City believes that a local solution in this instance will be successful and provide an efficient, responsive effort to address public health and environmental concerns within the affected area.

Respectfully,

Joseph H. Hogsett
Mayor of Indianapolis, Indiana

Possible Contamination Sources
Within the 5 Year Time of Travel Wellhead Protection Area
~~Site 01-55 [formerly Riverside] Groundwater Contamination~~

Attachment B

This map is intended to serve as an aid to graphic representation only. This information is not warranted for accuracy or other purposes.

Mapped By:
Shane Moore, Office of Land Quality
Date: 10/13/2016
Sources:
Map Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Document - Potential Sources of Chlorinated Solvents Reference 4 (table on pages 381-385)
- Well Head Protection Area Reference 69
- RS 29 Reference 4, pages 73-74
- Plume created based on results in Reference 4, page 119
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N Map Datum: NAD83

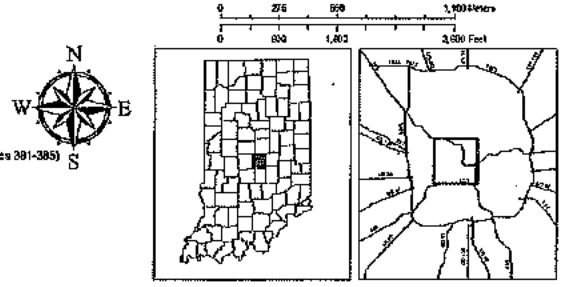

Table 1: Riverside Potential Sources

Label	Name	Address	Distance (ft)	Distance (m)	AI_ID	Other_ID_s	Reported_R	Documented	Take_Sampl	Type	Notes_M	Label
0	DPW/Merrs Corp	1021 Burdsall	7124.96589	2171.689534	22656	BFD 4980024	Y	N	0	Maintenance	MCHD Violations for salt and solid waste	0
1	Northside Trucking/Pallent Repair	1037 W 25th St	7870.690845	2398.986493	16605	IND058477936	N	Y	1	haz waste hauler	Haz waste Notice lists F001-F012, etc see VFC 42735550	1
2	Chevron Chemical Co./Saint Clair Properties Limited Warehouse (Carrier/Bryant)	1100 W 21st	5275.529258	1607.981266	15981	IND982219107	Y	Y	1	manufacturing	Brownfields/ City of Indy Phase1 Report is VFC 66905974 /Andrea R. new wells planned by Dec 2013	2
3	Industrial Coatings / United Coatings/ IU Methodist & Neuropsych Center	1102 W 16th	3044.156364	927.8588301	17130 / 16168	IND984956888/ IND984866202	Y	N	0	manufacturing	conditionally exempt generator - no groundwater impacts, release to soil only	3
4	Benham Press / Disc Graphics / Awning Partners Sign Group	1160 W 16th	2793.303994	851.3990302	22076	IND006066641 / BFD 4080010	Y	?	?	printer, etc.	RCRA violations, paint waste violations VFC 62498373 Has an ERC, part of Brownfields? Has MWs too	4
5	Central Soya	2235 Montcalm / 1102 - 1160 W 18th	3813.330067	1162.302967	16021	IND006413272 / FID 18135	Y	N	0	Grain facility, LUST	Releases of soybean oil	5
6	Aero Industries / Fruehauf Corp / Mayflower/ Lincoln Technical Institute	1201 Stadium Dr	2194.383977	668.8482147	16396	IND150600344	N	Y	1	maintenance	F002 (spent CVOCs) / F004 ; MCHD Violations	6
7	Indianapolis Water Company	1220 Waterway	1058.077666	322.5020624	13668	IND006938351 / FID 011510	Y	N	0	water company	diesel LUST has NFA; has a maitenance shop. Conditionally exempt F001	7

8	Perry Manufacturing / Overbay-Tehan Corp.	1233 W 18th / 1244 W 16th (& 2535 Burton??)	3439.662543	1048.409109	18377	FID 10100	N	N	?	manufacturing	gas/diesel USTs, large old building along tracks, make scaffolding now	8
9	West 16th Garage / Lloyd L & Louis L Shonkwiler / Microtel Inn & Suites	1244 W 16th	2855.068742	870.2249247	18506	FID 10100 / 200804504	Y	N	1	Truck Maintenance	adj. to south of Perry / only BTEX+MTBE sampling	9
10	Johnson Controls	1255 N Senate	6631.647237	2021.826013	17486	IND964976381	N	Y	?	manufacturing	small generator F002, D001, D005; Part of 14th St Corridor CVOC plume	10
11	Stewart Manufacturing	1280 N Senate	6630.146539	2020.8686	n/a	n/a	Y	Y	1	n/a	part of Co-mingled 14th St Corridor CVOC plume	11
12	Henley's Cabinets / Custom Printing /Chemcraft Satron Finishes Inc.	1310 N Capitol	7164.748709	2183.815337	16911	IND 982616112	N	Y	?	furniture refinishing	small generator F003, F005, D007, D008, D018, D035, D039, D040 listed PCE and TCE - Within the 14th ST Corridor Plume	12
13	H-N Advertising & Display Co / Bowes Industries	1324-1334 N Capitol	7152.405368	2180.053086	23884	IND006035968 / FID 21455	N	N	0	printing/ manufacturing	UST (unknown)	13
14	Sherwin William distributor	1401 Milburn	2651.273252	808.1080612	n/a	n/a	N	N	0	distributor	no data on VFC, etc.	14
15	Karstadt-Reed Dry Cleaners	1449 N Illinois	7800.715192	2377.657915	n/a	n/a	Y	Y	1	dry cleaner	Top of the 14th St Corridor Co-mingled CVOC plume	15
16	Stromberg Sales /Paradigm Group	1525 Riverside	2613.773254	796.6780624	21138	FID 22445	N	N	0	car sales	diesel, gasoline and fuel oil releases	16
17	Component Machine	1631 N Gent Ave	2830.787449	862.8239868		200412100	Y	Y	1	manufacturing	State Cleanup Documented TCE/PCE in groundwater Jerry O. & Scott Johanson	17

18	ITT Hoffman / Kindred Hospital / Vencor	1700 W 10th	1513.261015	461.2419426	16313	IN0032921	Y	N	1	manufacturer	water violation 1986, removed contaminted soil w/Cr Ni & Pb in 1990 (made plumbing fixtures)	18
19	Gardner Mirror Corporation / Wallace Expanding Machines	1705 Lafayette / 24 W 19th Street	4752.040298	1448.421836	16850	IND98490467 / FID 16834	N	N	0	manufacturing	diesel UST removed	19
20	Indiana Retirement Home	1731 N Capitol	7620.183089	2322.631731	n/a	n/a	N	N	0	nursing care?	listed as a "landfill" for medical/solid waste per 2007 WHPA	20
21	Southeastern Trailways	1810 W 16th	3165.631437	964.8844312		FID 000274 / INDR000016873	Y	Y	0	buses	Documented part of Flexdar plume (non-contributor)	21
22	Harold Richards	1825 Montcalm	3951.188357	1204.322173	n/a	n/a	N	N	0	central soya	fuel storage for Central Soya? Nothing in VFC	22
23	Peerless Pump / Sterling Fluid Manufacturing	2005 Dr MLK Jr	6726.549613	2050.252256	11493	IND990734873	Y	N (?)	1	manufacturing	State Cleanup (Nilla) LUST diesel, gas and stoddard (BTEX+ MTBE only) verbal report that CityofIN may have Ph2 data showing CVOCs	23
24	Citizens Coke Langsdale	2150 Dr MLK Jr	7147.645589	2178.602336	n/a	VRP	Y	N	?	Coal MGP	Bill Holland is PM. Full VOCs on Groundwater??	24
25	White Metal Manufacturing / Rexall Drug & Chemical Co / DART Industries / Draft-Kraft / Wheeling Stamping (*part of Rumpke now??)	2099 Montcalm	5247.574699	1599.460717	25759	IND980606396	n/a	?(likely)	1	manufacturing	PA/VSI in 1984 no samples taken MCHD records	25

26	Rumpke /Republic Recycling / United Brake Systems / Heavy Duty Friction Service Group	2235 Montcalm	5878.553654	1791.783096	24663	VRP 6030103 / FID 1570 / IND006062616	Y	N	?	recycling/former manufacturing	possible asbestos/ LUST for diesel&waste oil / Small quantity generator of D001 / VRP included north&south of 21st / residual were metals & PAHs& TMBs / Damon R. VFC# 62825015	26
27	Industrial Heat Treating / BodyCote Thermal	2131 Dr. MLK Jr. / 500 W 21st St	7028.999468	2142.488969	11491	IND006417315	Y	Y	1	manufacturing	Complaint (VFC 38838458) re: drums, fire, release Small generator of F001, F010, F011, & F012 & P030 MCHD had PA/VSI from 1992 TWO VAPOR DEGREASERS	27
28	Dorothy Shamrock Coal	2110-2112 Dr. MLK Jr.	6895.780734	2101.8339	20624	4960013	Y	N	0	coal yard	PAHs, oil staining, see VFC 14540029, MCHD files	28
29	Excelsior Laundry and Cleaners	2179 N Illinois	9408.696645	2867.770646	15994	IND016405854	N	Y	1	dry cleaner	active dry cleaners	29
30	45 Minute Cleaners	2179 N Pennsylvania	10137.22308	3089.825495	16751	IND981783475	N	Y	1	dry cleaner	closed dry cleaners	30
31	Sparkle Cleaners	2198 N Meridian	9944.458007	3031.070703	17902	IND000481325	N	Y.	1	dry cleaner	active ? As recent as 2009	31
32	Sparkle Cleaners	2119 Central	11624.45728	3543.134464	?	?	N	?	1	dry cleaner	nothing in IDEM file but the name?? No documents	32
33	Jim's Dry Cleaners	2605 W 16th	5445.400131	1659.757907	26751	IND000204065	N	Y	1	dry cleaner	Inspection in 2001 not sure if active now	33

34	Reuas Engineering	555 W 16th	5014.922147	1528.548221	15985	IN006067248	N	N	?	?	small generator F012 (quenching wastewater solids w/cyanide)	34
35	McBroom Electric Co.	800 W 16th	4162.822778	1268.828342	17874	IND042612321 / INR000015778 / FID 5818	N	Y	1	electrical manufacturing	F001 (spent chlorinateds) and D040 (TCE)	35
36	McFarling Foods	333 W 16th	6742.281683	2055.047391	18336	FID 6056 / BFD 4980005	Y	N	0	food storage	Brownfield; within the 14th St Corridor Plume / USTs, diesel fuel, etc.	36
37	Schuchman Metals / Langsdale Metals /Republic Services	829 Langsdale	6381.719104	1945.147921	20353 / 26312	IND 042812321 / FID 15160 / LUST199307532	Y	N (?) sampled?	1	salvage junk yard	Site Investigation VFC 5983115 / Rosy H. is PM / mostly BTEX data any full VOCs?? Aluminum smelting refractory brick	37
38	Republic Services / SMI Recycling/ Circle City	832 Langsdale	6592.625368	2009.432148	14525	IND 980904213 Landfill 49-06	N	N	1	salvage junk yard	combined w/above property? Legal Survey VFC 63589110, asbestos/air permits	38
39	Prototype/ PCG Pump & Engine	1125 W 16th	2907.468732	886.1964413	na	n/a	N	N	?	??	print shop? No RCRA - listed in WHPA list, not in VFC	39
40	Capitol Tool & Dye	1141 W 16th	2833.277885	863.5830717	n/a	n/a	N	N	0	machine shop	not in VFC	40
41	Executive 1 Hour Cleaners	2658 N Harding	8371.348688	2551.586999	n/a	n/a	N	?	1	dry cleaners	not in VFC	41
42	Martin Luther King Corridor	MLK & W 16th	5652.83534	1722.984157	22740	BFD 4980006	Y	Y	1		MLK Corridor Plume Andrea Robertson	42
43	Universal Sign	507-545 W 16th	5295.846747	1614.174087	22740	BFD 4980006	Y	Y	1	manufacturing	MLK Corridor Plume	43
44	Parker Properties	524-570 W 16th	4943.641074	1506.821751	22740	BFD 4980006	Y	Y	1	repair	MLK Corridor Plume	44

45	Challenge Machine	506 N Elder	3139.651731	956.9658171	15984	IND006066906	N	N	?	machine shop	vacant, west of White River, reported no hazmat	45
46	Republic Creosoting Company	738 Miley	2413.405927	735.6061029	25775	IND980606511	N	N	?	creosoting	west of river, inspections only no samples	46
47	B&W Constructors	560 N Elder	2957.353515	901.4013224	n/a	n/a	N	N	0	metal fab	west of river, not in VFC	47
48	Addie's 45 Minute Dry Cleaners /Forty Five Minute Cleaners	960 Indiana Ave	3510.188754	1069.905498	n/a	INR000007419	N	Y	1	dry cleaners	South of Fall Creek, MCHD violations	48
49	Meadors Tool & Dye / Perry Manufacturing / Sanitec of Indiana Treatment Facility	2020 Montcalm	4764.470015	1452.210414	21973 / 19818	INR000104935 / SW 49-54	N	N	0	manufacturer / medical waste disposal	D001, D002 Large quantity generator "waste oxidizing solid"	49
50	Stanley Signs	1133 Burdsall	6981.689131	2128.018779	18260	INR000108101	N	N	0	signs/paints	D001, F003, F005 conditionally exempt (no chlorinateds)	50
51	Hittle Tool & Dye	2122 Dr. MLK Jr	6960.634406	2121.601299	16164	IND006065536	N	N	1	machine shop	conditionally exempt D001 HISTORICAL CONCERNS??	51
52	Bredenstein Printing	1922 Dr. MLK Jr	6309.375088	1923.097465	n/a	n/a	N	N	?	printer, etc.	not in VFC	52
53	Michigan Auto / U Pull & Pay	940 W 16th St	3662.760462	1116.409353	39533	INR000124114	N	N	1	salvage yard	D001 minor violations, no CVOCs listed, MCHD mosquito violations	53
54	American 1 Hour Cleaners / Morleys Cleaners	1901 Lafayette / 1901 N Belleview Place	5916.811727	1803.444157	24157	IND984898528	N	Y	1	dry cleaners	F002 , D039	54
55	Service Labs / Servaas Laboratories	1200 Waterway	1299.380653	396.0512104	20412	IND981090749	N	N	0	lab for water co	F005, U159 (spent petroleum-solvents)	55
56	Motor Pool (Stadium)	1448 Stadium	2035.013254	620.2720201	n/a	n/a	N	N	0	vehicle storage	not in VFC	56

57	Quality Linen Service / Quality Products Inc.	1277 W 29th	9574.788013	2918.395293	17350	INR000007450 / FID 9848	N	Y	1	Industrial	violations w/PCE handling, same owner as Master Wear in Martinsville, gasoline UST, D005, D007, D008	57
58	D-A Lubricant Company	1340 W 29th	9602.08112	2926.714232	11500 / 23836/ *14562*	VRP 6020701 / IND006065296 / BFD 4130103	Y	N	1	lubricant manufacturing	Contaminant list did NOT include CVOCs (BTEX/TPH/PAH only) (*Al id is mixed w/Portage Co. site) F005, D035, D001, Ph1 ESA in Dec. 2012 VFC 67345008; began manufacturing in 1919	58
59	Tri-State Bearings / "Vacant Building"	1640 Alonso Watford Sr Dr	5188.278764	1581.387317	n/a	n/a	N	?	?	?	historically industrial area / MLK Plume / address in VFC but no records	59
60	One Stop Salvage Co.	502 W 16th Place	5450.079404	1661.184149	n/a	n/a	N	N	?	salvage yard	MCHD found complaint unjustified	60
61	Star Service Station	502 W 16th Street	5468.470352	1666.78971	21590	VRP 6960401 FID 19333 and 016513	Y	N	0	service station	LUST	61
62	D&M Auto Parts	505 W 16th St	5425.207608	1653.603226	n/a	n/a	N	N	?	salvage yard	MCHD complaints	62
63	Speedway Volkswagen / Speedway International Inc.	1930 W 16th	3557.254863	1084.251247	24974	IND016445512 / 200011210/ FID 11445	Y	Y	1	dealership	waste oil tank removed pre-1986 PCE in groundwater sample	63
64	Parcel 1099990 ? ("not sure")	1600 Dr. MLK Jr	5682.9698	1732.169139	n/a	n/a	Y	Y	1	?	MCHD complaint - drums of PCE from Morley's Cleaners on a vacant lot near 16th & MLK; Part of MLK Plume??	64

65	Site Oil Company /Abandon Site	1402 Dr. MLK Jr	5249.936808	1600.180688	25135	BFD 4030001 / FID 22845	Y	N	0	service station	USTs and a "pit" Brownfield NFA 21823335 complete scan; no CVOCs encountered	65
66	M&L Auto Repair	1520 Dr. MLK Jr	5450.992343	1661.462413	N/a	n/a	N	?	1	truck&bus repair	not in VFC	66
67	Bock Equipment Company / American Block	1900 Dr. MLK Jr	6245.121897	1903.513093	n/a	n/a	Y	Y	1	contractors	MLK 16th Street Plume MCHD documented TCE in soil	67
68	National Sand Blasting	2278 Montcalm	5928.057557	1806.871886	n/a	n/a	N	Y	1	sand blaster	MCHD complaints, PERC listed in MCHD inspection; issues w outdoor chemical storage - paint room venhilation No VFC	68
69	Reynolds Recycling	2089 Montcalm	5187.208557	1581.061117	n/a	n/a	N	N	0	recycling	MCHD complaint; probably part of another address?	69
70	Fall Creek and 16th Park	?	4534.655831	1382.163053	N/a	n/a	N	N	1	former dump	city dump on 1915 Sanborn Map; aerial photographs	70
71	Flexdar	1825 W 18th	3884.81138	1184.090471		SCP 200404159	Y	Y	1	manufacturer	in State Cleanup. Source of "Flexdar Plume"	71
72	S. Cohn and Sons/ Suron	1402 N Capitol	7219.727315	2200.572815	28328	SCP 6070101	Y	Y	1	former manufacture	Within the 14th St Corridor plume; contributor; State Cleanup Jeff K.	72
73	Michaelis / Fame Laundry	1352 N Illinios	7678.383245	2340.371138	23287	BFD 4091202	Y	Y	1	dry cleaner	Within the 14th St Corridor plume; contributor; State Cleanup; Jeff K	73

74	Greater Diversified Supply	1234 N Capitol	7105.892105	2165.875844	n/a	SCP 200606202	Y	Y	1	dry cleaner	Known to have PCE in groundwater; State Cleanup Kevin H.	74
75	Stewart Manufacturing	1280 N Senate	6630.146539	2020.8686		6040306	Y	Y	1	manufacturer	VRP; within the 14th St Corridor plume; contributor; Jeff K	75
76	19th St Corridor Plume	19th and Cornell	13253.09327	4039.5427	?	?	Y	Y	1	?	State Cleanup ; known to have PCE & VC	76
77	Wash Rite Company Inc	1720 Alvord St	13613.79537	4149.484697	n/a	200803020	Y	Y	1	dry cleaner	part of 19th St Corridor Plume; Jerry O.	77
78	Courtsey Cleaners	805 W 10th St	4102.339736	1250.393112	n/a	n/a	N	Y	1	dry cleaner	in VFC w/no records	78
79	Printing Partners / Vacant Commercial	929 W 16th St	3547.854148	1081.38591		INR000135772	N	Y	1	printer	D001, D002, D011, D018 & D039 (PCE) see VFC 68611483	79
80	Rex Metal Craft	1716 Rembrandt	3338.377005	1017.537279	16694	IND981002348	N	N	0	metal fab	F003 (waste non-halogenated)	80
81	CSX/Moorefield Yard	250 N Belmont	5249.447301	1600.031486	n/a	n/a	?	?	?	former rail yard	Several sites are now ontop of here at Belmont & New York	81
82	Shell Oil	Belmont	4038.030296	1230.791595	22624	BFD 4980013	Y	Y	1	bulk station	Former bulk facility, was part of/next to? CSX yard, has TCE in H20	82
83	Dickey & Sons Tool	2450 Turner Ave	5856.294618	1784.998543	17386	BFD 4090206	Y	Y	1	machine shop	TCE extends off-site	83
84	Herff Jones	1411 N Capitol	7269.422505	2215.719909	18857	BFD 4040007	Y	N	0	class rings	Sampled full scan, no CVOCs detected	84
85	Indy Parks	1426 W 29th	9628.949194	2934.90362	19673	BFD 4020002	Y	N	0	garage	former parks maintenance garage / some full scan VOCs no CVOCs detected (Al ld is mixed w/ SCP deaners in Peru??)	85

86	Goodwill Industries	1635 W Michigan	2873.251611	875.767063	20195	IND006938278	Y	Y	1	industry	F002 and D001 small generator/ former CSX yard??	86
87	EMP Corporation / American Metals Industries	413 N Tremont	5028.455232	1532.673106	16851	IND984890475	N	N	0	metals	waste type not listed; out of business	87
88	Thomas L Green Co.	202 N Miley	4835.26133	1473.787606	19941	IND006066450	N	N	0	manufacturer	made buscuit plant equipment F005	88
89	Dewercs One LLC / Tuchman's Cleaners	30th & Kessler	8354.95763	2546.591004	23805	VRP 6051002	Y	Y	?	dry cleaner	kicked out of VRP last sampled in 2010	89

Site Investigation Strategy
Site 0153 Plume (formerly Riverside Groundwater Contamination)
Indianapolis, IN
EPA ID# INN000510936

This document presents the Site Investigation Strategy (SIS) for the Site 0153 (formerly Riverside) groundwater contamination plume located in downtown Indianapolis, IN. The purpose of this document is to present the strategy for addressing the contamination present in the Riverside and White River wellfields, including: identifying Potentially Responsible Parties, delineating the nature and extent of contamination, determining the potential risk of the contamination and any completed exposure pathways, and selecting an appropriate remedial action to mitigate that risk or exposure.

Background

Site 0153 is located in Indianapolis, Marion County, Indiana. On February 20, 2013, IDEM staff received notice from Citizens Energy Group that elevated levels of vinyl chloride (VC) and cis-1,2-dichloroethene (cis-1,2-DCE) were being detected in their Riverside municipal wellfield. Citizens Energy was concerned that the increasing levels of VC in Well RS29 are approach9ing the Maximum Contaminant Levels (MCL) for VC, which may adversely impact the use of that well to supply drinking water to residents in Indianapolis. The MCL for VC is 2.0 µg/L. The Riverside/White River Wellfield supplies drinking water to over 17,000 people in Indianapolis.

On May 20 and 21, 2014, IDEM staff conducted a site inspection at the Riverside Groundwater Contamination site. A total of 25 raw water samples were obtained. The samples consisted of 19 ground water samples, four (4) duplicate samples, and two (2) trip blanks. The ground water samples were collected from 19 municipal wells located in the Riverside and White River Wellfields. All samples were analyzed for volatile organic compounds(VOCs) only. Vinyl chloride, cis-1,2-DCE , trichloroethylene (TCE), and 1,1,1 trichloroethane were the primary VOCs detected. Although VOCs were detected in some of the municipal wells, the concentrations of the VOCs did not exceed any MCL set by the EPA in raw water. All raw water is treated and tested by Citizens Water Utility prior to distribution and no VOCs have been detected in finished water sent to customers. Results of water system tests can be found on the State Drinking Water Information System (SDWIS) website at https://myweb.in.gov/IDEM/DWW/index.jsp.

The Hazard Ranking System (HRS) documentation record submitted to EPA currently has identified upwards of 89 potential sources of VOC contamination to the White River and Riverside Wellfields' five-year time of travel of groundwater. More than fifteen (15) sites are in one of IDEM's remediation programs, and have either addressed their potential sources or are on track to do so. For an illustration of the site area, including potential identified site sources, see Attachment A.

On August 13, 2015, IDEM's former Commissioner, Thomas Easterly, requested inclusion of the Site on the National Priorities List (NPL). However, IDEM has since determined it would be in the best interests of the site, and responsive to citizen requests, to address the site in IDEM's State Cleanup program. Commissioner Carol Comer sent a letter to EPA on August 18, 2016, formally withdrawing support for the Riverside Groundwater Contamination Site (now known as Site 0153) to be included on the NPL (Attachment B).

Path Forward

The Site exhibits unacceptable levels of groundwater contamination from multiple sources, and threatens municipal drinking water supplies. Additional information regarding the nature and extent of VOC contamination, any possible sources of contamination, and potentially completed exposure pathways must be collected. IDEM commits to following a CERCLA-like strategy to evaluate the contamination at Site 0153 as outlined below:

Preliminary Data Gathering/Conceptual Site Model Development

There are currently 15 potential contamination source sites in the Site 0153 five-year time of travel for groundwater that are in one of IDEM's remediation programs. The information collected for these sites to date is valuable to building a conceptual site model (CSM). IDEM staff will ask the programs for these sites to submit their most recent groundwater, soil, and vapor intrusion data sets as well as monitoring well construction data as electronic records to IDEM's SAMPDB sample database. IDEM's GIS section will use that information to build a site overview map and base conceptual site model. These sites will be asked to perform a data gap analysis to determine whether they need additional investigation and monitoring wells to evaluate potential contributions to the wellfield.

- Immediate Impact Mitigation:

  As part of this preliminary data gathering activity, IDEM staff will determine whether any private drinking water wells exist within the five-year time of travel of groundwater to the Riverside and White River Wellfields, and if so, test those wells for VOC contamination. If shown to be contaminated, IDEM will devise a plan to ensure an alternate water source is provided.

PRP Search

Using the preliminary CSM as a guide, IDEM will conduct a comprehensive search for potentially responsible parties (PRPs) through all reasonably available records, and pursue all identifiable potentially responsible parties to obtain their cooperation in investigating and remediating Site 0153. IDEM staff will attempt to create a cooperative approach, wherein all identified PRPs work together to investigate both their own potential site-specific contamination issues as well as their potential contribution to the plume affecting the Riverside and White River wellfields (PRP Cooperative). IDEM staff will work with the responsible parties to develop a multi-party Agreed Order on Consent to

complete this work. If a site is identified but no Responsible Parties can be found, IDEM will undertake the work to address that site. Due to the density of sites and the nature of the contamination, there is a potential for commingled plumes. Other sources and responsible parties do not preclude delineation of on-site sources. IDEM will use all available enforcement authority to ensure all potentially responsible parties participate in this process.

Site Investigation

IDEM staff will take a tiered approach to understanding the nature of the contamination at Site 0153:

- Site-specific investigation of the nature and extent of impacts on individual properties will be completed by PRPs with oversight by IDEM project managers and Science Services staff, using the principles outlined in the Non-Rule Policy Documents "Remediation Closure Guide" and "Remediation Program Guide - State Cleanup Program" (Attachment C).
- Vicinity-wide evaluation of the entire project area, including understanding how the sites are connected, multiple plume behavior analysis, and identification of sources to the Riverside and White River Wellfield contamination will be undertaken by the PRP Cooperative, with oversight and input from the Lead IDEM Project Manager and Lead IDEM Geologist. The Lead Project Manager and Lead Geologist will review all site investigation work plans and reports to ensure each investigation is conducted with the overall goal of determining potential contribution to Site 0153 in mind.

Sampling on all sites will include soil, vapor, and groundwater samples. Initial samples will be analyzed for the full suite of potential contaminants in order to determine the correct list of contaminants of concern. Each site will be delineated horizontally and vertically until groundwater and soil impacts are below the RCG Residential Tap Water/Residential Soil standards. All sites must coordinate to gauge and sample wells on a regular basis. This information will be valuable to determining the potential source of contamination. Because of the toxicity of the contamination and the drinking water receptor, the delineation must be confirmed with repeatable groundwater data (wells). All data will be submitted to IDEM's SAMPDB database.

Risk Assessment/Cleanup Goals

IDEM staff will evaluate all Site Investigation-generated data against the IDEM Residential standards for soil, groundwater, and soil vapor. Those standards are derived using EPA Region 5 standards and calculated to be protective at a level of $1x10^{-5}$, which is within the Superfund acceptable risk range of $1x10^{-6}$ to $1x10^{-4}$.

Site Technical Decision Points

Once an individual site has been delineated to residential levels and all data and information has been submitted to the satisfaction of the site Project Manager, the site will be directed to mitigate any source areas, vapor intrusion, or other local, on-property impacts. This remedial decision, including all supporting information, conclusions, risk evaluations, and impact to local communities, will be detailed

in a Site Decision Document submitted to IDEM for review and approval by the Site Project Manager, Site Technical Staff, Lead Project Manager, Lead Geologist, and the State Cleanup Section Chief.

When the majority of sites have determined their nature and extent impacts and all data has been collected and evaluated, the PRP Cooperative, with comment from the IDEM Lead Project Manager and Lead Geologist, will draft a document that provides an overview of all relevant site-wide data and the conclusions regarding the nature of the groundwater contamination affecting the wellfields, all relevant source areas, and potential risk for future contamination to the wellfields. The PRP Cooperative will also draft a feasibility analysis of potential cleanup strategies that will protect the existing wells and reduce or eliminate impacts to the wellhead protection area.

Decision Document

IDEM staff will evaluate the results of the Site Investigation and Feasibility Analysis documents and will draft a Decision Document that will summarize the results of the investigations, risk evaluations, and feasibility analysis (including potential 30-year cost evaluations) of all potential cleanup actions for the Site 0153 plume. This document will evaluate the potential cleanup actions using the Superfund Nine Criteria, which include:

Threshold Criteria
1. Overall protection of human health and the environment
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Primary Balancing Criteria
3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility or volume
5. Short-term effectiveness
6. Implementability
7. Cost

Modifying Criteria
8. State (EPA) acceptance
9. Community acceptance

The draft Decision Document will be presented to the public as a proposal at a public meeting, and any written or oral comments will be gathered and responded to before the Decision Document is signed by the Assistant Commissioner of the Office of Land Quality. The PRP Cooperative will also be presented a copy of the draft Decision Document and given the opportunity to comment.

Site 0153 Responsible Party Agreement

All parties/property owners that are shown to have a plume source or contributing areas will be asked to come to an agreement to fund the remedial action chosen in the Decision Document. This agreement will include each site's cost contribution and future financial assurances, as well as the structure of the

collective group's responsibility to implement the remedial action, the role of IDEM staff to approve remedial design and remedial action activities, and future operations and maintenance responsibilities.

Site 0153 Public Participation Plan

IDEM staff commit to holding at least a quarterly meeting in the Site 0153 area to update the public regarding progress at the site. In addition, links to publicly available site documents will be placed on the Site 0153 website. The documents will also be placed in an information repository that will be established in a local library or other public location. The draft site Decision Document will be presented to the public for input and comment before the document is final. IDEM staff are committed to communicating with the public in an open and transparent way in order to keep them informed of the site activities in their area. IDEM staff will also determine if any other methods of communication are preferred by the community and will revise this approach as necessary to ensure the needs of the community are being met. IDEM will ensure that both Spanish and English translations of outreach information are available. In addition, financial assistance to citizens groups to be able interpret any site-related technical documents will be made available either through PRPs or IDEM itself if no PRPs are identified.

Citizens Water Utility

Citizens Water has stated it would be willing to take the following measures to ensure the continued safety of its drinking water and to assist State and local governmental agencies with assessing and mitigating potential contaminant source areas in the vicinity of the Wellfields:

- Citizens would take production well WR-3 out of service, install an aeration treatment system to reduce VOC levels, and then test the water post-treatment to ensure VOC levels are below EPA's maximum contaminant limits (MCLs) for drinking water. Upon receipt of sustained satisfactory test results, Citizens would return WR-3 to service. At that point, all "raw water" being produced by Citizens' two production wells would be below EPA's standards before it is mixed with surface water and treated in Citizens' treatment process.
- Citizens would take the same measures at any production well in the future if verified sample results exceed MCLs, thus ensuring that water produced from Citizens' production wells, even before mixing and treatment, would continue to be below EPA Safe Drinking Water Act Maximum Contaminant Level (MCL) standards.
- Citizens would increase the frequency of its voluntary sampling for VOCs from the production wells and monitoring wells in the Wellfields from semi-annual to quarterly, and would share those results with IDEM as they are received.
- Citizens has developed and implemented Groundwater Quality Monitoring Plan, dated January 17, 2017as required by a recently adopted Indianapolis/Marion County ordinance, to track CVOC concentrations in the Wellfields. The results of this sampling program will be shared with EPA, IDEM, and the four local agencies identified in the ordinance to help determine if further measures are warranted.

IDEM Commitments

IDEM understands that the nature and complexity of Site 0153 will require a large allocation of resources to complete successfully. Therefore, the Governor's Office and IDEM commit to hiring an additional three project managers, a geologist, and an attorney to be dedicated to the project. In addition, state funding has been secured in the amount of $1 million per year to ensure work is completed in a timely manner.

IDEM staff believe this strategy will result in a complete and thorough evaluation of the contamination affecting the White River and Riverside wellfields, will be protective of human health and the environment, be responsive to the concerns expressed by local agencies, and will be acceptable to the citizens who live in the area.

List of Anticipated Deliverables

Site 0153 Remedial Investigation

A comprehensive evaluation of the nature and extent of contamination affecting the Riverside and White River Wellfields, including groundwater, soil, and vapor intrusion evaluations as well as source identification.

Site 0153 Risk Assessment

Evaluation of all data generated in the Remedial Investigation to determine if the site poses a risk to human health or the environment. This document will clarify contaminants of concern, compare concentrations against IDEM's Residential and Industrial closure values, and will determine the appropriate cleanup criteria for the site.

Site 0153 Feasibility Analysis

This document will determine potential remedies for any unacceptable risk associated with Site 0153. The document will also list potential Applicable or Relevant and Appropriate Requirements as well as cost evaluations for the potential remedies.

Site 0153 Decision Document

This document will summarize the results of the Remedial Investigation, the Risk Assessment, and the Feasibility studies, as well as summarize all ARARs for the site. The document will then outline the remedy preferred by IDEM and the PRPs. This document will be then made available in draft for public comment. All written public comments will be responded to as an addendum to the Decision Document.

Community Involvement Plan

This document will outline the ways in which IDEM intends to communicate with the public, including primary contacts, strategies for email and print communications, commitments to public meetings, location of a public information repository, how to find public records, availability sessions, and any other methods of communication and location of information relevant to the site. The public will be solicited for their input into this plan before it is drafted to ensure the plan meets the community's needs.

APPENDIX B

Preliminary Assessment Report, Indiana Department of Environmental Management, November 1, 2013

APPENDIX REDACTED DUE TO CLAIM OF CONFIDENTIALITY – CONFIDENTIAL – NOT SUBJECT TO PUBLIC DISCLOSURE FOR REASONS OF PUBLIC SAFETY, AND CONFIDENTIAL BUSINESS INFORMATION

APPENDIX C

Site Inspection Report, Indiana Department of Environmental Management, dated October 23, 2014

APPENDIX REDACTED DUE TO CLAIM OF CONFIDENTIALITY – CONFIDENTIAL – NOT SUBJECT TO PUBLIC DISCLOSURE FOR REASONS OF PUBLIC SAFETY, AND CONFIDENTIAL BUSINESS INFORMATION

APPENDIX D

Priority Site Summaries

Site Name: Penn 60 Minute Cleaners
Site Address: 2175 N. Pennsylvania Street ("Site")
Corresponding Figure 6 Map Label ID: 1
State Program: State Cleanup Program (SCP)/Voluntary Remediation Program (VRP)
Site Number: 0000650 SCP & 6200904 VRP
Indiana Department of Environmental Management (IDEM) Project Manager: Lori Bebinger
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Notice of Liability and Information Request, September 5, 2017

SITE BACKGROUND

Several addresses have been found to be associated with this Site, including (but not necessarily limited to): 2175 N. Pennsylvania Street, 2179 N. Pennsylvania Street, 2171 N. Pennsylvania Street, and 111 E. 22nd Street. This Site was originally two lots most recently designated as 2175 and 2179 North Pennsylvania Street. The current City of Indianapolis Geographic Information System (GIS) website (http://maps.indy.gov/MapIndy/index.html) lists only one parcel number (1011131) under the 2179 North Pennsylvania Street address and this modern parcel consists of both of the 2175 and 2179 North Pennsylvania addresses.

The property was residential prior to 1957, a dry cleaners from 1959 to 1972, a variety store from 1978 to 1984, and a dry cleaners from 1984 to the present day. Tetrachloroethylene (PCE) was used at the facility from as least 1984 to January 2014, when the facility switched to using hydrocarbon in their dry cleaning operation. A PCE release was discovered at the facility during the investigation at a nearby property managed under the IDEM Brownfield's program. The facility was entered into the State Cleanup Program (SCP) in September 2017 when the IDEM sent the *Notice of Liability and Information Request* letter (September 5, 2017). Soil and groundwater samples collected at this facility have contained detections of PCE, trichloroethylene (TCE), and cis-1,2-dichloroethylene (cis-1,2-DCE). PCE and TCE have been detected at concentrations exceeding Remediation Closure Guide (RCG) Screening Levels (SLs). The facility applied for IDEM's Voluntary Remediation Program (VRP) and was accepted September 2020.

FIELD ACTIVITIES

Multiple subsurface investigations have been performed for the Site. Thirty-seven soil borings have been advanced with a total of 83 soil samples collected. Borings were drilled to a maximum depth of 60 feet below grade (ft. bg.) One hundred and forty-five grab groundwater samples were collected from several depth intervals with a maximum depth of 56-60 ft. bg. A total of 29 individual monitoring wells have been installed, most of them nested with one or two other wells, with the deepest wells installed to approximately 48 ft. bg.

Thus far, vapor intrusion investigations have been completed on-Site and at six residential properties. Based on results, vapor mitigation systems have been installed on-Site and at two residences.

SUBSURFACE IMPACTS

Several soil samples have contained PCE concentrations exceeding the Soil Migration to Groundwater (MTG) SL. The most significantly impacted soil sample was directly beneath the building slab from 0-2 ft. bg. with a PCE concentration of 94.4 ppm. PCE-impacted soil ranged in depth from 0 to 44 ft. bg. According to Mundell & Associates, Inc. (Mundell), high PCE concentrations in soil samples collected from immediately under the slab indicate that a source (or several sources) may be located beneath the rear on-Site building slab. TCE was also detected in soil samples above the Soil MTG SL at depths ranging from 17 to 42 ft. bg., with the highest concentration being 2.1 parts per million (ppm) from 23-25 ft. bg.

Current investigation results indicate that dissolved PCE and TCE are present from the top of the saturated unit to the maximum sampled depth of 56 to 60 ft. bg. The maximum PCE concentration detected in groundwater was 1,530 parts per billion (ppb) (immediately southwest of the property) in monitoring well MW-5s screened from 13.70 to 23.70 ft bg. The maximum TCE concentration detected in groundwater was 273 ppb (immediately southwest of the property) in monitoring well MW-5m screened from 23.75-33.75 ft bg. Several soil borings and monitoring wells have been installed off-Site. Currently the farthest downgradient well is 250 feet downgradient from the facility. Based on the results of the grab groundwater and monitoring well sample testing, the horizontal and vertical extent of chlorinated volatile organic compounds (cVOC) impacts has not been delineated.

CURRENT SITE STATUS

Additional work is planned for the Site including installation of additional borings and wells and collection of deeper samples from below a clay layer, around 60 ft. bg. Several borings and wells are planned farther downgradient of the facility. Additionally, on-going vapor intrusion investigation both on and off-Site is planned for the facility, including continued sampling of structures already sampled, continued attempts to gain access to residences determined to need evaluation, and further evaluation/identification of residencies that may need a vapor intrusion assessment.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Keramida Environmental, Inc. *Off-Site Groundwater Investigation Report,* October 2, 2007 (submitted by a nearby property in the Brownfields program). (Virtual File Cabinet (VFC) #70359085)
- IDEM. *Preliminary Assessment Report,* October 20, 2014. (VFC #80021147)
- Mundell & Associates, Inc. *Initial Site Investigation Report,* June 15, 2018. (VFC #82562133)
- Mundell & Associates, Inc. *Vapor Intrusion Assessment Report,* November 16, 2018. (VFC #82651548)
- Mundell & Associates, Inc. *Further Site Investigation Scope of Work – Status Update,* June 26, 2019. (VFC #82806692)

- Mundell & Associates, Inc. *Further Site Investigation Report,* November 20, 2019. (VFC # 82871485)
- Mundell & Associates, Inc. *Response to Further Site Investigation Comment Letter*, January 28, 2020. (VFC #82901090)
- Mundell & Associates, Inc. *Vapor Intrusion Assessment Report*, April 13, 2020. (VFC #82980177)

Site Name: Sparkle Cleaners
Site Address: 2198 North Meridian Street ("Site")
Corresponding Figure 6 Map Label ID: 2
State Program: State Cleanup Section
Site Number: State Cleanup Site #0000835
State Cleanup Project Manager: Haley Faulds
Indiana Department of Environmental Management (IDEM) Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, March 25, 2019

SITE BACKGROUND

The Site operated as a Former Dry Cleaner from approximately the 1970s to 2015. No dry cleaning has been conducted at the Site since June 11, 2015 to the business's closure in July 2018. The Site building is currently vacant. The IDEM sent a Request for Information (RFI) letter to the current owners (Duckworth, Inc. and Kim Duckworth) on March 4, 2019 and March 25, 2019. Attorneys for the current owners provided a response to the request on June 21, 2019. No releases have been reported at the Site.

FIELD ACTIVITIES

No field activities associated with the Site have been conducted.

SUBSURFACE IMPACTS

The IDEM noted in the RFI letter that groundwater contamination was identified in an area along the intersection of North Illinois and 22nd Street, near the Site. However, as no subsurface investigation has occurred at the Site, no subsurface impacts have been identified.

CURRENT SITE STATUS

Additional Investigation is pending the results from Excelsior Laundry (VRP Site #6200904).

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Farmer, Scott, Ozete, Robinson & Schmitt, LLP. *Request for Information Response,* 2019. (Virtual File Cabinet (VFC) #82799433)

Site Name: Near North Development Corporation
Site Address: 2179 N. Illinois Street ("Site")
Corresponding Figure 6 Map Label ID: 3
State Program: State Cleanup Program (SCP)/ Voluntary Remediation Program (VRP)
Site Number: 0000658 SCP & 6200903 VRP
Indiana Department of Environmental Management (IDEM) Project Manager: Emily Kauffman
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Notice of Liability and Information Request, August 2, 2017

SITE BACKGROUND

The Site operated as a Former Dry Cleaner from 1965 to 1995. Historic records indicate the Site could have been operated a laundry or cleaners as early as 1915. A release was reported to the IDEM in 2017 for tetrachloroethylene (PCE) detections in soil and groundwater at the Site. The Site entered into State Cleanup Program (SCP) in 2017. The Site applied and was accepted into the Voluntary Remediation Program (VRP) in October 2020.

FIELD ACTIVITIES

A total of 42 soil borings have been advanced on- and off-Site during multiple subsurface investigation including a 1999 Limited Phase II Site Investigation. Soil boring depths range from 4 feet below grade (ft. bg.) to a maximum depth of 60 ft. bg. Five monitoring wells have been installed at the Site to a maximum depth of 25 ft. bg. Grab groundwater samples have been collected from multiple intervals throughout the water column to a depth of 55 ft. bg.

SUBSURFACE IMPACTS

Analytical result reports volatile organic compounds (VOCs) (mainly PCE) in soil with the maximum PCE concentration of 109 ppm. One soil sample was collected from the clay unit and no constituents of concern (COCs) were reported above Screening Levels (SLs). Grab groundwater samples were collected at depths to 55 ft. bg. where a clay unit was encountered and VOCs were detected above Remediation Closure Guide (RCG) Residential Tap Water (RTW) Screening Levels (SLs). Analytical results from the monitoring well network reported PCE at a maximum of 630 parts per billion (ppb) in a monitoring well screened from 13 to 23 ft. bg. and TCE at a maximum of 50.9 ppb in a monitoring well screened from 15 to 25 ft bg. Groundwater impacts extend off-Site. Based on analytical data, Stantec Consulting Services, Inc. (Stantec) has concluded that there is a potential for upgradient off-Site sources as well.

CURRENT SITE STATUS

The IDEM has requested additional investigation of deeper groundwater on- and off-Site. The IDEM indicated that as of the Further Site Investigation (FSI) investigation, horizontal and vertical delineation of the off-Site plume are not complete. Currently, redevelopment of the Site is proposed and source removal via excavation is being considered.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Indianapolis Department of Public Works. *Phase I Environmental Site Assessment*, 1995. (Virtual File Cabinet (VFC) #80485635)
- Keramida Environmental, Inc. *Limited Phase II Environmental Site Investigation of Vacant Lots 2167-2179 North Illinois Street*, January 28, 2000. (VFC #80485638)
- Enviroforensics, Inc. *Memo: IDEM Emergency Response Incident #72777*, April 26, 2017. (VFC #80485562)
- Stantec Consulting Services Inc. *Further Site Investigation Data Package*, January 23, 2018. (VFC #80613839)
- Stantec Consulting Services Inc. *Additional Delineation Work Plan Response to Comments*, August 3, 2018. (VFC #82593563)
- Stantec Consulting Services Inc. *Additional Site Investigation Data Package,* March 6, 2019. (VFC #82716868)

Site Name: Karstadt-Reed Cleaners
Site Address: 1449 N. Illinois Street ("Site")
Corresponding Figure 6 Map Label ID: 4
State Program: State Cleanup Program (SCP)
State Program Number: 000000298
Indiana Department of Environmental Management (IDEM) Project Manager: Jeffrey Kavanaugh
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Special Notice of Liability, August 10, 2009

SITE BACKGROUND

According to the 1898 Indianapolis Sanborn Map #34, Karstadt Brothers Dye Works, which is noted as a cleaning and dyeing establishment, was located on the property as early as 1898. The facility was operated as a dry-cleaning establishment from as early as 1898 to 2007.

Karstadt-Reed Cleaners was assigned to the State Cleanup Program (SCP) in July 2008 after a release was reported based on results from a subsurface investigation conducted for another property in the area. The contaminants for this facility are the chlorinated solvent tetrachloroethylene (PCE), and its associated breakdown products trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE), trans-1,2-dichloroethylene (trans-1,2-DCE), and vinyl chloride (VC). There are several other documented downgradient sources of chlorinated solvent groundwater contamination in the vicinity. Co-mingled groundwater contamination from the downgradient sources, the Karstadt-Reed Cleaners facility, and any unidentified additional sources is collectively referred to as the 14th Street Corridor Plume.

FIELD ACTIVITIES

Multiple investigations have been completed at the facility both on- and off-Site including soil and grab groundwater sampling (shallow to 75 feet below grade (ft. bg.)), periodic groundwater sampling from monitoring wells, and indoor air and sub-slab vapor sampling. The well network currently consists of 31 monitoring wells at varying depths. The shallowest monitoring well is screened 23 to 33 ft. bg., while the deepest is screened 68 to 73 ft. bg. Soil and groundwater impacts extend off-Site.

SUBSURFACE IMPACTS

Although the facility has not achieved Site characterization approval, an October 14, 2015 IDEM letter acknowledges that the Karstadt-Reed plume extends down-gradient approximately 1,700 feet and ends near the interstate and the Stewart Manufacturing property. Recent investigations have focused on better defining the plume core and evaluating the co-mingled plume dynamics and investigating vapor intrusion at off-Site structures. Despite not having Site characterization approval, the Karstadt-Reed facility has conducted on-Site remediation work to address the source of impacts.

In August 2015, a remedial excavation was performed at the Karstadt-Reed facility to remove the most heavily impacted cohesive clayey soil to reduce contaminant loading to deeper sandy soil and groundwater. Approximately 2,839 tons of shallow contaminated soil were excavated and disposed. Following the excavation, a combination soil vapor extraction (SVE) and ozone sparge (OS) system was installed to address on-Site impacts and commenced operation in August 2016. The SVE/OS system operated until January 31, 2019, when it was shut down to evaluate remedial progress.

To evaluate on-Site soil remediation effectiveness, an on-Site soil investigation was conducted in April 2019. As reported, results indicate up to a 99% reduction of PCE soil concentrations at the Karstadt-Reed facility and the residual PCE concentrations are predominantly below the IDEM Remediation Closure Guide RCG soil Migration to Groundwater (MTG) Screening Level. Based on results, the consultant concluded that the SVE remediation objectives were achieved and further operation of the SVE system was not warranted at this time.

CURRENT SITE STATUS

A Remediation Work Plan to address the downgradient plume was submitted to the IDEM on June 10, 2019. Other reports indicate a pilot study utilizing PlumeStop® was conducted. Additionally, vapor intrusion assessments and/or mitigation at nearby and off-Site properties are currently ongoing.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Quality Environmental Professionals, Inc. *Limited Phase II Subsurface Investigation*, March 14, 2000 (VFC #23476218)
- Quality Environmental Professionals, Inc. *VRP Phase II Investigation/Remediation Work Plan/ Remediation Completion Report*, September 10, 2002 (VFC #49627704)
- Roux Associates, Inc. *Subsurface Site Investigation*, March 13, 2009 (VFC #44705395)
- St. John-Mittelhauser & Associates. *Subsurface Investigation Work Plan for the former Karstadt Reed Cleaners located at 1149 North Illinois Street, Indianapolis, IN,* September 8, 2009 (VFC #51221740)
- St. John-Mittelhauser & Associates. *Draft Subsurface Investigation,* February 18, 2010 (VFC # 54333630)
- St. John-Mittelhauser & Associates. *Subsurface Investigation*, March 2, 2010 (VFC #54442757)
- St. John-Mittelhauser & Associates. *Technical Memorandum-Scope of Work for Soil Gas Investigation*, June 23, 2011 (VFC #62772043)
- St. John-Mittelhauser & Associates. *Technical Memorandum-Vapor Intrusion Work Plan*, July 5, 2011 (VFC #62897123)
- St. John-Mittelhauser & Associates. *Additional Site Characterization Report*, October 15, 2012 (VFC #66971419)
- St. John-Mittelhauser & Associates. *Technical Memorandum-Vapor Intrusion Investigation Results*, October 15, 2012 (VFC #66971515)

- St. John-Mittelhauser & Associates. *Further Site Investigations Work Plan for the former Karstadt Reed Cleaners located at 1149 North Illinois Street, Indianapolis, IN,* May 21, 2013 (VFC #68274336)
- St. John-Mittelhauser & Associates. *Technical Memorandum-Vapor Intrusion Investigation Results*, May 21, 2013 (VFC #68274134)
- Enviroforensics. *Further Site Investigation Work Plan*, September 30, 2013 (VFC #68945302)
- Enviroforensics. *Further Site Investigation Summary Report*, September 9, 2014 (VFC #70417063)
- Enviroforensics. *Source Area Remediation Engineering Design Summary*, June 18, 2015 (VFC #80121682)
- Enviroforensics. *Downgradient Groundwater Monitoring Well Network Scope*, June 21, 2016 (VFC #80312484)
- Enviroforensics. *Groundwater Monitoring Well Installation and Sampling Report*, June 23, 2017 (VFC #80487080)
- Enviroforensics. *On-Site Interim Remedial Action Report*, August 18, 2017 (VFC #80508053)
- Enviroforensics. *Groundwater Monitoring Report – First & Second Quarter 2017 Remediation System Operation Monitoring Plan*, September 26, 2017 (VFC #80526271)
- Enviroforensics. *Summer 2017 Vapor Intrusion Assessment Summary*, January 3, 2018 (VFC #80583710)
- Enviroforensics. *Groundwater Monitoring & Remedial Progress Report 3rd Quarter 2017*, January 23, 2018 (VFC #80598924)
- Enviroforensics. *Groundwater Monitoring & Remedial Progress Report 4th Quarter 2017*, April 27, 2018 (VFC #82532546)
- Enviroforensics. *Groundwater Monitoring & Remedial Progress Report 1st Quarter 2018*, July 3, 2018 (VFC #82574685)
- Enviroforensics. *Vapor Intrusion Assessment Report*, July 12, 2018 (VFC #82580623)
- Enviroforensics. *Groundwater Monitoring & Remedial Progress Report 2nd Quarter 2018*, October 4, 2018 (VFC #82627165)
- Enviroforensics. *Groundwater Monitoring & Remedial Progress Report 3rd Quarter 2018*, January 30, 2019 (VFC # 82721049)
- Enviroforensics. *Quarterly Groundwater Monitoring & Onsite Remediation Progress Report- 1st and 2nd Quarter 2019*, October 18, 2019 (VFC #82853110)
- Enviroforensics. *Sub-slab Depressurization System Installation & Performance Testing Report – 1430 North Illinois Street*, January 13, 2020. (VFC #82892413)
- Enviroforensics. *Vapor Intrusion Assessment Report – Summer 2019 & Winter 2019/2020*, May 1, 2020. (VFC #82966479)
- Enviroforensics. *Site Status Update – 4th Quarter 2019*, May 1, 2020. (VFC #82966478)

Site Name: Michaelis/Fame Laundry
Site Address: 1352 N. Illinois Street ("Site")
Corresponding Figure 6 Map Label ID: 5
State Program: State Cleanup Program (SCP)/Voluntary Remediation Program (VRP)
Site Number: SCP #200403014/VRP #6090502
Indiana Department of Environmental Management (IDEM) Project Manager: Jeffrey Kavanaugh
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Notice of Liability, March 4, 2004

SITE BACKGROUND

The Site operated as a dry-cleaning facility from approximately the 1940s to the 1960s. Following the 1960s, the Site was used for office space and general storage. The main chemical of concern identified at the Site is tetrachloroethylene (PCE), with few detections of trichloroethylene (TCE).

An incident report was filed in March 2004, and the Site entered the State Cleanup Program (SCP). However, following investigations and correspondence with the IDEM, the Site was moved to the Voluntary Remediation Program (VRP) in 2009.

FIELD ACTIVITIES

A Phase I Environmental Site Assessment (ESA) was completed by Patriot Engineering and Environmental, Inc. (Patriot) in 2002, followed by a Limited Site Investigation (LSI). This LSI included the advancement of seven soil borings to a maximum depth of 33 feet below grade (ft. bg.) August Mack Environmental, Inc. (AME) and Troy Risk Inc. (Troy Risk) have also conducted work at the Site. In the Remediation Work Plan (RWP) submitted by Troy Risk, it was noted that a total of 52 soil borings to a maximum of 36 ft. bg. have been advanced at the Site. A total of 10 monitoring wells, maximum 36 ft. bg., were also installed at the Site.

After these investigations, the IDEM required further delineation of the soil and groundwater impacts. Therefore, Troy Risk performed a Further Site Investigation (FSI) in 2012, during which two deep soil boring were advanced to a depth of 43 ft. bg. Two additional monitoring wells were then installed at a depth of 42 ft. bg.

In 2014, Specialty Earth Sciences, Limited Liability Company (LLC) (SE Sciences) conducted a Limited Phase II Investigation and advanced eight soil borings. The depths of these borings were not noted in any of the available reports.

SUBSURFACE IMPACTS

During the LSI by Patriot in 2002, the following results were determined:

- PCE detected in soil at a maximum depth of 15 ft. bg. and maximum concentration of 0.058 parts per million (ppm);

- PCE detected in groundwater at a maximum depth of 15 ft. bg. and a maximum concentration of 73 parts per billion (ppb); and,
- Chloroform detected in groundwater at a maximum depth of 33 ft. bg. and maximum concentration of 10 ppb.

The Data Transmittal report submitted by AME in 2006 noted the following:

- PCE was present in deep and shallow soil;
- PCE was present in groundwater; and,
- TCE was detected in groundwater.

Troy Risk delineated the soil and groundwater impacts to extend off-Site in the 2011 FSI. The IDEM responded and accepted the vertical delineation to 55 ft. bg. for soil and groundwater. However, the IDEM determined horizontal delineation was not feasible for groundwater due to the potential off-Site sources. Additional properties (former Shuron, Karstadt Reed, and Stewart Manufacturing) with known chlorinated volatile organic compounds (cVOCs) impacts are present within the area of the Site and are enrolled in State Programs. Site summaries are provided for these properties.

Treatment efforts included the installation of a soil vapor extraction (SVE) system by Troy Risk; the system ran from 2009 to 2012. In 2015, SE Sciences installed an active sub-slab depressurization system. Environmental Restrictive Covenants (ERCs) were also put in place for surrounding properties.

CURRENT SITE STATUS

The IDEM issued a Certificate of Completion for the VRP program and a Covenant Not To Sue in 2018 (Virtual File Cabinet (VFC) #82548862).

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Patriot Engineering and Environmental, Inc. *Phase I Environmental Site Assessment,* March 6, 2002. (VFC #54568140)
- Patriot Engineering and Environmental, Inc. *Limited Subsurface Investigation,* May 8, 2002. (VFC #54567998)
- Sesco Group. *Initial Incident Report*, March 2, 2004. (VFC #45016002)
- August Mack Environmental, Inc. *Data Transmittal Letter*, December 29, 2006. (VFC #44597167)
- Troy Risk, Inc. *Soil and Groundwater Remediation at 1352 North Illinois Street, Indianapolis, IN*, September 19, 2007. (VFC #44863220)
- Troy Risk, Inc. *Soil Vapor Extraction System Startup and Optimization Report*, May 1, 2009. (VFC #52519108)
- Troy Risk, Inc. *Voluntary Remediation Program Application*, May 1, 2009. (VFC #52518595)
- Troy Risk, Inc. *Draft Site Investigation Report and Remediation Work Plan*, December 23, 2009. (VFC #53228355)
- Troy Risk, Inc. *Draft Site Investigation Report and Remediation Work Plan*, December 23, 2009, Revised March 5, 2010. (VFC #54612923)

- Troy Risk, Inc. *Site Investigation Report and Remediation Work Plan*, September 20, 2010. (VFC #58408925)
- Troy Risk, Inc. *Second Quarter 2010 – Fourth Quarter 2012 SVE System Performance and Groundwater Monitoring Reports,* October 2010 through January 2013.
- Troy Risk, Inc. *Further Site Investigation Report*, March 16, 2012. (VFC #65411913)
- Troy Risk, Inc. *First Quarter 2013 – Fourth Quarter 2014 Groundwater Monitoring Reports,* April 2013 through January 2015.
- Troy Risk, Inc. *Plume Stability Evaluation,* April 16, 2015. (VFC #80124104)
- Troy Risk, Inc. *Site Investigation Report/Remediation Work Plan*, April 24, 2015. (VFC #80056019)
- Troy Risk, Inc. *Plume Stability Evaluation,* June 1, 2015. (VFC #80078488)
- Troy Risk, Inc. *Remediation Work Plan Completeness Checklist,* June 3, 2015. (VFC #80078514)
- Specialty Earth Sciences. *Active Sub-Slab Depressurization System Design and Layout*, June 17, 2015. (VFC #80070654)
- Troy Risk, Inc. *Implementation of Remediation Work Plan,* July 31, 2015. (VFC #80122269)
- Troy Risk, Inc. *Remediation Completion Report and Institutional Control Implementation Assurance Plan,* November 6, 2015. (VFC #680182682)
- Spalding & Hilmes, Professional Corporation (PC). *Remediation Completion Report-ERC Requested Information*, August 25, 2016. (VFC #80476560)
- Specialty Earth Sciences. *System Diagnostic Testing & Verification Sampling Report*, November 9, 2016. (VFC #80386317)

Site Name: Shuron
Site Address: 1402 N. Capitol Avenue ("Site")
Corresponding Figure 6 Map Label ID: 6
State Program: State Cleanup Program (SCP)/Voluntary Remediation Program (VRP)
Site Number: SCP #200409062/VRP #6070101
Indiana Department of Environmental Management (IDEM) Project Manager: Jeffrey Kavanaugh
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): None to date

SITE BACKGROUND

The property currently referred to as Former Shuron Facility operated as an optical supplies manufacturer from the 1920s to 1977. Cohn operated the property as a heavy equipment parts storage and repair facility from 1977 to 2004. Soil and groundwater impacts were identified at the Site and a release was reported to the IDEM in 2004. The facility was assigned State Cleanup Program (SCP) #200409062. Volatile organic compounds (VOCs) (mainly tetrachloroethylene (PCE)) were identified at the Site. According to Stantec Consulting Corporation (Stantec), there are no records of Cohn using PCE at the Site; therefore, it is assumed that the impacts are from historic operations prior to 1977. The Site was enrolled into the Voluntary Remediation Program (VRP) in July 2007. The VRP Number for the Site is 6070101.

FIELD ACTIVITIES

Since 2004, multiple investigations have been performed at the facility and have included advancing over 80 soil borings and installing 20 monitoring wells. Soil borings were advanced to a maximum depth of 55 feet below grade (ft. bg.) on-Site. Nineteen monitoring wells were installed to depths ranging between 25 and 40 ft. bg. One deeper monitoring well was installed to a depth of 75 ft. bg. off-Site.

SUBSURFACE IMPACTS

PCE impacts have been reported in on-Site soil at a maximum concentration of 117 parts per million (ppm). Groundwater analytical results collected from the monitoring well network have shown PCE impacts on-Site and migrating off-Site. PCE concentrations were historically reported as high as 810 ppb on-Site. As of September 2019, the highest concentration reported was 113 ppb in a downgradient monitoring well and the furthest downgradient monitoring well (MW-15) reported concentrations of PCE at 17.9 parts per million (ppb). According to Stantec, grab groundwater samples collected at 55 ft. bg. reported PCE above Screening Levels (SLs). No Contaminants of Concern (COCs) have been detected above the laboratory reporting limit in the deeper monitoring well MW-20 installed off-Site. The IDEM has described the groundwater plume as "relatively well understood" but requested additional deep monitoring wells in 2018 to establish vertical delineation.

CURRENT SITE STATUS

A soil vapor extraction (SVE) system was installed on-Site in 2012. A Remediation Work Plan (RWP) was submitted for the Site and proposed active remediation of soil via SVE system, exposure prevention via Environmental Restrictive Covenants (ERCs) and analysis of plume behavior. Operation of the SVE system ceased in Third Quarter 2016.The IDEM approved the RWP in October 2019. As part of the plume analysis, four consecutive quarters of groundwater monitoring was performed and completed in 2019. IDEM is currently working with Indiana University Health (current owner) to record ERCs and move the Site to closure.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- August Mack Environmental, Inc. *Initial Site Characterization Report*, February 18, 2005. (Virtual File Cabinet (VFC) # 51485907)
- August Mack Environmental, Inc. *Further Site Investigation Report*, January 25, 2007. (VFC #55257033)
- Secor International, Inc. *VRP Remediation Work Plan*, March 7, 2008. (VFC #29160121)
- Stantec Consulting Services, Inc. *Report of First Quarter 2009 through Report of Fourth Quarter 2016 Groundwater Sampling Events*, Multiple Reports: May 2009 - January 2017.
- Stantec Consulting Services, Inc. *Limited Subsurface Soil Investigation*, June 29, 2010. (VFC #56622183)
- Stantec Consulting Services, Inc. *Soil Vapor Extraction Pilot Study Report*, July 23, 2010. (VFC #57151444)
- Stantec Consulting Services, Inc. *Work Plan for Soil Remediation*, January 18, 2012. (VFC #64732381)
- Stantec Consulting Services, Inc. *Proposed Monitoring Well Network Modification*, February 9, 2012. (VFC #65158825)
- Stantec Consulting Services, Inc. *Remediation Work Plan*, May 13, 2016. (VFC #80292338)
- Stantec Consulting Services, Inc. *First/Second Quarter 2019 Groundwater Monitoring Results*, September 5, 2019. (VFC #82838396)
- Stantec Consulting Services, Inc. *Third/Fourth Quarter 2019 Groundwater Monitoring Results*, December 4, 2019. (VFC #82880408)
- Stantec Consulting Services, Inc. *4th Quarter 2019 Groundwater Monitoring Report*, March 10, 2020. (VFC #82943052)

Site Name: Former Stewart Manufacturing
Site Address: 1280 N. Senate Avenue ("Site")
Corresponding Figure 6 Map Label ID: 7
State Program: Voluntary Remediation Program (VRP)
Site Number: 6160804
Indiana Department of Environmental Management (IDEM) Project Manager: Jeff Kavanaugh
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): None to Date

SITE BACKGROUND

The Site operated as an industrial manufacturing facility from 1987 to 2004. According to MUNDELL & ASSOCIATES, operations at the Site included metal stamping, degreasing, painting, drying and assembly operations. Volatile organic compounds (VOCs) (mainly trichloroethylene (TCE)) were reported in soils in the vicinity of the former above-ground storage tank (AST) and drum storage area along the western side of the building and drainage lines inside the building. A release of hazardous substances was reported to the IDEM in August 2003 and the Site was assigned State Cleanup Program (SCP) #200308081. In 2004, the Site entered into the Voluntary Remediation Program (VRP).

FIELD ACTIVITIES

Multiple investigations have been completed to evaluate soil and groundwater impacts identified at the Site. Investigations have included advancing over 50 soil borings and installing 39 monitoring wells on- and off-Site (upgradient and downgradient of the Site). Monitoring wells were installed at varying depths. The shallowest monitoring well is screened 26 to 36 feet below grade (ft. bg.), while the deepest is screened approximately 70 to 80 ft. bg. Groundwater impacts have been identified both upgradient and downgradient of the Site.

SUBSURFACE IMPACTS

Chlorinated VOCs (cVOCs) have been identified in on-Site and off-Site soil and groundwater. According to MUNDELL, TCE is the main contaminant of concern (COC) for the Site; however, tetrachloroethylene (PCE) and 1,1,1-trichloroethane (1,1,1-TCA) have been detected. TCE concentrations in shallow soil were reported at a maximum concentration of 15 ppm and reported in deeper soil samples (35-36 ft. bg.) at 33 parts per million (ppm). The TCE groundwater plume extends from upgradient, through the Site downgradient towards 11th Street. TCE and PCE have been reported in an off-Site deep monitoring well (70 – 80 ft. bg.) as recently as Third Quarter 2019; however, TCE and PCE were not reported above laboratory reporting limits in another deep monitoring well further downgradient. IDEM has acknowledged the groundwater impacts are part of a comingled plume. There are three (former Shuron, Michaelis/Former Fame Laundry and Karstadt Reed) properties within the area of the Site with documented sources of cVOCs. Site summaries are provided for these properties.

CURRENT SITE STATUS

Remediation efforts have been performed for the Site and are on-going. Approximately 760 tons of impacted soils were removed and an air sparge/soil vapor extraction (AS/SVE) and ozone system was installed at the Site in 2005. A Revised Remediation Work Plan (RWP) was approved in March 2017, which included installing and operating a Pump-and-Treat system. The Pump-and-Treat system has been installed and tested. Full system startup will commence once the NPDES Permit has been issued. Quarterly monitoring is on-going. The final NPDES permit was submitted to IDEM for review in July 2020 and was made available for public comment from August 13 until September 14, 2020. Final NPDES approval was issued on September 24, 2020 with a permit effectiveness date of October 2, 2020. Full system start-up can now proceed.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- MUNDELL & ASSOCIATES, INC. *Upgradient Off-Site Investigation,* March 22, 2005. (Virtual File Cabinet (VFC) #30289303)
- MUNDELL & ASSOCIATES, INC. *Phase III Investigation Report,* May 31, 2007. (VFC #30279032, 30282185, and 30283674)
- MUNDELL & ASSOCIATES, INC. *Site Status and Corrective Action Progress Report,* March 24, 2009. (VFC #44917012)
- MUNDELL & ASSOCIATES, INC. *Remediation Work Plan,* July 11, 2011. (VFC #62898476)
- MUNDELL & ASSOCIATES, INC. *Chemical Source Assessment and Request for Access Assistance,* August 2, 2011. (VFC #63086153)
- MUNDELL & ASSOCIATES, INC. *Proposed No Well Zone- Response to IDEM's December 16, 2009 Letter,* September 7, 2011. (VFC #63530505)
- MUNDELL & ASSOCIATES, INC. *Remediation Work Plan Addendum,* December 30, 2011. (VFC #64839015 and 64839641)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report- 4th Quarter 2011 through 3rd Quarter 2019,* Multiple Reports: April 2012 – October 2019.
- MUNDELL & ASSOCIATES, INC. *Remediation Work Plan Addendum No. 2,* June 8, 2012. (VFC #66268912)
- MUNDELL & ASSOCIATES, INC. *Amended Remediation Work Plan ,* January 30, 2013. (VFC #68233000, 68233391, 68233412, 68233413, 68233484, 68233525, 68233484, 68233576, 68233627, and 68233658)
- MUNDELL & ASSOCIATES, INC. *Revised Remediation Work Plan ,* January 19, 2015. (VFC #80020019, 80020021, 80020022, 80020023, 80020024, 80020027, 80020034, 80020039, 80020045, 80020050, 80020053, 80020062, 80020331, 80020332, 80020333, 80020334, and 80020335)
- MUNDELL & ASSOCIATES, INC. *Revised Remediation Work Plan ,* October 1, 2015. (VFC #80149649, 80149651, 80149652, 80149653, 80149655, 80149656, 80149657, 80149659, and 80149660)
- MUNDELL & ASSOCIATES, INC. *Response to Remediation Work Plan Approval,* April 20, 2017. (VFC #80450485)

- MUNDELL & ASSOCIATES, INC. *Work Plan for Additional Monitoring Well Installation,* July 18, 2017. (VFC #80490545)
- MUNDELL & ASSOCIATES, INC. *Soil Closure Confirmation Sampling Plan,* May 9, 2018. (VFC #82542235)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report – 2nd Quarter 2018*, May 27, 2018. (VFC #82586762)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report Third Quarter, 2018*, October 31, 2018. (VFC #82642329)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report Fourth Quarter, 2018*, January 31, 2019. (VFC #82725528)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report First Quarter, 2019*, April 30, 2019. (VFC #82767475)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report Second Quarter, 2019*, July 31, 2019. (VFC #82819547)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report Third Quarter 2019*, October 31, 2019. (VFC #82859889)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report Fourth Quarter 2019*, January 31, 2020. (VFC #82942065)
- MUNDELL & ASSOCIATES, INC. *Quarterly Monitoring Progress Report First Quarter 2020*, April 30, 2020. (VFC #82963806)

Site Name: Peerless Pump / Sterling Fluid Manufacturing
Site Address: 2005 Dr. Martin Luther King Jr. Street ("Site")
Corresponding Figure 6 Map Label ID: 8
State Program: Formerly State Cleanup Program (SCP)
State Program Number: 200110517 (previous tank closure), 00010000 (currently)
Indiana Department of Environmental Management (IDEM) Project Manager: Crystal Haulter
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, January 23, 2018

SITE BACKGROUND

The Site has operated as a pump manufacturing facility since 1948. Investigations completed at the Site to date were related to former underground storage tanks (USTs) and concentrated on petroleum constituents. The IDEM submitted a *Request for Information* on January 23, 2018 in association with Site 0153. Sterling Fluid Systems (SFS) (USA) Holding Incorporated provided a response to the request for information on October 11, 2019 (Virtual File Cabinet (VFC) #82863332).

FIELD ACTIVITIES

IDEM conducted a soil and groundwater investigation on the Peerless Pump property and adjacent downgradient property on October 5-6, 2020. If contaminants of concern are detected on, or downgradient of the facility, IDEM will issue a Notice of Liability letter, requiring the responsible parties to conduct further investigation and remediation, as needed.

SUBSURFACE IMPACTS

Results from the investigation have not been received from the laboratory at the time of submittal.

CURRENT SITE STATUS

If results indicate that a release of chlorinated volatile organic compounds (cVOCs) has occurred on the property, the Potentially Responsible Party (PRP) will be required to conduct further investigation and remediation, as needed. Results of the investigation and any future requirements resulting from this investigation will be filed in the VFC under Site #0001000.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Peerless Pump. *UST Initial Incident Report*, August 31, 2001. (VFC #44915064)
- Peerless Pump. *UST Initial Incident Report,* October 30, 2001. (VFC #44920176)
- URS Corporation. *Initial Site Characterization Report,* April 15, 2002. (VFC #44650480)
- URS Corporation. *Phase II Environmental Site Assessment*, November 12, 2002. (VFC #44866175)
- Roux Associates Inc. *UST Closure Activities*, March 26, 2003. (VFC #48687614)

- Roux Associates Inc. *Monitoring Well Abandonment*, January 12, 2004. (VFC #45018289)

Site Name: Stuart Moving and Storage / M&A Property Management
Site Address: 2058 Dr. Martin Luther King Jr. Street ("Site")
Corresponding Figure 6 Map Label ID: 11
State Program: Brownfields
Site Number: Spill #199909162, Brownfields #4960013, Brownfields #4191108
Brownfields Project Manager: Carmen Anderson
Indiana Department of Environmental Management (IDEM) Priority Rating: Low
Request for Information (RFI) or Notice of Liability (NOL): NA

SITE SUMMARY

According to a Phase I Environmental Site Assessment (ESA) dated November 18, 2019, the Site is approximately 8.2-acres and is comprised of four parcels, which were once owned and operated separately. The Site is currently used as a moving and storage facility. The Site was historically industrial in nature including companies such as the J.B. Allfree Manufacturing Company, the Fairbanks-Morse Electrical Manufacturing Company, the Isgrigg Lumber Company, A.B. Meyer & Co., Ernest Johnson Coal Company, the Stokol Stokep Manufacturing Company, the Allison Division of General Motors Corporation, and the A.A.A Warehouse. Features (depicted on Sanborn maps) associated with these companies (noted in the Phase I ESA) include machine shops, foundry, brass foundry, coal yard, a varnishing and shipping room, paint storage/spraying, oil house, and a motor parts manufacturing facility. Dorothy Shamrock Coal Company operated a coal yard and building supplies center from approximately 1898 to 1995 on the northern portion of the Site.

A Brownfield Environmental Assessment was completed in June 1997 (Brownfields #4960013) on the portion of the Site formerly occupied by Dorothy Shamrock Coal Company. The Assessment included collection of 14 soil samples and 6 groundwater samples. During the investigation, 6 soil borings were installed to a maximum depth of 26 ft. bg. At least two soil samples were collected from each boring. Groundwater samples were collected from each boring at a depth of approximately 22-26 ft. bg. Analysis indicated that the soil and groundwater samples for volatile organic compounds (VOCs) were below the July 1996 Voluntary Remediation Program (VRP) Tier II Cleanup Goals for the Nonresidential Land-Use Scenario (which were the applicable standards at that time). Although below the July 1996 VRP Tier II Cleanup Goals, trichloroethylene (TCE) was detected in one groundwater sample at 110 parts per billion (ppb).

More recent investigations have been completed on the Site under Brownfields #4191108. Recent investigations and reports completed by Terracon Consultants, Inc. include a Limited Site Investigation (LSI) (November 16, 2018), Supplementary Site Investigation (SSI) (June 5, 2019), Phase I Environmental Site Assessment (ESA) (November 18, 2019), Vapor Intrusion Investigation (December 19, 2019) and Concrete Vault Removal Report (December 20, 2019).

The LSI was conducted to investigate several recognized environmental conditions (RECs) identified during a Phase I ESA prepared by Terracon dated February 2, 2018. The SSI further investigated areas of concern identified during the LSI. During these investigations, a total of 31 soil borings, eight temporary wells, and six monitoring wells were installed on the Site. Borings

were installed to a maximum depth of 24 feet below grade (ft. bg.) and groundwater samples were collected from a maximum depth of 25 ft. bg. Tetrachloroethylene (PCE) was detected in eight soil samples, all located on the southwest portion of the Site, six of which were collected from shallow soil (six ft. bg. or less). However, only one of these soil samples was above the Soil Migration to Groundwater (MTG) Screening Level (SL) for PCE. This soil sample also contained TCE concentrations above the Soil MTG SL. Two groundwater samples (one from a monitoring well and one from a temporary well) contained PCE concentrations exceeding the Residential Tap Water (RTW) SL. PCE groundwater impacts have not been investigated deeper than 25 feet (ft).

Vapor intrusion investigations were conducted in the Site office building during the LSI, SSI, and Vapor Intrusion Investigation. As a part of the vapor intrusion investigation sub-slab soil gas samples, an exterior soil gas sample, indoor air samples, and ambient air samples were collected for analysis. Sub-slab soil gas samples contained several detections of chlorinated VOCs (cVOCs) (PCE, TCE, and 1,1,1-trichloroethane (1,1,1-TCA)). TCE was detected in one sub-slab soil sample above its commercial/industrial SL, using an attenuation factor of 0.03, while two subsequent sub-slab soil gas samples were below the SL. cVOC constituents have not been detected in indoor air samples. Terracon recommended no further action regarding vapor mitigation in the on-Site buildings.

CURRENT SITE STATUS

The current property owner submitted a Comfort Letter application to the Brownfields program in November 2019. In response to the Comfort Letter application, the Brownfields program sent a Project Status Letter, dated April 29, 2020, (Virtual File Cabinet (VFC) #82958448) requiring institutional controls to address contamination remaining on-Site. A prospective purchaser is looking to acquire the property and the sale is currently processing. Pending completion of the sale of the property, the new owner will record the IDEM required ERCs.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- IDEM. *Brownfield Environmental Assessment,* June 27, 1997 (VFC #14540031)
- Pratter Environmental Services, Inc. *Underground Storage Tank Closure Report,* December 17, 1998 (VFC #24402104)
- Terracon Consultants, Inc. *Limited Site Investigation,* November 16, 2018 (VFC #82876811)
- Terracon Consultants, Inc. *Supplemental Site Investigation,* June 5, 2019 (VFC #82876808)
- Terracon Consultants, Inc. *Phase I Environmental Site Assessment,* November 18, 2019 (VFC #82876805)
- Terracon Consultants, Inc. *Vapor Intrusion Investigation,* December 19, 2019 (VFC #82883946)
- Terracon Consultants, Inc. *Concrete Vault Removal Report,* December 20, 2019 (VFC #82883947)

Site Name: Parts Landlord Limited Liability Company (LLC)
Site Address: 940 W. 16th Street ("Site")
Corresponding Figure 6 Map Label ID: 13
State Program: State Cleanup Program (SCP)
Site Number: 0000858
Indiana Department of Environmental Management (IDEM) Project Manager: Crystal Haulter
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, September 25, 2018; Notice of Liability, February 28, 2019

SITE BACKGROUND

Parts Landlord LLC is the owner of the Site located at 940 W 16th Street in Indianapolis. U-Pull-&-Pay is the current tenant, previously referred to as Pic-A-Part. The Site has been utilized as an auto salvage facility and repair yard since the early 1970s. Previous operations also included the servicing of automobiles. According to consultants that performed investigations at the Site, potential sources of contamination include uncovered roll-off boxes of salvaged automobile components, multiple vehicles, above-ground storage tanks (ASTs), and off-Site sources. During Site investigations, chlorinated volatile organic compounds (cVOCs) were detected in groundwater. The Site was entered into the State Cleanup Program (SCP) in February 2019 when the IDEM sent a NOL letter (February 28, 2019).

FIELD ACTIVITIES

United Research Services Corporation (URS) conducted a Phase I and Limited Phase II Environmental Site Assessment (ESA) and a Screening Level Groundwater Investigation in 2011. The Phase I report referenced previous investigations conducted by Continental Placer Inc. (CPI) in 2007. The CPI investigation included the advancement of three soil borings and six observation test pits, the deepest at 11 feet below grade (ft. bg.) Twelve soil samples were collected from varying depths between one and six ft. bg. Soil samples were analyzed for volatile organic compounds (VOCs). All soil samples from the 2007 CPI investigation were non-detect for cVOCs.

The Phase II investigation performed by URS included the advancement of 15 soil borings, the deepest advanced to 32 ft. bg. as well as collection of 15 groundwater samples collected from temporary wells placed in borings, one stormwater sample, and one sediment sample. During the Screening Level Groundwater Investigation, URS returned to three temporary well locations (installed during the Phase II) and collected confirmatory groundwater samples, followed by collection of an additional 11 groundwater samples up to 50 ft. bg. No monitoring wells were installed during these investigations.

SUBSURFACE IMPACTS

Results of the Phase II and Screening Level Groundwater investigations conducted by URS in 2011 reported the following:

- cVOCs were non-detect in soil samples
- Trichloroethylene (TCE) was detected in groundwater from 15 to 20 ft. bg.
- The maximum TCE concentration in groundwater was 55 parts per billion (ppb)
- cVOCs were below laboratory reporting limits in deep (45-50 ft. bg.) groundwater samples

URS concluded that groundwater impacts at the Site were due to the assumption of unknown off-Site sources or isolated on-Site sources and did not recommend additional sampling at that time No treatment or removal efforts have been documented for the Site.

CURRENT SITE STATUS

IDEM issued a Groundwater Monitoring Request letter on October 14, 2020. Four consecutive quarters of groundwater monitoring has been requested to assist with evaluation of the Site.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Continental Placer Inc. *Memorandum,* April 25, 2007. (Virtual File Cabinet (VFC) #82806663, pages 109 to 117)
- URS Corporation. *Phase I Environmental Site Assessment,* August 10, 2011 (VFC #82671042, pages 75 to 410)
- URS Corporation. *Phase II Environmental Site Assessment,* August 10, 2011 (VFC #82671042, pages 411 to 1,064)
- URS Corporation. *Summary of Analytical Results: Screening Level Groundwater Investigation for VOCs,* August 25, 2011 (VFC #82671042, pages 14 to 74)

Site Name: Former Parker Property NW (Haag Trucking Company, Inc.)
Site Address: 550 W. 16th Street & Dr. Martin Luther King Jr. Street ("Site")
Corresponding Figure 6 Map Label ID: 15
State Program: State Cleanup Program (SCP)
Site Number: 0000787
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: High
Request for Information (RFI) or Notice of Liability (NOL): Notice of Liability and Information Request, February 15, 2019

SITE BACKGROUND

The Site currently referred to as Haag Trucking Company, Inc. operated as a trucking company until the late 1990s; the surrounding properties included an undeveloped dumping area with abandoned vehicles as well as a gasoline station adjacent to the south. Trichloroethylene (TCE) has been identified on the Site during previous investigations. These investigations encompassed multiple properties and addresses in the immediate surrounding area, which included the Haag Trucking Company property. A Notice of Liability (NOL) and Information Request (RFI) was issued on February 15, 2019.

FIELD ACTIVITIES

Keramida Environmental, Inc. (Keramida) conducted a Phase I Environmental Site Assessment (ESA) in 1996 that encompassed multiple properties and addresses, including this Site. In 1997, Keramida divided these areas into sections and performed multiple Phase II Investigations. The Phase II for Parker Properties North, which includes the Site, included the advancement of 10 soil borings, the deepest to 32 feet below grade (ft. bg.). A subsequent investigation included eight soil borings, the deepest advanced to 63 ft. bg. No monitoring wells were installed during these investigations.

The Phase II for the Former Star Service Station (south of the Site) included the advancement of six soil borings, the deepest to 32 ft. bg. Three of these borings were converted to monitoring wells of the same depth.

SUBSURFACE IMPACTS

During the Phase II for Parker Properties North, TCE and other chlorinated volatile organic compounds (cVOCs) were identified in groundwater at multiple depths, ranging from 24 to 63 ft. bg. The groundwater TCE impacts ranged from 29 parts per billion (ppb) to 460 ppb. TCE was also identified in soil at depths from 25 to 27 ft. bg. Keramida did not vertically or horizontally delineate the groundwater or soil impacts.

During the Phase II for the Former Star Service Station, TCE was identified in groundwater at levels from 69 ppb to 250 ppb at approximately 28 ft. bg.

Keramida did not delineate soil or groundwater impacts due to the assumption that unidentified off-Site sources were contributing to the contamination on-Site.

CURRENT SITE STATUS

A NOL and RFI Request was issued on February 15, 2019. A response to the NOL and RFI was submitted to the IDEM on March 20, 2019. IDEM conducted a soil and groundwater investigation on the Former Parker Property NW on October 6, 2020. If results indicate that a release of cVOCs has occurred on the property, the Potential Responsible Party (PRP) will be required to conduct further investigation and remediation, as needed. Results of the investigation and any future requirements resulting from this investigation will be filed in the VFC under Site #0000787.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Keramida Environmental. *Phase II Environmental Investigations Parker Properties - North*, April 11, 1997. (Virtual File Cabinet (VFC) #22322738)
- Keramida Environmental. *Phase II Environmental Investigation Former Star Service Station*, April 11, 1997. (VFC #22311469)
- Keramida Environmental. *Risk Evaluation for Properties in the Redevelopment Project*, March 9, 1998. (VFC #19953553)

Site Name: Former Ashijan Brothers Rug Cleaners
Site Address: 450 W. 16th Place ("Site'")
Corresponding Figure 6 Map Label ID: 16
State Program: State Cleanup Program (SCP)
Site Number: 0000707
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: High
Request for Information (RFI) or Notice of Liability (NOL): Notice of Liability and Information Request, January 26, 2018

SITE BACKGROUND

The 450 W. 16th Place facility currently consists of 26 parcels. Various businesses with various addresses have operated at the Site including:

- Ashijan Brothers Rug Cleaning, 454 W. 16th Place, circa 1925-1983;
- Ashjian Brothers Rug Cleaning, 460 W. 16th Place, circa 1981-1982;
- Deranian Brothers Rug Cleaning, 448 W. 17th Street (now 450 W. 16th Place), circa 1913-1916;
- Haag Trucking Co., 450 W. 16th Place, circa 1991-2005;
- Haag Warehouse & Distribution, 450 W. 16th Place, 1991-1992, 1999-2005;
- Perfect Pallets, 450 W. 16th Place, 1991-present;
- Perfect Pallets Export, 450 W. 16th Place, 2012-present;
- Perfect Transportation, 450 W. 16th Place, 2003-current;
- Safco USA Inc. (later known as Quest Environmental Resources Corp.), 450 W. 16th Place, circa 1991-2005;
- Clover Petroleum Inc., 458 W. 16th Street, circa 1941
- Dance Oil Service Inc., 458 W. 16th Street, circa 1960-1971;
- Harris SM Service Station and Garage, 458 W. 16th Street;
- Cornett's Gulf Service, 458 W. 16th Street;
- Boatwright Funeral Home, 1645 Northwestern (Northwestern was renamed Dr. Martin Luther King Jr. Street in the mid-1980s), circa 1951-1952;
- Cement Masons Local Union Headquarters, 1645 Northwestern;
- LH Smith Oil Corporation, 462 W. 17th Street;
- Peerless Cleaners, 1645 Dr. Martin Luther King Jr. Street, circa 1944-1945;
- Leo's Clothing and Pressing, 452 W. 16th Street, circa 1952-1954; and
- Several grocery stores, restaurants, taverns, lounges, and a coal yard.

The Site was entered into the State Cleanup Program (SCP) in January 2018 when the IDEM sent a *Notice of Liability and Information Request* letter (January 26, 2018). Soil and groundwater samples collected at the Site have contained detections of trichloroethylene (TCE), tetrachloroethylene (PCE), cis-1,2-dichloroethylene (cis-1,2-DCE), and 1,1,1-trichloroethane (1,1,1-TCA). TCE and PCE have been detected at concentrations exceeding Remediation Closure Guide (RCG) Screening Levels (SLs).

FIELD ACTIVITIES

A Preliminary Investigation Report (Troy Risk, Inc., February 27, 2019), Children's Bureau Indoor Air Investigation (Troy Risk, Inc., March 21, 2019), and Further Site Investigation (FSI) (Troy Risk, Inc., December 6, 2019) have been prepared for the Site. During these investigations a total of 16 soil borings and 17 monitoring wells were installed on-Site. Fifteen borings were installed to 30 feet below grade (ft. bg.) and one soil boring was installed to 50 ft. bg. Groundwater was first observed at approximately 24-25 ft. bg. in soil borings. Sixteen monitoring wells were installed to approximately 29-30 ft. bg. with 10 feet (ft.) of screen and one monitoring well was installed to approximately 50 ft. bg. with five ft. of screen.

Six indoor air samples were collected from an adjacent property and analyzed for TCE, PCE, cis-1,2-DCE, trans-1,2-dichloroethylene (trans-1,2-DCE), vinyl chloride (VC), and 1,1,1-TCA. There were no detections of chemicals of concern in any of the indoor air samples collected at the adjacent property.

SUBSURFACE IMPACTS

Two or three soil samples were collected from each soil boring with a total of 45 soil samples collected. Thirty-two of the 45 soil samples collected contained detectible concentrations of chlorinated volatile organic compounds (cVOCs). Soil impacted above RCG SLs has been detected as shallow as 2-4 ft. bg. (Troy Risk concluded this indicated a nearby source) and as deep as 47.5-50 ft. bg. Soil and groundwater samples collected at the Site have contained detections of TCE, PCE, cis-1,2-DCE, and 1,1,1-TCA. TCE and PCE have been detected at concentrations exceeding RCG SLs. Groundwater impacts were detected in shallow monitoring wells (screened approximately 19-29 ft. bg. and 20-30 ft. bg.) and TCE concentrations (177 parts per billion) above the RCG Commercial/Industrial Vapor Intrusion to Groundwater Screening Level (VIGWSL) has been detected in a groundwater sample collected from the 50-foot deep well. Groundwater samples were last collected in October 2019.

Off-Site soil and groundwater samples were not collected during these investigations. However, Troy Risk suspects an unidentified off-Site, upgradient contributor to impacts.

CURRENT SITE STATUS

An FSI was submitted to the IDEM in December 2019 and IDEM determined that additional investigation was required. Additional FSI field work was completed the first of April 2020, IDEM is awaiting the results.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Haag Trucking. *Initial Incident Report*, February 9, 1989. (Virtual File Cabinet (VFC) #82543168)
- Troy Risk, Inc. *Investigation Work Plan*, September 21, 2018. (VFC #82620613)
- Troy Risk, Inc. *Preliminary Investigation Report*, February 27, 2019. (VFC #82717392)

- Troy Risk, Inc. *Children's Bureau Indoor Air Investigation,* March 21, 2019. (VFC #82731537)
- Troy Risk, Inc. *Further Site Investigation Report*, December 6, 2019. (VFC #82877597)

Site Name: Former Parker Property Southwest (SW) / Truck and Bus
Site Address: 1520 Dr. Martin Luther King Jr. Street ("Site")
Corresponding Figure 6 Map Label ID: 17
State Program: State Cleanup Program (SCP)
Site Number: 0000788
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: High
Request for Information (RFI) or Notice of Liability (NOL): None to Date

SITE BACKGROUND

The Site operated as a truck maintenance and repair facility from approximately 1948 to 1994. The property building was divided into two separate buildings in 1994, the Parker Supply building and KLH Truck Service. According to the 2010 Arcadis, Inc. (Arcadis) Phase I Environmental Site Assessment (ESA), the buildings were vacant in 1997 and were demolished in 1999.

The Site was historically investigated as part of a Brownfields redevelopment project (Brownfields Site #4980006) at 16th Street and Martin Luther King Jr. Street. The project included three surrounding properties (Parker Properties- North, Former Star Service Station, and Universal Sign) and the Site (referenced as Parker Properties - South in historic reports). Chlorinated volatile organic compounds (cVOCs) (mainly trichloroethylene (TCE)) were reported in soil. TCE was reported in groundwater.

FIELD ACTIVITIES

Multiple investigations have been conducted at the Site. A Phase II {Keramida Environmental, Inc. (Keramida), 1997} was mentioned in a 1998 Keramida Risk Evaluation report. Additionally, two Further Site Investigations (FSIs) were also performed.

During these investigations, approximately 35 soil borings were advanced to a maximum depth of 65 feet below grade (ft. bg.) In addition, 12 groundwater monitoring wells were installed, with depths ranging from 30 ft. bg. to 100 ft. bg. A total of four soil gas ports were also installed to a depth of 16 ft. bg. Soil, groundwater, and soil gas samples were all collected at various depths during these investigations.

In addition to the Site activities, numerous off-Site investigations have taken place north of the Site to determine the extent of the soil and groundwater impacts in the area.

SUBSURFACE IMPACTS

During the subsurface investigations, TCE impacts were identified in soil. Additionally, TCE has been detected in groundwater samples collected from shallow monitoring wells and grab samples (collected at maximum depths of 65 ft. bg.). TCE was reported at a maximum concentration of 1,170 parts per billion (ppb) in shallow monitoring well, MW-2, screened 23-33 ft bg. TCE was

not detected in deep monitoring wells screened at the aquifer/bedrock interface. Total depths of the deep monitoring wells range from 83 to 93 ft. bg.

According to the investigations conducted, groundwater impacts have not been delineated at the Site and TCE was detected in soil gas at depths ranging from 6 to 16 ft. bg.

As there was no on-Site building, soil gas samples were collected as part of the Further Site Investigation conducted by Arcadis Inc. (Arcadis) in 2008. TCE concentrations in one sample collected near the southern property boundary exceeded IDEM Residential Soil Gas Prompt Action Levels and IDEM Residential Potential Chronic Levels. No further on-Site soil gas sampling was conducted as there was no on-Site VI exposure pathway at the time.

As a result of TCE concentrations, an IDEM comment letter from November 2008 requested paired sub-slab and indoor air sampling from three homes immediately south of the Site. Arcadis conducted off-Site VI sampling in the requested properties detailed in a March 31, 2010 report. The Arcadis report was summarized within Weaver Boo's 2011 Further Site Investigation. There were detections of "constituents" within the samples "below concentrations for typical urban/suburban air" but further details are not available.

CURRENT SITE STATUS

IDEM collected groundwater samples from the existing monitoring well network (12 wells) on the Former Parker Property SW on October 5-6, 2020, to evaluate current Site conditions. If results indicate that a release of cVOCs has occurred on the property, the Potentially Responsible Party (PRP) will be required to conduct further investigation and remediation, as needed. Results of the investigation and any future requirements resulting from this investigation will be filed in the VFC under Site #0000788.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Arcadis, Inc. *Further Site Investigation*, August 28, 2008. (Virtual File Cabinet (VFC) #34522604, VFC #34526149, VFC #34478197, VFC #34526171, VFC #34522071)
- Arcadis, Inc. *Phase I Environmental Site Assessment*, March 31, 2010. (VFC #60377192)
- Keramida Environmental, Inc. Risk Evaluation for Properties in the Redevelopment Project, October 9, 1997. (VFC #19955018)
- Weaver Boos Consultants *Further Site Investigation*, August 4, 2011. (VFC #63218841)

Site Name: McBroom Electric
Site Address: 800 W. 16th Street ("Site")
Corresponding Figure 6 Map Label ID: 19
State Program: State Cleanup Program (SCP)
Site Number: 0000753
Indiana Department of Environmental Management (IDEM) Project Manager: Crystal Haulter
IDEM Priority Rating: High
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, December 12, 2017; Notice of Liability and Information Request, April 9, 2018

SITE BACKGROUND

McBroom Electric has been operating at 800 W. 16th Street since 1964 as an electric component repair facility. The business receives damaged or unserviceable electrical components from clients; cleans the components of any dirt, oil/grease, and/or debris using petroleum-based products; repairs and/or resurfaces the electric components; tests and returns the component in operating condition to their clients. Although it is unclear at what capacity, McBroom Electric has used trichloroethylene (TCE). McBroom Electric applied for a U.S. EPA identification number in 1998 to dispose of waste from a one-time cleanup at the facility. Hazardous waste manifest list waste codes D040 (TCE), and F001 (spent halogenated solvents) for disposal.

The facility was entered into the State Cleanup Program (SCP) in April 2018 when the IDEM sent a *Notice of Liability and Information Request* letter (April 9, 2018). Soil and/or groundwater samples collected at this facility have contained detections of TCE, tetrachloroethylene (PCE), and 1,1,1-trichloroethane (1,1,1-TCA). TCE and PCE have been detected at concentrations at or above RCG SLs.

FIELD ACTIVITIES

To date reports that have been prepared for the facility include: Initial Site Investigation Report (Wilcox, September 6, 2018), Response to IDEM Comment Letter dated October 6, 2018 and Further Site Investigation Report (Wilcox, May 20, 2019), Third Quarter 2019 Groundwater Monitoring Report & Response to IDEM's June 19, 2019 Comment Letter (Wilcox, November 15, 2019), Fourth Quarter 2019 Groundwater Monitoring Report (Wilcox, January 28, 2020), First Quarter 2020 Groundwater Monitoring Report (Wilcox, May 7, 2020), Second Quarter 2020 Groundwater Monitoring Report (Wilcox, June 15, 2020), and Third Quarter 2020 Groundwater Monitoring Report (Wilcox, October 15, 2020). During these investigations a total of 14 soil borings, 11 temporary wells, and three monitoring wells were installed on-Site. Borings ranged in depth from 16 to 30 feet below grade (ft. bg). A significant slope in elevation (approximately an 11-foot change) is present at the facility, indicated by the varying boring depths. Three monitoring wells were installed to approximately 28-30 ft. bg. with 10 feet of screen.

A Further Site Investigation (FSI) is currently underway, which includes deep (37-46 ft. bg.) groundwater samples.

SUBSURFACE IMPACTS

One or two soil samples were collected from each soil boring with a total of 16 soil samples collected. Nine of the 16 soil samples collected contained detectable concentrations of chlorinated volatile organic compounds (cVOCs). Soil impacted above the TCE Remediation Closure Guide (RCG) Soil Migration to Groundwater (MTG) Screening Level (SL) has been detected as shallow as 6-8 ft. bg. and as deep as 28-30 ft. bg. (saturated soil). Soil samples collected at this facility have contained detections of TCE and PCE. The highest TCE concentration in soil was detected at 0.0767 parts per million which exceeds the RCG soil MTG SL. Groundwater samples collected at the facility have contained TCE, PCE, and 1,1,1-TCA. PCE was detected in groundwater at one location equal to the RCG Residential Tap Water (RTW) SL. TCE has been detected in groundwater at concentrations exceeding the RCG Commercial/Industrial Vapor Intrusion to Ground Water Screening Level (VIGWSL). The highest TCE detection was reported in September 2019 at 65.1 micrograms per liter (µg/L) in a monitoring well screened from 20-30 ft bg. Groundwater samples were last collected in September 2020.

Although an FSI report has yet to be submitted, Wilcox has communicated to the IDEM that three additional boring have been advanced from 37-46 ft. bg. The highest concentration of TCE detected in the deep wells was 58.5 µg/L (37-42 ft. bg.), which exceeds the RCG Commercial Vapor Intrusion Groundwater Screening Level (CVIGWSL).

CURRENT SITE STATUS

Wilcox is continuing to investigate and delineate the groundwater plume, including off-Site investigations, and will submit the FSI report when activities are completed.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Wilcox Environmental Engineering. *Initial Site Investigation*, September 6, 2018. (Virtual File Cabinet (VFC) #82611369)
- Wilcox Environmental Engineering. *Further Site Investigation Work Plan*, December 20, 2018. (VFC #82666432)
- Wilcox Environmental Engineering. *Response to IDEM Comment Letter dated October 26, 2018 and Further Site Investigation Report*, May 20, 2019. (VFC #82778980)
- Wilcox Environmental Engineering. *Third Quarter 2019 Groundwater Monitoring Report & Response to IDEM's June 19, 2019 Comment Letter*, November 15, 2019. (VFC #82867894)
- Wilcox Environmental Engineering. *Fourth Quarter 2019 Groundwater Monitoring Report*, January 28, 2020. (VFC #82903093)
- Wilcox Environmental Engineering. *First Quarter 2020 Groundwater Monitoring Report*, May 7, 2020. (VFC #82964098)
- Wilcox Environmental Engineering. *Second Quarter 2020 Groundwater Monitoring Report*, June 15, 2020. (VFC #82991355)
- Wilcox Environmental Engineering. *Third Quarter 2020 Groundwater Monitoring Report*, October 15, 2020. (VFC #83059554)

Site Name: Indiana University (IU Block Trucking)
Site Address: 1311 Milburn Street ("Site")
Corresponding Figure 6 Map Label ID: 20
State Program: State Cleanup Program (SCP)
Site Number: 0000804
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: Low
Request For Information (RFI) or Notice of Liability (NOL): RFI was issued as part of Indiana University Letter Virtual File Cabinet (VFC)# 82934721

SITE BACKGROUND

The Site is currently vacant and has been since the early 2000s. According to Phase I Environmental Site Assessments (ESAs) conducted by Keramida in 2004 and 2011, the Site formerly operated as a machine shop. The Phase I ESAs revealed the Site was associated with a historic address of 1401 Milburn Street. According to an August 21, 2019 IDEM letter, an RFI was issued for the Site and a response was provided by Indiana University.

FIELD ACTIVITIES

Keramida performed a Phase I ESA and Phase II in 2004. During the Phase II, seven soil borings were advanced to a maximum depth of 28 ft. bg. A second Phase I was conducted in 2011 that summarized the previous investigation.

SUBSURFACE IMPACTS

Soil and groundwater samples collected as a part of the 2004 Phase II investigation did not contain concentrations of chlorinated volatile organic compounds (cVOCs) greater than the IDEM Risk-Integrated System of Closure (RISC) residential default closure levels.

CURRENT SITE STATUS

Per the August 21, 2019 IDEM letter, Indiana University responded to an RFI for several properties which included 1311 Milburn Street. The IDEM listed the Site as "No additional action needed presently". If conditions change or new information becomes available, additional investigation may become warranted.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Keramida, Inc. *Phase I Environmental Site Assessment*, April 21, 2011. (VFC #82612872)

Site Name: Goodwill Industries
Site Address: 1635 W. Michigan Street ("Site")
Corresponding Figure 6 Map Label ID: 24
State Program: State Cleanup Program (SCP)
Site Number: 0000455
Indiana Department of Environmental Management (IDEM) Project Manager: Syed A. Jaffery
IDEM Priority Rating: High
Request for Information (RFI) or Notice of Liability (NOL): Notice of Liability and Information Request, April 24, 2015

SITE BACKGROUND

The Site was used as a lumber company from approximately 1925 to at least 1949. The property was listed as vacant in 1959 when Goodwill Industries bought and developed the Site into a sorting facility and retail store. The Site operated as a sorting facility and retail store until approximately 2004, when it transitioned to its current use as a high school and adult learning center. A 1968 architectural drawing identified a former dry-cleaner at the Site that used tetrachloroethylene (PCE) for spot treatment.

The Site entered the IDEM's State Cleanup Program (SCP) in 2015 after impacted media was identified during a Phase II Subsurface Investigation conducted by Patriot Engineering and Environmental, Inc. (Patriot) on the down-gradient property to the east. The last submitted milestone document was a Work Plan to Install Additional Deep Wells by Acuity Environmental Solutions (AcuityES) (July, 2019).

FIELD ACTIVITIES

Multiple investigations have been performed by AcuityES at the Site and adjacent properties. Investigations have included on- and off-Site soil borings, hi-resolution membrane interface probe (MIP), monitoring well installation, vapor intrusion sampling, pilot testing, and vapor mitigation system installation (on-Site). Approximately 197 soil borings (15 of which are MIP), 21 monitoring wells, 11 piezometers, and 26 sub slab vapor ports have been installed to delineate the nature and extent of contamination in addition to eight off-Site borings advanced by Patriot on the east adjacent property as part of the Phase II.

SUBSURFACE IMPACTS

Shallow soil impacts are primarily beneath the Site building in the vicinity of the former dry-cleaning area at concentrations of up to 200 parts per million (ppm) in the 4 feet below grade (ft. bg.) interval. Additional soil impacts are present at multiple locations within the building footprint at depths of 20 ft. bg. or less. However, the soil impacts at CS-5, located beneath the sanitary catch basin, are above the IDEM Remediation Closure Guide (RCG) 2019 Migration to Groundwater (MTG) Screening Levels (SLs) at a depth of 52 ft. bg. Remedial objectives at the Site are limited to PCE, although impacts at the adjacent off-Site property to the east included PCE, trichloroethylene (TCE), and vinyl chloride (VC). AcuityES has consistently stated the

impacts at the east adjacent property were the likely result of migration from the Site. AcuityES reports that PCE impacts originate from three separate areas 1) the former dry-cleaning area; 2) the sanitary sewer catch basin near entrance Door No. 1; and 3) an undetermined source area in the southeast corner of the Site building.

The groundwater plume extends from the Site source areas to the White River. The IDEM has stated that additional investigation is necessary to determine if contamination is derived wholly from on-Site sources or if the plume is co-mingled with other up-gradient sources. Groundwater contaminants of concern (COCs) are primarily PCE with the highest groundwater impacts in the sewer catch basin area at 1,760 parts per billion (ppb) on-Site and at the terminal end of the plume off-Site at 1,570 ppb. In a 2019 Site Status and Investigation Work Plan Response Letter, the IDEM states that while impacts along the White River have been fully delineated, groundwater in the vicinity of Patriot borings SB-2 and SB-3 have not been vertically delineated at this time.

Vapor intrusion investigations were performed, and six vapor mitigation systems were installed along the central and eastern portions of the Site building as part of remedial efforts.

CURRENT SITE STATUS

In response to the Site Status and Investigation Work Plan Response Letter, dated September 10, 2019, Patriot submitted their Comprehensive Site Investigation Report, dated May 27, 2020 (VFC #82978793).

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Acuity Environmental Solutions. *Focused Further Site Investigation Work Plan,* June 16, 2015. (Virtual File Cabinet (VFC) #80062477)
- Acuity Environmental Solutions. *Initial Site Investigation Report*, June 17, 2015. (VFC #80062387)
- Protect Environmental. *Vapor Intrusion Investigation Report,* June 24, 2015. (VFC #80067174)
- Protect Environmental. *Initial Quarterly Progress Report,* September 30, 2015. (VFC #80139075)
- Acuity Environmental Solutions. *Further Site Investigation Report,* October 30, 2015. (VFC #80160552)
- Acuity Environmental Solutions. *Work Plan Addendum,* December 3, 2015. (VFC #80179140)
- Protect Environmental. *Vapor Mitigation Pilot Test Report,* December 9, 2015. (VFC #80189244)
- Acuity Environmental Solutions. *Work Plan to Validate the Conceptual Site Model,* March 17, 2017. (VFC #80571550)
- Protect Environmental. *Project Status Report,* May 7, 2018 (VFC # 82563203
- Acuity Environmental Solutions. *March 2019 Project Status Update*, March 28, 2019. (VFC #82739943)

- Acuity Environmental Solutions. *Work Plan to Install Additional Deep Wells*, July 15, 2019. (VFC #82811357)
- Acuity Environmental Solutions. *Comprehensive Site Investigation Report*, May 27, 2020. (VFC #82978793)

Site Name: Component Machine
Site Address: 1631 Gent Avenue ("Site")
Corresponding Figure 6 Map Label ID: 29
State Program: State Cleanup Program (SCP)
Site Number: 200412100
Indiana Department of Environmental Management (IDEM) Project Manager: Crystal Haulter
IDEM Priority Rating: High
Request for Information (RFI) or Notice of Liability (NOL): Notice of Liability, December 17, 2004

SITE BACKGROUND

The Site has operated as an automobile rebuilding facility since at least the 1950s, and neighboring properties operated as a storage warehouse and metal shop. According to consultants that have conducted investigations on the Site, potential sources of contamination include a concrete vault that previously received spent wash water and cleaning solutions from the cleaning of automobile parts. Off-Site sources have also been identified as potentially contributing to Site contamination. The main chlorinated volatile organic compounds (cVOCs) that have been identified on the Site include tetrachloroethylene (PCE) and trichloroethylene (TCE). A release of hazardous substances was reported for the Site in December 2004 and the Site was assigned SCP #200412100.

FIELD ACTIVITIES

Multiple investigations have been conducted at the Site including soil sampling (shallow to 40 feet below grade (ft. bg.)), installation and sampling of groundwater from monitoring wells, and soil gas sampling. A total of 64 soil borings have been advanced at the Site to a maximum depth of 40 ft. bg. An additional 11 soil borings were advanced to a maximum of 20 ft. bg. at the property north of the Site (1701 Gent Avenue) as part of off-Site investigations. The well network consists of 17 monitoring wells at varying depths, with the maximum depth at 25 ft. bg. Five soil gas vapor probes have also been installed at a depth of 6 ft. bg. at the Site.

SUBSURFACE IMPACTS

During the multiple investigations, subsurface impacts have been detected both on- and off-Site. PCE and TCE have been detected in soil and groundwater at various depths extending off-Site. The off-Site impacts have been identified at the Disc Graphics property south of the Site, as well as the warehouse property north of the Site. During the September 2018 groundwater sampling event, PCE was detected at a maximum concentration of 226 parts per billion (ppb) in a monitoring well screened at 15-25 ft. bg. and TCE was detected at a maximum concentration of 73.1 ppb in a monitoring well screened at 15-25 ft. bg.

In an April 10, 2018 comment letter, the IDEM stated that the Lynn-Douglas, Inc. (Lynn-Douglas) lines of evidence alone, did not confirm that the upper unit is isolated from the lower unit. In the Response to the IDEM 4/10/2018 Comment Letter (Virtual File Cabinet (VFC)

#82578104), Lynn-Douglas noted that the depth of impacts on the Site had been delineated to 48 ft. bg. based on data collected in June 2009. Lynn-Douglas also performed an evaluation of the connectivity of the upper and lower aquifer by a pump test. In a May 14, 2019 letter, the IDEM noted that a full evaluation of the pump test and related conclusions could not be completed with the current data set, due to lack of recovery monitoring. In a May 29, 2020 comment letter, the IDEM noted that the magnitude of on-Site contamination has been altered by remedial actions, and that neither the up-gradient, nor down-gradient extent of contamination have been completely evaluated. Additionally, further evaluation of preferential pathways and vapor intrusion is warranted.

Some remediation has been performed at the Site. Patriot Engineering and Environmental, Inc. (Patriot) removed the concrete vault that had been part of the wastewater conveyance system, as well as the impacted soil around the vault. A soil vapor extraction (SVE)/air sparge (AS) remediation system was installed in early 2006. The system was shut down in 2008 due to lack of improvement in contaminant of concern (COC) concentrations. In 2012, Acuity Environmental Solutions (AcuityES) performed remediation work that included groundwater recirculation and injections of a chemical oxidizer. Groundwater monitoring is ongoing at the Site in accordance with the Revised Monitoring Well Sampling Plan (VFC #82977050).

CURRENT SITE STATUS

In a September 2020 meeting between IDEM and Lynn-Douglas, Inc., it was decided that Lynn-Douglas would submit an updated Work Plan to IDEM detailing groundwater plume modeling and robust lines of evidence to support Site closure. This is expected to be received by the end of the year.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Patriot Engineering and Environmental, Inc. *Site Investigation Report,* February 15, 2005. (VFC #49119264 and VFC #49314771)
- Patriot Engineering and Environmental, Inc. *Progress Report Soil Vapor Extraction System,* July 10, 2006. (VFC #49120306)
- Patriot Engineering and Environmental, Inc. *Site Investigation Report,* September 20, 2007. (VFC #80200755)
- Patriot Engineering and Environmental, Inc. *Third and Fourth Quarter 2008 Groundwater Quarterly Monitoring Report,* January 21, 2008. (VFC #42875256)
- Acuity Environmental Solutions. *Annual Progress Report,* February 27, 2013. (VFC #80065916)
- Acuity Environmental Solutions. *Remediation Completion Report,* April 30, 2014. (VFC #69976929)
- Lynn-Douglas, Inc. *Remediation Progress Update*, February 26, 2018. (VFC #80618324)
- Lynn-Douglas, Inc. *Response to IDEM 4/10/2018 Comment Letter,* July 10, 2018. (VFC #82578104)
- Lynn-Douglas, Inc. *Scope of Work*, August 2, 2018. (VFC #82594379)
- Lynn-Douglas, Inc. *Remediation Progress Update*, February 13, 2019. (VFC #82695809)
- Lynn-Douglas, Inc. *Remediation Progress Update*, March 19, 2020. (VFC #82936320)

- Lynn-Douglas, Inc. *Response to IDEM 5/29/2020 Comment Letter,* July 23, 2020. (VFC #83013089)

Site Name: Boyle Racing Headquarters
Site Address: 1701 Gent Avenue ("Site")
Corresponding Figure 6 Map Label ID: 30
State Program: State Cleanup Program (SCP)
Site Number: 0000744
Indiana Department of Environmental Management (IDEM) Project Manager: Crystal Haulter
IDEM Priority Rating: High
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, June 12, 2017; Notice of Liability and Bona Fide Prospective Purchaser (BFPP) Denial, February 9, 2018

SITE BACKGROUND

Boyle Racing Headquarters operated at the facility from at least 1920 to 1940. An automotive repair facility was located on the northeast portion of the property in 1923. Hype & Gropp Metal Spinners and Indianapolis Plating Co. operated at the facility in 1929. Indianapolis Cage Co. operated at the facility manufacturing chromed steel birdcages and radios from 1928 to 1933. Optical Industries, Inc. operated on the southern half of the property from 1940-1964. Newton Research Laboratories operated at the facility in 1945. Rex Metal Craft, Inc operated at the facility from at least 1950 to 1982. Sherman Carburetor Parts operated at the facility in 1985.

The facility was entered into the State Cleanup Program (SCP) in April 2019 when the IDEM sent the *Limited Subsurface Investigation* letter (April 8, 2019). Soil and groundwater samples collected at this facility have contained detections of trichloroethylene (TCE) and tetrachloroethylene (PCE). TCE and PCE have been detected at concentrations at or above Remediation Closure Guide (RCG) Screening Levels (SLs).

FIELD ACTIVITIES

Reports that have been prepared for the facility include: Phase I Environmental Site Assessment (ESA) (Environmental Forensics Investigation, Inc., January 26, 2017), Limited Site Investigation (LSI) [Polaris, Environmental, Inc. (Polaris), March 13, 2019], and Further Site Investigation (FSI) Report (Polaris, October 14, 2019). During these investigations a total of 21 soil borings, eight (8) temporary wells, and five (5) monitoring wells were installed on-Site. Borings ranged in depth from 8 to approximately 30 feet below grade (ft. bg.) Five monitoring wells were installed to approximately 25-28 ft. bg. with 10 feet of screen.

SUBSURFACE IMPACTS

A total of 21 soil borings have been completed at the facility, however soil samples were not collected from each boring (4 borings were not sampled). A total of 25 soil samples have been collected. Twenty-two (22) of the 25 soil samples collected contained detectable concentrations of chlorinated volatile organic compounds (cVOCs), specifically TCE and PCE. TCE and PCE-impacted soil exceeding the RCG Soil Migration to Groundwater (MTG) SLs has been detected as shallow as 0-2 ft. bg. (several locations) and as deep as 14-16 ft. bg. The highest PCE and

TCE concentrations were reported at 276 and 109 parts per million (ppm) in a soil sample collected from 6-8 ft bg. Groundwater samples collected at the facility have contained detectible concentrations of TCE and PCE. PCE has been detected in groundwater exceeding the RCG Residential Tap Water (RTW) SL and TCE has been detected in groundwater exceeding RCG Residential Vapor Intrusion to Ground Water Screening Level (VIGWSL). Groundwater samples were last collected in March 2020. The highest PCE and TCE concentrations in groundwater were reported in monitoring well, MW-2, at 20.1 and 21.4 parts per billion (PPB); respectively. To date all soil and groundwater samples collected on behalf of this facility have been collected on-Site. Investigations completed by others on adjacent properties indicate a likely comingled plume

CURRENT SITE STATUS

The IDEM requested 8 consecutive quarters of groundwater monitoring to demonstrate plume stability. Groundwater monitoring is on-going.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Patriot Engineering and Environmental Inc. *Site Investigation Report*, September 20, 2007. (Virtual File Cabinet (VFC) #80200755)
- Polaris Environmental, Inc. *Limited Subsurface Investigation*, March 13, 2019. (VFC #82721899)
- Polaris Environmental, Inc. *Further Site Investigation Work Plan,* July 17, 2019. (VFC #82822535)
- Polaris Environmental, Inc. *Further Site Investigation Report*, October 14, 2019. (VFC #82865970)
- Polaris Environmental, Inc. *4th Quarter 2019 and 1st Quarter 2020 Quarterly Monitoring Report*, April 17, 2020. (VFC #82951145)

Site Name: IU Parcel Kiger Riefer
Site Address: 1830 West 16th Street ("Site")
Corresponding Figure 6 Map Label ID: 31
State Program: State Cleanup Program (SCP)
Site Number: 0000804
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, August 21, 2019

SITE BACKGROUND

The Site presently services as a satellite building for Indiana University Purdue University Indianapolis (IUPUI) and has been associated with the University since at least 1985. The Site was previously identified as associated with the name "Kiger Riefer". Historic records identify "Kiger & Co" at the Site property from at least 1959 to 1980. No releases associated with the Site have been reported to the IDEM.

FIELD ACTIVITIES

A total of seven soil borings have been advanced at the Site in a single subsurface investigation conducted in November 2019. Soil borings were advanced to 30 ft. bg., or until groundwater was encountered. Seven temporary monitoring wells were installed at each boring location to a maximum depth of 30 ft. bg. Three vapor intrusion sampling events have been conducted within the Site building, associated with investigation of an adjacent property.

SUBSURFACE IMPACTS

Analytical results indicated the detection of a chlorinated volatile organic compound (cVOC), 1,1,1-trichloroethane (1,1,1-TCA) in one soil sample at a concentration of 0.011 parts per billion, below the IDEM Remediation Closure Guide (RCG) Migration to Groundwater (MTG) Screening Level (SL). In three other soil samples, tetrachloroethene (PCE) and/or trichloroethane (TCE) were detected at estimated concentrations below laboratory reporting limits and below IDEM RCG SLs. Soil samples were collected at a maximum depth of 29 ft. bg.

In groundwater collected from a temporary well, tetrachloroethene (PCE) was detected in one sample at a concentration of 14 parts per million, above the IDEM RCG Residential Tap Water (RTW) SL but below the IDEM RCG Residential Vapor Intrusion Ground Water (VIGW) SL. Keramida concluded that as no cVOCs were detected in the soil sample collected from this boring, that there is no on-Site source and impacts were believed to have originated off-Site. In three other groundwater samples, PCE and/or TCE was detected at estimated concentrations below laboratory reporting limits and below IDEM RCG SLs. Groundwater samples were collected from temporary wells with a five ft. screened interval generally from approximately 20 ft. bg. to 25 ft. bg.

CURRENT SITE STATUS

The IDEM reviewed Keramida's Site Investigation Report and requested a Further Site Investigation on April 21, 2020. The IDEM requested additional monitoring wells to determine Site-specific groundwater flow, evaluate seasonal fluctuations, and further assess potential risks.

Keramida responded in a July 15, 2020 letter that no further investigation of the Site was necessary due to the requested information already provided to the IDEM for adjacent properties. Additionally, it was noted that the building has been assessed for potential vapor intrusion three times as part of environmental activities at the neighboring property.

The IDEM reviewed Keramida's response and responded in an August 31, 2020 letter. The IDEM indicated that further investigation remains necessary to determine the source and magnitude of contamination at the Site and that the delineation of impacts is not complete. The IDEM noted that previous sampling was conducted near the perimeter of the property and the interior of the Site building was not addressed. IDEM stated that additional data was necessary before appropriate institutional controls could be established. Keramida scheduled field work in October 2020 and IDEM is currently awaiting the results of the investigation.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Keramida, Inc. Site Investigation, December 19, 2019. (VFC #82900653).
- Indiana Department of Environmental Management. Further Site Investigation Request, April 21, 2020. (VFC #83036074)
- Keramida, Inc. Response to IDEM Comments, July 15, 2020. (VFC #83008227)

Site Name: Flexdar, Inc.
Site Address: 1825 W. 18th Street ("Site")
Corresponding Figure 6 Map Label ID: 32
State Program: State Cleanup Program (SCP)
Site Number: 200404159
Indiana Department of Environmental Management (IDEM) Project Manager: Syed Jaffery
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Notice of Liability, April 26, 2004

SITE BACKGROUND

Although there have been multiple property owners, only three tenants have been identified at the Site: Dupont, Flexdar, Inc., and Oscar Munoz. Dupont occupied the property from 1955 to 1991 and used the building as a paint warehouse and automotive parts distribution center. Flexdar Inc. became the tenant of the Site circa 1994 and used trichloroethylene (TCE) and nitric acid in its operations as a rubber stamp and printing-plate manufacturer. The Site was purchased in 2005 by Oscar Munoz and is currently used as a distribution facility for Mexican food products.

The Site entered the IDEM State Cleanup Program (SCP) in 2004 after impacted media was identified during a Phase II Subsurface Investigation. The last submitted milestone document was a revised Interim Remediation Work Plan (RWP) II by Environmental Resources Management (ERM) (November, 2019).

FIELD ACTIVITIES

Multiple investigations and consultants {American Environmental Corporation, Troy Risk, Inc. (Troy Risk), Keramida Environmental, Inc. (Keramida), and ERM} have performed work at the Site and adjacent properties. Investigations have included on- and off-Site soil borings, hi-resolution membrane interface probe (MIP)/hydraulic profiling tool (HPT) investigations, monitoring well installation, vapor intrusion sampling, geochemical sampling, hydraulic conductivity testing, pump and treat system installation and operation (on-Site), and vapor mitigation systems installation (off-Site). Approximately 100 borings (20 of which were MIP/HPT) and 31 monitoring wells have been installed to delineate the nature and extent of contamination.

Troy Risk historically reported three hydrostratigraphic units: 1) shallow unsaturated soil and/or fill material to approximately 13 feet below grade (ft. bg.); 2) sand/sand & gravel/discontinuous loams between 13 and 22 ft. bg.; 3) and silt loam or clay loam from 22 to 40 ft. bg. Depth to water was typically between 10 and 17 ft. bg. ERM (2017) indicated that there was sufficient evidence to support a lateral continuity of a lower confining unit; although the IDEM did not concur due to insufficient information.

SUBSURFACE IMPACTS

Chlorinated volatile organic compounds (cVOCs) detected in soil include: TCE, cis-1,2-dichloroethylene (cis-1,2-DCE), trans-1,2-dichloroethylene (trans-1,2-DCE), and vinyl chloride (VC). TCE has been detected above the Excavation Direct Contract Screening Level (SL) and cis-1,2-DCE has been detected above the Soil Migration to Groundwater (MTG) SL. Shallow soil impacts are primarily beneath and to the west of the Site building with concentrations of TCE up to 1,600 parts per million (ppm). Troy Risk reports and the IDEM concurred in 2011 that soil impacts are horizontally and vertically delineated. Troy Risk reports that the TCE impacts appear to originate from a surface release near the center of the on-Site building.

Groundwater impacts are primarily in hydrostratigraphic unit 2 beneath the west side of the building migrating southeasterly in a long skinny plume that is presumed to terminate at the White River. Groundwater contaminants of concern (COCs) are primarily TCE, cis-1,2-DCE, and VC. Historically, the highest TCE concentrations detected in a groundwater samples collected from monitoring wells was 28,000 parts per billion (ppb) on-Site and 3,070 ppb off-Site. The IDEM concurred that the groundwater plume was horizontally delineated (2013) but vertical delineation was not confirmed. Troy Risk reported that none of the shallow Riverside Wellfield production wells (wells screened less than 80 ft. bg.) are within the delineated extents of the TCE plume. The most recent groundwater data (December 2017) showed the highest TCE concentration (657 ppb) was reported in an off-Site monitoring screened from 12 to 22 ft bg.

A groundwater pump and treat system was installed and began operation in 2008 and was shutoff circa 2012 due to instrument failure caused by groundwater mineralization. The consultant determined even with repairs and maintenance the current system would not meet the necessary pump rate to hydraulically control the groundwater plume Due to cost of repairs, maintenance, and expanding the system, the pump and treat option was no longer retained. Vapor intrusion investigations were performed and vapor mitigation systems were installed on various adjacent properties as part of remedial efforts.

CURRENT SITE STATUS

The submitted RWP in 2019 proposed installation of a permeable reactive barrier using Regenesis' PlumeStop® supplemented with HRC and Bio-Dechlor Inoculum to treat off-Site groundwater and proposed shallow excavation with emulsified zero valent iron in-situ chemical reduction to treat on-Site soil and groundwater impacts. IDEM generally accepted the proposed remedial technologies; however, requested additional information be submitted prior to implementation.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Keramida Environmental, Inc. *Investigation Report*, April 19, 2005. (Virtual File Cabinet (VFC) #45321866)
- Keramida Environmental, Inc. *Former Flexdar Inc. Site Status*, August 11, 2005. (VFC #45002999)

- Bose McKinney & Evans LLP. *Former Flexdar Facility Site Status Letter,* February 13, 2006. (VFC #45003510)
- Troy Risk Inc. *Former Flexdar Inc Facility Subsurface Report,* January 3, 2007. (VFC #45000015)
- Troy Risk Inc. *Subsurface Investigation Report*, March 31, 2008. (VFC #30794471)
- Troy Risk Inc. *Vapor Intrusion Investigation and Mitigation System Installation Report*, February 23, 2009. (VFC #43905924)
- Troy Risk Inc. *Subsurface Investigation Report #3,* June 14, 2010. (VFC #56260846)
- Troy Risk Inc. *Aquifer Pump Test Report,* November 16, 2012. (VFC #67798213)
- Troy Risk Inc. *Downgradient Vapor Intrusion Investigation Report*, November 27, 2013. (VFC #69268613)
- Troy Risk Inc. *Vapor Mitigation System Installation Report – Whitley's Furniture Building,* December 16, 2013. (VFC #69371642)
- Environmental Resources Management. *Project Update Report*, July 17, 2015. (VFC #80091094)
- Environmental Resources Management. *Results of Vapor Intrusion Sampling*, March 4, 2016. (VFC #80243230)
- Environmental Resources Management. *Groundwater Monitoring Report*, February 22, 2017. (VFC #80426749)
- Environmental Resources Management. *Results of Vapor Mitigation System Performance Monitoring,* April 5, 2017. (VFC #80443603)
- Environmental Resources Management. *Indoor Vapor Sampling Results*, April 14, 2017. (VFC #80464157)
- Environmental Resources Management. *Vapor Mitigation System Confirmation Results,* April 27, 2017. (VFC #80460185)
- Environmental Resources Management. *Further Site Investigation #5,* November 2, 2017. (VFC #80552507)
- Environmental Resources Management. *Interim Remediation Work Plan for Off-Site Groundwater,* March 5, 2018. (VFC #80625813)
- Environmental Resources Management. *Former Ada's Place Supplemental Vapor Intrusion Investigation Report,* December 17, 2018. (VFC #82665062)
- Environmental Resources Management. *Results of Vapor Mitigation System Performance Monitoring,* July 9, 2019. (VFC #82807288)
- Environmental Resources Management. *Transmittal of Indoor Air Sample Results*, September 25, 2019. (VFC #82843150)
- Environmental Resources Management. *Reply to Comment 23 April 2019 Letter and Submittal of Interim Remediation Work Plan – II,* November 22, 2019. (VFC #82868974)

Site Name: Central Soya / Bunge North America
Site Address: 1160 W. 18th Street ("Site")
Corresponding Figure 6 Map Label ID: 33
State Program: Currently In State Cleanup
Site Number: 0000635 (general site # for Site 0153) & 0000963
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, June 12, 2017

SITE BACKGROUND

Several addresses are associated with the Bunge North America property, including (but not necessarily limited to): 1102 W. 18th Street, 1159 W. 18th Street, 1160 W. 18th Street, and 1870 Montcalm Street.

Noteworthy historic operations and features found on 1898, 1915, and 1956 Sanborn Fire Insurance maps and a 1941 Baist map (available at maps.indy.gov) associated with the property include:

- American Hominy Co. – oil plant, machine shop, grain elevator, coolers, reservoir
- Gillette – Bent Wood Working
- The Pecoto Packing Co. (portion of this facility was on-Site) – canning room, powerhouse
- Standard Cereals Inc. (manufactured corn products) – machine & oil warehouse, two grain elevators, boiler house
- Auto Warehouse (portion of this facility was on-Site)
- Mach'y warehouse
- Reconstruction Finance Corp.
- Central Soya Company

According to the RFI response (Virtual File Cabinet (VFC) #80506436), Central Soya Company, Inc. (Central Soya) purchased the property in 1960 after leasing the property for a few years, and at the time it was purchased the property included, among other activities, a soybean processing plant. The property contained a vegetable (soybean) oil processing plant, feed mill, elevator, power plant, main office, and two maintenance shops. The vegetable oil processing plant was demolished by October 1996, and the feed mill, office, feed warehouse, and boiler-house were demolished by January 1998. Review of a 1956 Sanborn Fire Insurance map indicates Central Soya was present as early as 1956. Bunge North America (East), Limited Liability Company (L.L.C.) (Bunge), an agribusiness and food ingredient company, is the successor in interest to Central Soya. Since Bunge became the owner of the property in 2003, the business conducted on the property has been as a grain handling facility. The facility currently has the following features: an elevator head house, maintenance shop, a soybean bushel storage building, soybean oil storage, and bins that contain grain (primarily soybeans). Bunge states in the RFI response that no use, purchase, generation, storage, treatment, disposal, or handling of tetrachloroethylene (PCE) or trichloroethylene (TCE) has occurred at the property since 2003.

An Underground Storage Tank (UST) Closure Report dated May 20, 1995 (VFC #21239024) indicates that Central Soya purchased the property from Glidden Paints in 1961. The response to RFI states that "Glidden Company owned and operated the property starting in the early 1940s. Central Soya purchased Glidden Company's Chemurgy Division in 1961, following a three-year lease that started in 1958".

According to the RFI response, environmental audits in 1988 and 1993 indicated the facility's maintenance shop and boiler area generated approximately 33 gallons per month of spent degreasing solvent. It was clarified in the response that these documents contained no reference to the spent solvents containing PCE or TCE. According to a February 12, 1986 IDEM Office Memorandum (VFC #33124754), "The only hazardous waste found on-Site was mineral spirits used for degreasing in the maintenance shop." Hazardous waste manifests from 1991 to 1995, available on the VFC, include disposal of petroleum naphtha, hexane, mineral spirits, and isopropanol.

A Marion County Health Department letter dated March 15, 1995 (VFC #52213945) mentions a former solvent extraction building, however, this is likely referring to the soybean oil extraction processing facility that utilized hexane as a solvent.

The facility does not have any incidents actively managed by a remedial program at the IDEM.

FIELD ACTIVITIES

No soil or groundwater samples have been collected at the Site for chlorinated volatile organic compound (cVOC) analysis.

SUBSURFACE IMPACTS

No soil or groundwater samples have been collected at the Site for cVOC analysis.

CURRENT SITE STATUS

IDEM collected three soil borings and four grab groundwater samples on November 4, 2020. Pending the results of this investigation, if results indicate that a release of cVOCs has occurred on the property, the Potential Responsible Party (PRP) will be ordered to conduct further investigation and remediation, as needed. Results of the investigation and any future requirements resulting from this investigation will be filed in the VFC under Site #0000963.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

No Investigation or Remediation Reports have been submitted in regard to cVOC impacts. IDEM will be conducting an investigation to address data gaps and determine whether the Site needs to be enrolled in a State program.

Site Name: Clarian Health Partners Methodist Hospital
Site Address: 1701 N. Senate Avenue ("Site")
Corresponding Figure 6 Map Label ID: 37
State Program: State Cleanup Program (SCP)
Site Number: 0000804
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: Medium
Request for Information (RFI) or Notice of Liability (NOL): RFI was issued Virtual File Cabinet (VFC)#82962942

SITE BACKGROUND

According to an Industrial/Hazardous Waste Inspection Report dated March 21, 2014 (VFC #70164986), this facility commenced operations as a Methodist Hospital in 1908. Review of an 1898 Sanborn map indicates a hospital was present as early as 1898 in the southeast portion of the hospital campus. The hospital is presently known as Indiana University Health Methodist Hospital. The hospital campus encompasses 38 acres and includes several outbuildings. The general address for Indiana University Health Methodist Hospital is 1701 N. Senate Avenue, but several other addresses are associated with this large hospital campus. In 1898 the hospital operations covered a much smaller area than the current campus and several other structures/businesses were once present on the current hospital campus. Noteworthy operations found on the 1898 and 1915 Sanborn maps (available at maps.indy.gov) include:

- Hospital
- Indianapolis Light Artillery Co.
- Capitol Steam Carpet Cleaners Works
- Columbit School Supplies Co
- Rail road
- Paint spray booth
- Laundry
- Filling Station
- Machine shop
- Indiana Naval Warehouse
- Flash Petroleum Corp.
- Mid-State Products Co.
- Gas Station
- Auto Repair

The facility does not have any open incidents currently managed by a remedial program at the IDEM.

FIELD ACTIVITIES

Investigations to date conducted for this facility have been for petroleum constituents. However, the most recent investigation associated with SCP #2013-39553 and Leaking Underground Storage Tank (LUST) #201503511, did include analysis of volatile organic compounds (VOCs) in soil and groundwater. During this investigation four soil borings and four temporary wells were installed in the vicinity of a former underground storage tank (UST) located on the south-central portion of the hospital campus. Temporary wells were screened 30-40 feet below grade (ft. bg.)

A Phase II Environmental Investigations report was prepared by Keramida Environmental, Inc. (Keramida) for the City of Indianapolis in 1997 (VFC #22322738). The Phase II included two borings installed in the right of ways, which happen to be in the downgradient direction (across Interstate 65) from the hospital campus. These borings were installed to approximately 58 ft. bg. and included collection of grab groundwater samples from 29 ft. bg., 38-40 ft. bg., 48-50 ft. bg., and 56-58 ft. bg.

SUBSURFACE IMPACTS

Soil and groundwater samples collected from the four on-Site soil borings were non-detect for VOCs; however, the groundwater samples collected from the two soil borings installed in the downgradient direction of the hospital campus (across Interstate 65 right of way) contained high levels of trichloroethylene (TCE) in all the samples. Groundwater samples ranged in depth from 29 ft. bg. to 58 ft. bg. TCE concentrations ranged from 22 parts per billion (ppb) to 180 ppb. Generally, TCE concentrations increased with depth.

CURRENT SITE STATUS

A Phase II Investigation was completed on October 1, 2020 (VFC #83056487). This investigation included advancing 11 soil borings 30-35 ft bgs along the western side of the hospital campus between 16th and 21st Street. Samples from boring SB-1 and SB-2 (near the north end of the complex) contained PCE in groundwater at 48.3 and 13.3 ppb, respectively. IDEM will be requesting additional investigation and the installation of permanent monitoring wells.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Alt & Witzig Engineering, Inc. *Soil Analysis*, October 7, 1991. (VFC #23403987)
- Cripe. *Clarian UST Tank Results*, November 11, 2000.
- Cripe. *Phase II Environmental Assessment – Petroleum Hydrocarbons Investigation*, December 7, 2000. (VFC #23403996)
- Cripe. *Clarian UST Update Report - Additional Information,* December 15, 2000. (VFC #23404142)
- Cripe. *LUST Removal and Cleanup Report,* August 1, 2001. (VFC #23404068)
- Cripe. *Hydrocarbons Investigation Report*, August 8, 2001. (VFC #23404035)
- Cripe. *Clarian UST Additional Information Report,* August 17, 2001. (VFC #23404059)
- Active Environmental Services, Inc. *Underground Storage Tank Closure Report*, August 23, 2013. (VFC #68824586)
- Active Environmental Services, Inc. *Independent closure Process Report*, December 13, 2013. (VFC #69605928)
- Active Environmental Services, Inc. *Underground Storage Tank Closure Checklist Response,* May 14, 2014. (VFC #70355541)

Site Name: Disc Graphics Inc.
Site Address: 1160 W. 16th Street ("Site")
Corresponding Figure 6 Map Label ID: 38
State Program: State Cleanup Program (SCP)
Site Number: Brownfields #4030010 (Comfort Letter issued), SCP #0000676
Indiana Department of Environmental Management (IDEM) Project Manager: Anne Weinkauf
IDEM Priority Rating: Low
Request for Information (RFI) or Notice of Liability (NOL): None to Date

SITE SUMMARY

The Site, located at 1160 W. 16th Street, appears to consist of three parcels, which were once owned and operated separately. A Phase I Environmental Site Assessment (ESA) provided information on historical ownership and operation of the property. Historical operations of the property included various uses such as restaurants (late 1940s and again in the early 1970s), a vehicle sales facility (late 1940s until the mid-1960s), an electrical supply distribution warehouse (1940s to the 1980s), a gas station (early 1950s to late 1960s), a glass company (mid 1960s until the early 1970s), and two printing companies (1974 to 2001), including Disc Graphics, Inc. (1997 to 2001). For an undetermined time after 2001, the main parcel was leased to Deering Cleaners Restoration for laundry operations, which according to the Phase I ESA, involved the use of commercial washing machines and clothes dryers, similar to those used in laundromats. According to an IDEM Violation Letter dated June 3, 2011, Awning Partners Sign Group, which manufactured awnings, was operating at the property in May 2011. According to property cards, West 16th Street Phoenix LLC is the current owner of the property.

A Phase II conducted by August Mack Environmental, Inc. (AME), which included 13 soil borings to a maximum depth of 20 feet below grade (ft. bg.), 10 temporary monitoring wells, and three monitoring wells, was conducted in 2002 to investigate the former petroleum sources. During the Phase II, chlorinated solvents were discovered beneath the property. Specifically, tetrachloroethylene (PCE) and trichloroethylene (TCE) were detected above closure levels and associated daughter products were detected below closure levels. The Phase II concluded the source of chlorinated volatile organic compounds (cVOCs) was from an off-Site upgradient source.

After the discovery of chlorinated solvents, the Site owner (then Disc Graphics, Inc.) applied for a Comfort Letter from the IDEM Brownfields Program. The IDEM requested additional investigation to confirm the property was not the source of the chlorinated solvents, prior to issuance of a Comfort Letter. An FSI was conducted in 2003 by AME, during which shallow soil samples for volatile organic compound (VOC) analysis were collected from eight previously drilled boring locations and four new upgradient borings were installed to investigate a potential off-Site source. Results of the FSI indicated low concentrations of PCE and TCE (well below IDEM cleanup criteria) were detected in three shallow soil samples collected in the northeast portion of the Site (most upgradient portion of the property). The FSI concluded the cVOC impacts were from an off-Site upgradient source.

The IDEM issued a Comfort Letter to Disc Graphics, Inc. dated August 5, 2004 (Virtual File Cabinet (VFC) #38734583) in which the IDEM concluded that chlorinated solvents found in the groundwater at the Site are emanating from an off-Site source, probably to the northeast of the Site. The IDEM further concluded that the detections of TCE and PCE at low levels in the soil along the northeast border could be the result of vapor migration from the contaminated groundwater plume and deeper impacted soil beneath the Site and/or the result of some spillage on the surface that migrated to the property. The Comfort Letter states that the IDEM has decided to exercise its enforcement discretion to forego pursuit of Disc Graphics, Inc. or any successor owners and operators for response costs relating to the past release of chlorinated contaminants from the adjacent property. The Comfort Letter discouraged the use of the groundwater at the property for any purpose and prohibited installation or use of drinking water wells at the Site. The IDEM also recommended vapor intrusion into on-Site structures be investigated and addressed (if necessary) prior to any planned use of the property.

The Comfort Letter, along with an Environmental Restrictive Covenant (ERC), restricting the installation and use of drinking water wells on the Site, were recorded on the property deed in August 2005 (VFC #38734645). A Memorandum (VFC #38734645), also recorded in the Marion County Recorder's Office, describes investigation and mitigation activities completed at the Site regarding vapor intrusion. In short, cVOC contaminants were detected in the sub-slab and indoor air samples, therefore, the on-Site building floor and drains were sealed. Post mitigation air samples showed a significant reduction in constituent concentrations, described as below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits in the Memorandum.

On behalf of the adjacent property to the north (suspected source of the cVOCs in the AME investigations), Patriot Engineering and Environmental, Inc. (Patriot) conducted an independent investigation on the subject Site in February 2005. Patriot's investigation is documented in a Site Investigation Report dated March 24, 2005. During their investigation, 2 hand auger soil borings and 13 direct push borings were installed throughout the on-Site building. Shallow soil samples from nine boring locations contained low levels of cVOCs below IDEM cleanup criteria. Patriot concluded that not all sources of cVOCs has been determined and it appears sources of cVOC beneath Disc Graphics is contributing to the cVOC groundwater impacts.

In an October 13, 2017 letter (VFC #80538993), the IDEM requested Disc Graphics or the current owner of the property to implement additional investigation of potential sources of chlorinated solvents on the Site. In response, the Site Investigation Report (Patriot, 2005) was submitted to the IDEM for review. In an internal IDEM email (VFC # 82543260), the IDEM determined that based on the data submitted, the concentrations of PCE and TCE do not indicate a soil source for groundwater contamination and based on the lack of a soil source and clear gradient of cVOCs over the last 10 years (data from adjacent property investigation) makes the Site an unlikely source of contamination

CURRENT SITE STATUS

The IDEM concluded no further investigation was warranted unless new information becomes available or conditions change.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Keramida Environmental, Inc. *Underground Storage Tank Closure Report,* August 15, 1997. (VFC # 14843257, pages 123-833)
- August Mack Environmental, Inc. *Phase II Investigation,* November 8, 2002. (VFC #14843101)
- August Mack Environmental, Inc. *Phase I Environmental Site Assessment,* December 2, 2002. (VFC # 14842602)
- August Mack Environmental, Inc. *Further Site Investigation & Soil Excavation and Disposal,* December 11, 2003. (VFC #14842842)
- Bose McKinney & Evans LLP. *Brownfield Comfort Letter Request*, January 6, 2004. (VFC #38734583)
- Patriot Engineering and Environmental, Inc. *Site Investigation Report,* March 24, 2005. (VFC #82534583)
- Bose McKinney & Evans Limited Liability Practice (LLP). *Environmental Restrictive Covenant,* September 23, 2005. (VFC #38734645)

Site Name: Madame Walker Urban Life Center / Former Raymond Baird Cleaners
Site Address: 617-625 Indiana Avenue ("Site")
Corresponding Figure 6 Map Label ID: 39
State Program: State Cleanup Program (SCP)
Site Number: 0000734
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: Low
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, September 29, 2017; Notice of Liability and Information Request, February 16, 2018

SITE SUMMARY

Raymond Baird Cleaners operated at 625 Indiana Avenue from approximately 1941 to 1986. Circa 1958, Raymond Baird Cleaners used the address of 628 North West Avenue rather than 625 Indiana Avenue. Historical records also indicated that Madame Walker products were manufactured at 617 Indiana Avenue.

In response to historic dry-cleaning operations at the property, the IDEM requested information about the Site, in an Information Request Letter dated September 29, 2017 and a response was submitted to the IDEM on November 27, 2017. The Site was entered into the State Cleanup Program (SCP) in February 2018 when the IDEM sent a *Notice of Liability and Information Request* letter dated February 16, 2018.

An Initial Site Investigation was conducted at the Site and a total of eight soil borings were advanced. Two soil samples and a grab groundwater sample were collected from each boring. None of the samples collected contained any detectable chlorinated volatile organic compound (cVOC) concentrations.

CURRENT SITE STATUS

In a letter dated August 9, 2019 (Virtual File Cabinet (VFC) #82823997), the IDEM determined that the property was not a source of contamination, nor was there significant contamination moving across the property from other sources. In addition, the IDEM concluded that based on the information presently available, the 617-625 Indiana Avenue property did not appear to be contributing to the cVOC contamination detected in the groundwater or in Citizens water production wells.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Enviro-Forensics. *Initial Site Investigation Report,* August 2, 2018. (VFC #82669685)

Site Name: Former Willis Mortuary
Site Address: 632 Dr. Martin Luther King Jr. Street ("Site")
Corresponding Figure 6 Map Label ID: 40
State Program: State Cleanup Program (SCP)
Site Number: 0000724
Indiana Department of Environmental Management (IDEM) Project Manager: Haley Faulds
IDEM Priority Rating: Low
Request for Information (RFI) or Notice of Liability (NOL): Request for Information, September 29, 2017 and April 12, 2018

SITE SUMMARY

The Site was first developed as Willis Mortuary in 1914 and continued operation until the late 2000s. In the 1980s, North West Street was renamed Dr. Martin Luther King Jr. Street. A Phase I Environmental Site Assessment (ESA) identified a dry cleaner historically connected to the property.

The IDEM requested information about the Site from two different parties via Information Request Letters dated September 29, 2017 and April 12, 2018. A response to the September 29, 2017 letter, which included a Phase I ESA Report and a Phase II ESA Report, was submitted to the IDEM on October 27, 2017. In response to the April 12, 2018 letter, the IDEM conducted an in-home interview with the former owner/operator of the Willis Mortuary on May 1, 2018 to discuss operating procedures, previous sampling, and adjacent properties. The interview is summarized in a letter dated May 11, 2018. The IDEM provided comments on the Phase I/II reports in a letter dated August 28, 2018, which identified data gaps in the reports and requested additional investigation at the Site. A Further Site Investigation (FSI) was performed at the Site and a FSI report, dated October 2, 2019, was submitted for the Site.

During the Phase II and FSI investigations, a total of five soil borings were completed. Three borings were completed to 20 feet below grade (ft. bg.) and two borings were completed to 40 ft. bg. A total of five soil samples and four grab groundwater samples were collected during the two investigations. None of the samples collected contained any detectable chlorinated volatile organic compound (cVOC) concentrations.

CURRENT SITE STATUS

In a letter dated November 6, 2019 (Virtual File Cabinet (VFC) #82860181), the IDEM determined that the Site did not appear to be a source of groundwater contamination and could be closed out. In addition, the IDEM concluded that based on the information available, the Site did not appear to be contributing to the cVOC contamination detected in the groundwater and in Citizens water production wells.

INVESTIGATION OR REMEDIATION REPORTS SUBMITTED TO IDEM

- Alt & Witzig Consulting Services. *Phase I Environmental Site Assessment*, August 22, 2014. (VFC #80597033)
- Alt & Witzig Consulting Services. *Phase II Environmental Site Assessment*, September 19, 2014. (VFC #80597033, pages 176-242)
- Alt & Witzig Consulting Services. *Further Site Investigation,* October 2, 2019. (VFC #82851124)

APPENDIX E

Marion County Endangered, Threatened, or Rare Species Search Results and Wetlands Map

Indiana County Endangered, Threatened and Rare Species List

County: Marion

Species Name	Common Name	FED	STATE	GRANK	SRANK
Mollusk: Bivalvia (Mussels)					
Cyprogenia stegaria	Eastern Fanshell Pearlymussel	LE	SE	G1Q	S1
Epioblasma obliquata perobliqua	White catspaw	LE	SE	G1T1	SX
Epioblasma rangiana	Northern Riffleshell	LE	SE	G2	S1
Epioblasma triquetra	Snuffbox	LE	SE	G3	S1
Fusconaia subrotunda	Longsolid	C	SX	G3	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Obovaria subrotunda	Round Hickorynut	C	SE	G4	S1
Plethobasus cicatricosus	White Wartyback	LE	SX	G1	SX
Plethobasus cooperianus	Orangefoot Pimpleback	LE	SX	G1	SX
Plethobasus cyphyus	Sheepnose	LE	SE	G3	S1
Pleurobema clava	Clubshell	LE	SE	G1G2	S1
Pleurobema plenum	Rough Pigtoe	LE	SE	G1	S1
Pleurobema rubrum	Pyramid Pigtoe		SX	G2G3	SX
Ptychobranchus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	LT	SE	G3G4T3	S1
Toxolasma lividus	Purple Lilliput	C	SSC	G3Q	S2
Venustaconcha ellipsiformis	Ellipse		SSC	G4	S2
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
Insect: Hymenoptera					
Bombus affinis	Rusty-patched Bumble Bee	LE	SE	G1	S1
Insect: Lepidoptera (Butterflies & Moths)					
Hyperaeschra georgica	A Prominent Moth			G5	S2
Insect: Neuroptera					
Sisyra sp. 1	Indiana Spongilla Fly		ST	GNR	S2
Fish					
Percina evides	Gilt Darter		SE	G4	S1
Amphibian					
Necturus maculosus	Common mudpuppy		SSC	G5	S2
Reptile					
Clemmys guttata	Spotted Turtle	C	SE	G5	S2
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
Emydoidea blandingii	Blanding's Turtle	C	SE	G4	S2
Thamnophis butleri	Butler's Garter Snake		SE	G4	S1
Bird					
Aimophila aestivalis	Bachman's Sparrow			G3	SXB
Ardea alba	Great Egret		SSC	G5	S1B
Bartramia longicauda	Upland Sandpiper		SE	G5	S3B
Botaurus lentiginosus	American Bittern		SE	G5	S2B

Indiana Natural Heritage Data Center
Division of Nature Preserves
Indiana Department of Natural Resources
This data is not the result of comprehensive county surveys.

Fed: LE = Endangered; LT = Threatened; C = candidate; PDL = proposed for delisting

State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list

GRANK: Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank

SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

Indiana County Endangered, Threatened and Rare Species List

County: Marion

Species Name	Common Name	FED	STATE	GRANK	SRANK
Buteo platypterus	Broad-winged Hawk		SSC	G5	S3B
Certhia americana	Brown Creeper			G5	S2B
Chordeiles minor	Common Nighthawk		SSC	G5	S4B
Falco peregrinus	Peregrine Falcon		SSC	G4	S2B
Haliaeetus leucocephalus	Bald Eagle		SSC	G5	S2
Helmitheros vermivorus	Worm-eating Warbler		SSC	G5	S3B
Ixobrychus exilis	Least Bittern		SE	G5	S3B
Lanius ludovicianus	Loggerhead Shrike		SE	G4	S3B
Mniotilta varia	Black-and-white Warbler		SSC	G5	S1S2B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Pandion haliaetus	Osprey		SSC	G5	S1B
Rallus elegans	King Rail		SE	G4	S1B
Setophaga cerulea	Cerulean Warbler		SE	G4	S3B
Setophaga citrina	Hooded Warbler		SSC	G5	S3B
Sitta canadensis	Red-breasted Nuthatch			G5	S1B
Mammal					
Lasiurus borealis	Eastern Red Bat		SSC	G3G4	S4
Myotis lucifugus	Little Brown Bat	C	SE	G3	S2
Myotis septentrionalis	Northern Long Eared Bat	LT	SE	G1G2	S2S3
Myotis sodalis	Indiana Bat	LE	SE	G2	S1
Taxidea taxus	American Badger		SSC	G5	S2
Vascular Plant					
Chelone obliqua var. speciosa	Rose Turtlehead		WL	G4T3	S3
Deschampsia cespitosa	Tufted Hairgrass		SR	G5	S3
Hydrastis canadensis	Golden Seal		WL	G3G4	S3
Juglans cinerea	Butternut		ST	G4	S2
Melanthium virginicum	Virginia Bunchflower		SE	G5	S1
Panax quinquefolius	American Ginseng		WL	G3G4	S3
Poa wolfii	Wolf Bluegrass		SR	G4	S3
Rubus odoratus	Purple Flowering Raspberry		ST	G5	S2
Trifolium stoloniferum	Running Buffalo Clover	LE	SE	G3	S1
High Quality Natural Community					
Forest - flatwoods central till plain	Central Till Plain Flatwoods		SG	G3	S2
Forest - floodplain mesic	Mesic Floodplain Forest		SG	G3?	S1
Forest - floodplain wet	Wet Floodplain Forest		SG	G3?	S3
Forest - floodplain wet-mesic	Wet-mesic Floodplain Forest		SG	G3?	S3
Forest - upland dry-mesic Central Till Plain	Central Till Plain Dry-mesic Upland Forest		SG	GNR	S2
Forest - upland mesic Central Till Plain	Central Till Plain Mesic Upland Forest		SG	GNR	S3

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Indiana County Endangered, Threatened and Rare Species List

County: Marion

Species Name	Common Name	FED	STATE	GRANK	SRANK
Wetland - fen	Fen		SG	G3	S3
Wetland - marsh	Marsh		SG	GU	S4

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U.S. Fish and Wildlife Service

National Wetlands Inventory

Site 0153 - Wetlands Map

April 15, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.